

ISSUE BRIEF

**Quality of Child Health Care: Expanding the Scope and Flexibility
of Measurement Approaches**

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ABSTRACT: Quality measurement can inform and encourage improvement in child health care. Currently, most measures gauge only whether care is received (e.g., receipt of a well-child care visit), providing little information about the actual content of care. We propose a measurement framework for comprehensive well-child care to capture a richer view of children's health care and take a more efficient approach to data collection. To promote measurement development, it will be necessary to: 1) align new measures with existing reporting requirements; 2) manage the burden of data collection; 3) weigh the evidence base; 4) consider adding new types of content; 5) develop clear but flexible measure specifications; and 6) consider children's enrollment patterns in Medicaid and the Children's Health Insurance Program. It will also be important to seek opportunities for eliciting families' views on the quality of well-child care.

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Dr. Schor is editor of the book *Caring for Your School-Age Child*, and has chaired both the Committee on Early Childhood, Adoption and Dependent care and the national Task Force on the Family for the American Academy of Pediatrics. He also serves on the Maternal and Child Health Bureau Child Health Survey Technical Panel, consulted for the National Center for Infancy and Early Childhood Health Policy, and co-chaired the IHCI/National Initiative for Children's Healthcare Quality on the topic of improving health care for children in foster care. He received the 2006 John C. MacQueen Award from the Association of Maternal and Child Health Programs. Dr. Schor has been a member of the faculties of several major university medical schools and schools of public health. He has also served on the editorial boards of a number of pediatric journals.

BACKGROUND

Defining Child Health and Well-Child Care

Children are the future. To measure whether our health care system is working to improve children's outcomes in the future, a shared understanding of children's health and the goals of health care for children is important. In 2004, the Institute of Medicine (IOM) defined children's health as

“the extent to which an individual child or groups of children are able or enabled to: a) develop and realize their potential; b) satisfy their needs; and c) develop the capacities that allow them to interact successfully with their biological, physical, and social environments.”¹

This definition suggests a future-oriented and broad role for the health care system to support children's health. McCormick argues that, in the context of IOM's child health definition, well-child care should be reframed to focus on optimizing health with a broader range of outcomes.² She states that care should be focused not only on dealing with near-term preventive and treatment services but specifically calls out the importance of care that anticipates the needs of the developmental trajectory into healthy adulthood.

Thus, the primary purpose of health care for children is to help children grow and develop into healthy adults.³ In seminal work redefining the scope of well-child care, pediatric leaders identified the following essential components: health supervision, developmental surveillance, psychosocial assessment, immunizations, coordination of care, and other screening.⁴ Health supervision encounters with children involve promoting healthy child development. For most children, the focus should be on prevention and encouraging healthy growth and development.⁵ Understanding child development and the application of its principles sets the care of children apart from that of adults. Developmental surveillance and screening of children and adolescents is a continuous and cumulative process that is used to ensure optimal health outcomes.

This orientation toward a greater focus on developmental and behavioral issues resonates with parents' views. In a recent study, parents ranked immunizations, growth and development issues, and the opportunity to discuss behavior or other concerns as the most valuable aspects of well-child care. Parents requested more information on topics that relate to child development and behavior, including how to help their child learn

healthy eating habits (55%), how to help their child do well in school (53%), and how to keep their child safe outside of their homes (49%).⁶

Current State of Quality of Children's Health Care

Despite consensus on the importance of a broad view of well-child care, there is clear evidence that preventive care is getting short shrift in the health care system. According to a study by RAND, deficits in the delivery of indicated care to children are similar in magnitude to those previously reported for adults.⁷ On average, according to data compiled through medical record abstraction, children received 46.5% of indicated care as compared to adults who receive 54.9% of indicated care. Performance on preventive care was lower than other aspects of care with children receiving only 40.7% of indicated preventive care, compared to 67.6% for acute medical problems, and 53.4% for chronic medical conditions. Children received only 38.3% of recommended well-care, with adolescents receiving only 34.5%. Parent surveys also show deficits in the care children receive. Data from the National Survey of Early Childhood Health found that the average proportion of parents who reported discussing recommended topics with their health care provider was 44.7% for anticipatory guidance, 13.9% for family assessment, and 50% for personal use of tobacco, drugs and alcohol.⁸ In addition, most parents reported that their child's doctor did not address their concerns in at least one area related to parenting, education, or screening.⁹

Developmental screening for children is another example of the type of care that is not consistently provided. One in six American children (17%) have a developmental or behavioral disability such as autism, mental retardation, and Attention-Deficit/Hyperactivity Disorder (ADHD), and many have delays in language or other areas that affect their readiness for school.¹⁰ However, less than 50% of children with delays are identified as having a problem before starting school, by which time significant delays may have already occurred and opportunities for treatment have been missed. There is good evidence that the use of standardized screening tools such as the Ages and Stages Questionnaire aid significantly in identifying children with delays.¹¹ The American Academy of Pediatrics recommends screening using standardized tests at several points in the second and third year.¹² Nevertheless, the use of standardized developmental screening tools is uncommon; only about 20 percent of physicians routinely use developmental screening tests.¹³ One study found that 67.5% of children with delays were not detected by pediatricians.¹⁴

Factors that Influence the Quality of Care for Children

Problems in the quality of care affect poor children more acutely, and factors related to health policy and practice structure are also important. Comparisons of quality have consistently shown poorer performance among Medicaid plans than among commercial plans.^{15,16} This is true even within plans that have both Medicaid and commercial products.¹⁵ In addition, few low-income children receive recommended preventive and developmental services.¹⁷

The 2008 report by the Commonwealth Fund, *U.S. Variations in Child Health System Performance: A State Scorecard*, showed strong regional patterns in child health system performance.¹⁸ For example, the percent of individuals age 19 to 35 with up-to-date immunizations ranged from 67.8% in Arkansas to 93.5% in Massachusetts. States with greater access to health care coverage had higher performance on quality measures. Other research has found that physician reimbursement rates (which also vary by state) influenced immunization and well-visit rates for infants, children, and adolescents.¹⁹

The availability of systems to support high quality care also influences performance rates. A study of private practices in North Carolina found that performance on preventive services indicators varied across practices; the proportion of children who received 3 out of 4 recommended services (immunizations and screening for lead, anemia and tuberculosis) ranged from 2% to 88%.²⁰ Few practices used systematic approaches to prevention such as assigned staff responsibilities for preventive care, a system for tracking preventive services, quality measurement and reminders for clinicians.

Nonetheless, improvement is possible. Among managed care plans reporting performance data to the National Committee for Quality Assurance (NCQA), the childhood immunization rate increased from 58.5% to 72.2% between 2003 and 2007 among Medicaid plans and from 69.8% to 80.8% among commercial plans. Efforts to improve performance, particularly by instituting systematic processes, quality improvement methods, health information technology, and the medical home model, have had success. System-based interventions such as the ABCD program and Healthy Steps have shown marked improvement in developmental screening.^{13,21} The implementation of electronic medical records with protocols and reminders for well-care has resulted in improvements in preventive care, particularly for behavioral/social milestones and anticipatory guidance.²²

II. MEASUREMENT OF QUALITY FOR CHILDREN'S HEALTH CARE

Performance measurement is a powerful tool to drive improvements in the quality of care that could be enacted at the provider, health plan, health system, or state levels. However, a number of issues make the measurement of children's health care quality different and more challenging than measuring adult care. These include: 1) the unique aspects of childhood, such children's rapid growth and development, their greater likelihood of being in poverty, and dependence on their families;²³ 2) the reliance on consensus recommendations because of the dearth of randomized controlled trials available to inform what constitutes quality child health care, 3) lack of public and private sector demand for measurement and 4) challenges in implementing measures that would be feasible and provide meaningful information. The most widely used measures of child health care depend on administrative data and track the number of well-child visits and immunizations received. Although this is a feasible approach, it limits the aspects of care that can be assessed.

Evidence for Quality

A related concern is the availability of evidence to guide quality measurement in child health. Few child health studies use the strongest research designs such as randomized controlled trials.²⁴ The US Preventive Services Task Force has released only 17 recommendations focused on child health (Table 1). Of the 17, nine conclude the evidence for or against the clinical preventive service is insufficient to make a recommendation.

Instead, guidelines for children's health care tend to draw more on expert consensus. Sege and DeVos discuss the limited evidence from randomized controlled trials to guide child health care.²⁵ In addition to the factors noted above, they write:

*The outcomes of child healthcare differ from the usual outcomes of medical care. In particular, relatively minor (and difficult to measure) effects at vulnerable periods during childhood may result in large differences in ultimate development and adult function. Recent research results reveal that two different directions (mitigation and optimization) are important for the changes in a child's developmental trajectory for subsequent adult functioning.*²⁴

Both the context of care (for a particular family or community) and the goal of care -- whether a service is designed to address a problem, uncover a risk factor, or help a family optimize their child's development -- should be weighed when clear evidence is lacking.

The “evidenced-informed” recommendations of the third edition of *Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents* draw on this approach to evidence (Table 2). Sponsored by the American Academy of Pediatrics and the federal Maternal and Child Health Bureau, *Bright Futures* provides extensive recommendations on routine health screenings for children.²⁶ While the *Bright Futures* development process did include a review of evidence, most of the recommendations are based on expert consensus and include recommendations where the USPSTF declined to make recommendations based on insufficient evidence.

Lack of Public/Private Sector Demand

The public and private sectors have invested less in standardization and quality measurement for children than for adults. Still, with the recent passage of the Children's Health Insurance Program Reauthorization Act (CHIPRA), we expect that trend to change dramatically. CHIPRA calls for the development, testing, and validation of evidence-based measures for evaluating the quality of children's health care services as well as increases in the federal cost-sharing for states that collect and report on quality. In the private sector, the Bridges to Excellence program has also expressed interest in programs to distinguish high performance among pediatric care providers. With the national interest in transparency and accountability, health care quality advocates are presented with an unprecedented opportunity to use the tools of measurement to inform and encourage improvement efforts and make performance information available for public comparisons.

Current federal rules require states to implement quality oversight and reporting specifically through the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) program, requirements for quality of care oversight provided by managed care organizations, and rules for monitoring CHIP plans. For EPSDT, state Medicaid agencies are required to report annually on EPSDT services delivered to all eligible children (submitted on Form 416 to the federal government). The annual report provides basic information on the number of children (by age and basis of Medicaid eligibility) who receive medical or dental screens and the number referred for diagnostic or treatment services. This reporting does not address content of care.

While most Medicaid and CHIP programs use HEDIS data, the data often do not allow for state-to-state comparisons. Almost all states modify at least some HEDIS measures or do not require reporting through NCQA's strict procedures for auditing.²⁷ A survey of state Medicaid and CHIP officials in 2006 reported that 85% of those states (40 of 47) required reporting on HEDIS measures.²⁸ According to NCQA, only 20 states required audited HEDIS data as part of their quality monitoring efforts. However, 33 states are represented among the 227 health plans that reported HEDIS data to NCQA in 2008.²⁹ States often use HEDIS measures (or measures based on HEDIS specifications) to evaluate fee-for-service (FFS) and primary care case management (PCCM) programs, but NCQA only supports HEDIS reporting by managed care plans. Many states also use non-HEDIS data related to ambulatory care for monitoring quality.

Challenges in Implementing Meaningful, Yet Feasible Indicators

While a large number of measures are available for characterizing the quality of children's health care, the most widely implemented measures focus on counting the number of well-child visits and immunizations received. An environmental scan of child health quality measurement identified approximately 300 measures utilized across the spectrum of children's health care. Sources for the measures compendium included the Child and Adolescent Health Measurement Initiative (CAHMI), RAND, and the American Medical Association (AMA)-Sponsored Physician Consortium for Performance Improvement (PCPI), as well as NCQA's HEDIS.

The available measures use a variety of data sources, including administrative claims and encounter data, medical chart review, and surveys. The most widely used measures focus on receipt of immunizations and well-child visits, as recent national reports demonstrate.^{17,29} These measures typically depend on administrative claims data (e.g. patient demographics, claims, encounters, registry data) alone or supplemented with chart review data. While these data sources present the most feasible and least burdensome approach to monitoring quality, they limit the aspects of care that can be assessed. Most of NCQA's HEDIS measures use administrative data only or are supplemented with medical chart review (Table 3).

Moving beyond counting services, medical records are frequently considered the "gold standard" for assessing content of visits, but abstraction is a considerable burden for physicians, health plans, states and other organizations. Furthermore, there are some aspects of care which are typically not well documented, even in the medical record. This

is particularly true for aspects of well-care related to developmental and behavioral needs. For example, while procedure codes exist for documenting the use of standardized screening tools for developmental screening, depression screening or other behavioral problems, the codes are either rarely used or may be state-specific and thus not a standard code that can be used.

Surveys of parents or caregivers are a rich source of information on the aspects of child well-care that focus on risk assessment and health promotion. Parents and guardians are valuable sources for describing experience with the child health care system, receipt of information on content of care, and level of understanding of counseling and anticipatory guidance. There are a number of well-developed surveys that could bolster the reporting of quality information on children's health care. These surveys include the Consumer Assessment of Healthcare Providers and Systems (CAHPS) family of surveys which include a health plan version for Children with Chronic Conditions and a recently developed pediatric version of the Clinician and Group survey, as well as CAHMI's surveys assessing development, including the Promoting Healthy Development Survey (PHDS) and the Young Adult Health Care Survey (YAHCS). However, surveys are expensive to administer, and poor response rates may limit their usefulness. Thus, the proportion of health plans and states utilizing these tools is small. In 2008, 40 Medicaid plans reported the CAHPS Child survey with an average response rate of 24% using NCQA's required survey methodology. A larger number of Medicaid managed care organizations reported the CAHPS Child survey to the National CAHPS Benchmarking Database with a total of 93 submissions, down from 119 plans in 2007. The decrease, at least in part, is related to changes from the CAHPS 3.0 to 4.0 survey.³⁰ Only four commercial managed care plans reported the CAHPS Child survey to either NCQA or NCBD in 2008 (or 2007). This compares to 410 commercial plans and 120 Medicaid plans that submit the CAHPS Adult survey to NCBD in 2007. While surveys may provide information useful to guide quality efforts, there is a need to explore further the levers that will mobilize their use by health plans, clinicians, state agencies and the larger healthcare system.

III. OPPORTUNITIES FOR NEW APPROACHES

The federal government, states, health plans and Medicaid are showing interest in promulgating a core set of standardized quality measures that will drive improvement in children's health care.

Leadership at the Federal Level

There are encouraging signs that the federal government may be ready for an expanded role in broadening and standardizing performance measurement in Medicaid and CHIP. The Center for Medicaid State Operations (CMSO) at CMS is working with states to develop a “National Medicaid Quality Framework” to highlight overarching principles of quality in Medicaid. CMS is using the framework to: 1) encourage states to adopt nationally endorsed measures, 2) support value-based payment methodologies and 3) invest in health information technology (HIT) to support quality measurement. CMS is also considering revising Form 416 and has indicated interest in expanding this reporting beyond the required EPSDT service elements. Finally, CMS is sponsoring a project to test the feasibility of creating a Medicaid HEDIS benchmarking report that would include NCQA’s existing HEDIS database for Medicaid and non-HEDIS quality measures (i.e., data that were collected without following NCQA specifications or did not undergo a HEDIS Compliance Audit™).

Proposed federal legislation also supports further investment in quality measurement development and monitoring. New bills focusing on broad support for child health quality as well as within the CHIP program are being drafted. This legislation offers potential for new funding for measure development and federal support for standardizing measurement.

Leadership from States

States are adopting innovative approaches for evaluating and improving quality of care for Medicaid beneficiaries. First, states are increasingly turning to managed care organizations to serve a broad set of beneficiaries. As of 2006, 65 percent of the 45.6 million Medicaid beneficiaries were enrolled in managed care. Increasing numbers of states are recognizing NCQA accreditation and HEDIS reporting. Total, eight state Medicaid programs mandate NCQA accreditation of participating health plans. In 2008, the states of Massachusetts and Indiana mandated NCQA accreditation requirements for their Medicaid plans. An NCQA accredited plan must publicly report all HEDIS measures used in accreditation scoring.

Pay-for-performance (P4P) programs are often a component of health plan contracting and new P4P programs are expected to target both primary care and specialty

physicians.³¹ Eighty-five percent of Medicaid and CHIP programs are anticipated to have P4P activities in the next five years. Currently, most Medicaid/CHIP P4P programs use HEDIS administrative data-based measures. In addition, at least 28 states have 35 value-based purchasing programs; and 12 states with transformation grants have formed a coalition on HIT implementation.³²

States are also engaging in initiatives to address emerging health issues such as childhood obesity and other conditions for which performance measurement may not be as well developed (e.g. weight management, children with special health care needs, oral health access, EPSDT screening rates, emergency room utilization).³³ A recent survey of state Medicaid officials found strong interest in measuring the provision of developmental services.³⁴

Private Sector Interest

Because children make up a large proportion of Medicaid recipients, interest in child health quality measurement is a clear priority for states. However, there has historically been less interest in children in the commercial market because children do not dominate covered lives and because children are primarily healthy and their health care costs are low. However, there may be opportunities for engaging the private sector today. First, there has been greater interest in child health measures that contribute to prevention and adult outcomes. For example, NCQA added a new measure for child health for HEDIS 2009 that evaluates the proportion of children who have documentation of a body-mass index percentile as well as counseling on nutrition and physical activity. In addition, Bridges to Excellence (BTE), a multi-region consortium of employer groups, has expressed interest in a Pediatric Recognition Program. BTE currently pays rewards to physicians who meet performance thresholds based on NCQA's independent evaluation of care for diabetes, heart/stroke conditions and back pain, as well as for the implementation of physician office practice systems using the Physician Practice Connections (PPC) program. A further consideration is the explosion of interest in the Patient-Centered Medical Home (PCMH). The private sector is joining the public sector in demonstration projects to determine whether revised reimbursement policies for practices designated as PCMHs can lead to improvements in both the quality and efficiency of care.

Leadership from the Professional Organizations

The professional societies and boards, including the American Academy of Pediatrics (AAP) and the American Board of Pediatrics (ABP), are also active in promoting quality measurement and improvement. AAP offers online programs on quality improvement through eQIPP (Education in Quality Improvement for Pediatric Practice). These online programs are designed to be recognized by the ABP's Maintenance of Certification requirements. Current eQIPP topics include asthma and ADHD and future program development will focus on GERD, developmental screening and surveillance, and the Bright Futures prevention recommendations. The American Academy of Family Physicians (AAFP) offers similar types of programs. Both the ABP and the American Board of Family Physicians have included quality improvement expectations in Maintenance of Certification activities. These programs offer technical assistance, tools, and additional incentives to support and encourage clinicians and practices to become engaged in quality measurement and improvement.

A NEW STRATEGY FOR CHILD HEALTH CARE QUALITY MEASUREMENT

With Commonwealth Fund support, the National Committee for Quality Assurance (NCQA) evaluated the feasibility of various methods for measuring the quality of health care children receive. Our goal is to expand the number and variety of measurement tools available. To begin, we convened a panel of child health experts to identify a strategy to build support and infrastructure for quality measurement of child health care (see members listed in Appendix 1):

- 1. Develop a measurement plan to increase attention to child health outcomes of broad interest, such as school readiness, workforce readiness, and family productivity.*

First, it makes sense to identify a core set of measures consistent with the Institute of Medicine's definition of child health¹ which focuses on ensuring that children reach their potential. Ideally, these measures should be relevant to a broad group of stakeholders and provide information about quality at multiple levels of the health care system. This kind of appeal to broad public concerns has proven effective in the past. For example, legislation in the 1960s called for comprehensive health benefits for children, including the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program, in response to concerns about American men's readiness for military service. In his

argument in favor of the legislation, President Johnson cited a 1964 government report documenting the high percentage of young men who were rejected for military service due to treatable and correctable physical, behavioral, and developmental problems.³⁵

Consistent with this approach, the following outcomes could guide the development of quality measures for child health: school readiness, family productivity, and workforce readiness. Measuring children's readiness to enter school acknowledges the importance of early childhood health for lifelong development. A recent 17-state report on school readiness identified easily available measures to assess readiness, such as receipt of well-child visits, but also noted the need for measures that would capture more detailed information about the content of care (e.g., the percent of two-year-olds who had a recent well-child visit that included a lead screening, vision screening, hearing screening, and comprehensive developmental screening.)³⁶ Measures of family productivity would track children's absences from school due to illness as well as lost work days for family members who have to care for them.³⁷ Measures of workforce readiness would gauge adolescents' preparedness to lead healthy and productive adult lives.

2. *Explore opportunities for assessing the return on investment of quality measurement and for communicating the results with stakeholders.*

Outcomes such as school readiness, family productivity, and workforce readiness are likely to be of interest to families, business leaders, policymakers, and other stakeholders. Still, it will be important to evaluate how investments in quality measurement and monitoring may affect health outcomes and costs of care. In addition, it will be important to test various methods for communicating results to diverse stakeholder groups.

3. *Build strategic partnerships to achieve quality measurement goals and complement other efforts.*

Successful implementation of a new quality measurement strategy will depend on collaboration and support from a number of entities, including government at the federal, state, and local levels; health care providers and plans; and employers and purchasers. It is also crucial for families to participate in the process. New quality measurement requirements should build on, rather than compete with, existing requirements for EPSDT, Medicaid, and the Children's Health Insurance Program (CHIP). Quality

measurement initiatives should align with existing efforts such as those led by the Alliance for Pediatric Quality and National Quality Forum, as well as with quality improvement and Maintenance of Certification programs of physician specialty organizations and boards. It also may be useful to involve other child-serving sectors, such as education and Early Intervention programs.

4. *Identify opportunities to use new and emerging technologies to build an infrastructure for monitoring child health.*

Health information technology will bring dramatic change to quality measurement and improvement. Health information exchanges keep clinicians informed about care their patients receive at other health care settings. Personal health records, such as the Web-based Microsoft HealthVault and Google Health, enable families to store and share information about health and health care. Using such technologies, it would be possible to incorporate information about families' health risks, behaviors, symptoms, and experiences of care into quality measurement. These platforms may make it possible to share information across the health, education, and social service sectors to enable better care coordination—of particular importance for children. For example, an electronic platform that allows sharing of information across settings could enable a physician caring for a child with attention deficit hyperactivity disorder (ADHD) to review teacher and parent ratings of the child's symptoms to guide treatment decisions, or to develop a collaborative care plan involving community resources. Importantly, health information technologies may simplify the process of aggregating data on child health quality for community-level planning or monitoring. However, for the promise of these technologies to be realized, efforts need to begin immediately to build the data elements, functionality, and interoperability to support sharing information.

POTENTIAL MEASUREMENT AREAS

As a first step in implementing this strategy, NCQA convened a multi-stakeholder advisory panel (see member list in Appendix 2) to review the proposed strategy and to identify immediate next steps for measures development consistent with our long-term goal. The panel identified key measures concepts: well care, acute and chronic disease care, and care coordination.

Well Care

We developed a measurement framework for well-child care that includes composite measures for children at key ages. (Table 4) The milestone ages (six months, two years, six years, 13 years, and 18 years) correspond either to current quality measures (which track immunizations for children at ages 2 and 13) or to the outcomes described above (school readiness at age 6; family productivity at all ages). The composites would assess whether children have received recommended services by each milestone age. For each age group, there are indicators relating to:

- *protection of health;*
- *healthy development;*
- *safe environment; and*
- *management and follow-up of health problems.*

The indicators focus on different aspects of care, including immunizations, screening (both laboratory tests and screening for other problems), risk assessments, and related anticipatory guidance. At each milestone age, an indicator would evaluate the management and follow-up care for health problems such as developmental delays or chronic conditions. Family or adolescent surveys could be useful data sources for some of the proposed indicators, especially those related to counseling or development, but a chart review approach would be more practical for short-term implementation.

This approach assumes that the new measures would be integrated into, or replace, existing Healthcare Effectiveness Data and Information Set (HEDIS[®]) measures. For example, the proposed measures might replace existing measures that track whether children receive well-child visits but do not document the content of care. The new HEDIS measure focusing on childhood obesity could be integrated into the proposed composites. . Recommendations for anticipatory guidance, immunizations, screening, and assessment would be derived from United States Preventive Services Task Force and Bright Futures³⁸ guidelines, along with other evidence and expert consensus.

Compared with current approaches, this framework for evaluating well-child care would provide a richer view of children's health care and take a more efficient approach to data collection. Implementing these composite measures will require medical chart review, as most care settings do not include the information in electronic health records or administrative data. Still, review of a single chart would provide information on multiple aspects of care, instead of tracking only the receipt of care. For example, a chart

review for a two-year-old could focus not just on whether immunizations are up to date, but also assess whether the child has had an oral health exam or visit to a dentist, assessment of the need for iron supplementation, screening for developmental problem and autism, assessment of physical growth and exposure to environmental tobacco, and presence of individualized care plan for an existing chronic health problem.

Acute and Chronic Disease Care

We assessed current measures related to acute and chronic disease and explored ways to expand them. Greater attention to children's chronic disease care is needed. Efforts are under way to improve measures for asthma and diabetes for children. There is a particular need for improved measures assessing behavioral health care, with ADHD and the use of psychotropic medications representing key areas for further investigation. NCQA's current measure for ADHD tracks whether follow-up occurs after children receive a prescription for an ADHD medication; a new measure might assess whether an appropriate assessment occurs before the prescription is written. Several state Medicaid programs are trying to improve care for conditions such as ADHD and depression by tracking and, in some cases, providing additional reimbursement for the use of standardized screening or assessment tools.

In addition, new behavioral health measures are needed to focus on the prescribing patterns for psychotropic medications among children. Existing HEDIS measures that gauge medication management might serve as a model. A consortium of state Medicaid medical directors has been working on options for evaluating use of psychotropic medications in children.³⁹ Some states have implemented second-opinion programs or other efforts to improve patient safety.

Potential areas of focus for measures addressing acute care include ear infections and injuries. For example, measures for ear infections could complement existing HEDIS measures related to antibiotic overuse in children. New measures should be considered for treatment of injuries, a leading cause of death in children.

Care Coordination

We also considered how quality measures might assess care coordination for children, including ways in which the concept of a medical home might be incorporated.⁴⁰ Children have unique needs for care coordination, given that they often

receive health care services outside of medical settings, including in schools, day care facilities, and public health organizations. Children's needs also change over time and must be considered within the context of children's dependence on family members for health services.. Key elements of care coordination, including management of and follow-up for chronic conditions, are addressed in the comprehensive well-child care framework described above. The quality of chronic care management could be assessed by noting whether children have written, individualized care plans and tracking how the care plans are modified over time, with family input.

Other structural measures of care coordination could be included in programs that assess the quality of pediatric practices.⁴¹ Potential topics could include: procedures for comprehensive needs assessment addressing growth and development, whether staff members are assigned to develop networks with community resources, and whether there are clear protocols for sharing information with other systems involved in a child's care.

IMPLEMENTATION

The proposed child health care measures could be used to measure the quality of care provided through State Medicaid programs, federally qualified health centers, managed care plans and physicians. NCQA staff interviewed commercial and Medicaid health plan representatives, state Medicaid, EPSDT, and department of health staff, state partnership initiative staff, academic researchers and other experts in child health quality to assess interest in the proposed measure framework and to identify opportunities and barriers for measure implementation. (see Appendix 3) For the most part, managed care plans voluntarily report performance data on the HEDIS measure. Reporting on these proposed measures could become part of the quality reporting requirements that are already in place in some states. For physicians, the quality measures could be implemented as part of recognition programs used by health plans and employers as the basis of pay-for-performance rewards or other incentives. Alternatively, the specifications could be used by the federal government and state Medicaid agencies to supplement their efforts to monitor the quality of care in Medicaid and the EPSDT program (as suggested in the recent CHIP reauthorization legislation).

Measurement Framework for Comprehensive Well-Child Care

We shared the measurement framework for comprehensive well-child care with a broad group of stakeholders. State officials noted that the proposed content is consistent with EPSDT, and that some states already have quality improvement efforts focusing on similar areas. Pediatricians also responded favorably, saying “this is what we do and what we all should do.” Health plans viewed the measure approach as valuable but raised concerns about the burden of data collection. In seeking to further develop and implement the measurement framework, it will be important to take the following steps:

- ***Align new measures with existing reporting requirements.*** The proposed framework would entail detailed measurement activities that go beyond current quality reporting requirements for the Medicaid program. It will be essential to collaborate with the Centers for Medicare and Medicaid Services (CMS) and the Agency for Healthcare Research and Quality (AHRQ) to align with ongoing work to standardize quality measurement. In addition, efforts should be made to align the proposed measures with existing monitoring activities within states or with other federal requirements. For example, it may be possible to align the measures with reporting requirements for federally qualified health centers.
- ***Consider ways to manage the burden of data collection.*** Most of the information for the proposed measures is not available in administrative claims and may be challenging to find in medical records. Some health plans would welcome the opportunity to replace eight existing HEDIS measures, which rely on administrative data supplemented with medical record review, with more comprehensive preventive child care measures. However, health plans do not want to lose the opportunity to track trends on individual measures, such as immunization rates. Some respondents suggested that the new measures and existing measures of well-child visits could be used on alternate years, to enable continued trending and to manage the burden of data collection.
- ***Weigh the evidence base in selecting final measures.*** The measures in the proposed framework are consistent with evidence-informed recommendations from Bright Futures and other clinical guidelines. However, respondents suggested a careful weighing of the strength of evidence and the potential impact on outcomes. Given the large number of measures and burden of capturing performance, it is important to focus efforts on measures with the greatest potential to influence child and family outcomes.

- ***Consider additional content or methods.*** Most stakeholders felt the proposed well-child care framework was comprehensive enough (and some felt it was too comprehensive). Still, stakeholders suggested several additions. The most common was to include parent surveys such as the Promoting Healthy Development Survey in order to understand what families take away from health care encounters. Respondents suggested that the approach be considered for evaluating prenatal and postpartum care. Several suggested using school attendance as an indicator.
- ***Develop clear but flexible measure specifications.*** The measure specifications will need to clearly define acceptable documentation and should allow different forms of evidence. For example, it may be difficult to discern from medical records if anticipatory guidance was provided. Creating standardized forms with which physician practices could document measure compliance and report their performance to agencies such as the Centers for Medicare and Medicaid Services and the Health Resources and Services Administration would help promote reporting. Non-physician staff could also help to document the care provided. It may be possible to use electronic tools to support care, for example by having patients complete electronic risk assessment surveys.
- ***Consider the enrollment patterns of Medicaid/CHIP populations.*** Children may lose or gain Medicaid or CHIP eligibility or switch between Medicaid managed care plans over time. These disruptions in coverage or changes in health plan make it difficult to assign responsibility for care to specific health plans or providers. Yet, setting restrictive rules about continuous enrollment would result in fewer children being captured in quality reporting. Field testing should explore alternative ways to define eligibility and continuous enrollment for the purposes of quality measurement.

Subsequent to this work, NCQA has begun efforts to prepared detailed measure specifications and to conduct a field test of the proposed Comprehensive Well Care topics shown in Table 1. With the help of an advisory panel representing measurement experts and other stakeholders, NCQA will test a subset of the proposed measures. The panel recommended deferring action on the remaining topics (*shown in italics*) for several reasons. Some measures did not have a strong evidence base (e.g. parental

competencies, hip dysplasia). Surveys of family members or children may be better sources of data for assessing anticipatory guidance on safety issues (e.g. firearm safety, burn prevention). For other topic areas, the panel suggested that policy interventions may be a better approach for action; for example, state laws about child safety seats and teenage driving restrictions may be more direct approaches for addressing these health risks.

Other Measurement Priorities

Many respondents noted the need for more attention to chronic disease among children. NCQA has other efforts under way to re-evaluate measures for diabetes and asthma in children and it appears that new or revised measures in these areas would be welcomed. In particular, there was interest in incorporating the concepts of the medical home with new measurement opportunities. Respondents also noted the interest in a measure tracking accidents and trauma.

Behavioral health is also a particular concern. Several states described efforts to improve care for conditions like ADHD and depression which include the use of CPT codes to track and sometimes provide additional reimbursement for the use of standardized screening or assessment tools. Tracking and monitoring the use of psychotropic medications was particularly important to Medicaid officials. A consortium of states has been working on options for evaluating use of psychotropic medications in children, and states have implemented second-opinion programs or other efforts to improve patient safety. There was general support for further investigation of standardized measures for this area, but caution about the evidence base, burden and applicability to commercial populations.

CONCLUSIONS

In summary, there is a convergence of energy and opportunity for the health care system to make coordinated strides in improving the quality of health care provided to children. Building support and infrastructure for quality measurement will promote improvement in child health care. In pursuit of these goals, it will be important to focus measurement on broad outcomes, gather support from diverse stakeholders, leverage existing measurement activities, and harness health information technologies as measurement tools. The quality measures should be developed through a proven, systematic process involving detailed specification, testing, analysis, and refinement.

The proposed measurement framework for well-child care could be used to assess whether care addresses children’s preventive and developmental needs. With input from a multi-stakeholder panel, we identified a specific framework for assessing Comprehensive Well-Child Care using composite measures at key milestone ages to represent a first step towards achieving our overarching goal. Interviews with leaders in Medicaid, health plans, research and practices suggest that these composite measures offer a new opportunity for understanding whether well-care is addressing the preventive and developmental needs of our children. Successful implementation of the framework will require that the measurement specifications are clear, the burden of data collection is reasonable, and opportunities to align reporting requirements across state, federal, and private sectors are maximized. Areas of chronic disease care and psychotropic medication use warrant additional investigation for measurement, and there is need to coordinate this work with developments related to the medical home. Opportunities for eliciting families’ views on the quality of well-child care should be a priority for research and measurement development.

About the Study

We convened a panel of experts to guide the development of a strategic approach to child health quality measurement and a framework for comprehensive well-child care. We conducted interviews with more than 40 individuals or organizations including Medicaid officials, health plan, researchers, practicing physicians, and consumer groups to gain insight into the feasibility and focus of the proposed measurement framework.

Table 1. The USPSTF Prevention Recommendations for children

Clinical Topic	Grade	Recommendations
Lead (2006)	Grade: I Statement.	The U.S. Preventive Services Task Force (USPSTF) concludes that evidence is insufficient to recommend for or against routine screening for elevated blood lead levels in asymptomatic children aged 1 to 5 who are at increased risk.
	Grade: D Recommendation.	The USPSTF recommends against routine screening for elevated blood lead levels in asymptomatic children aged 1 to 5 years who are at average risk.
Oral Health (2004)	Grade: B Recommendation.	The USPSTF recommends that primary care clinicians prescribe oral fluoride supplementation at currently recommended doses to preschool children older than 6 months of age whose primary water source is deficient in fluoride.
	Grade: I Statement.	The USPSTF concludes that the evidence is insufficient to recommend for or against routine risk assessment of preschool children by primary care clinicians for the prevention of dental disease.
Hip Dysplasia (2006)	Grade: I Statement.	The USPSTF concludes that evidence is insufficient to recommend routine screening for developmental dysplasia of the hip in infants as a means to prevent adverse outcomes.
Scoliosis (2004)	Grade: D Recommendation.	The USPSTF recommends against the routine screening of asymptomatic adolescents for idiopathic scoliosis.
Lipid disorder (2007)	Grade: I Statement	The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for lipid disorders in infants, children, adolescents, or young adults (up to age 20).
Newborn Hearing (2008)	Grade: B recommendation	The USPSTF recommends screening for hearing loss in all newborn infants.
Overweight (2005)	Grade: I Statement.	The USPSTF concludes that the evidence is insufficient to recommend for or against routine screening for overweight in children and adolescents as a means to prevent adverse health outcomes.
Sickle cell (2007)	Grade: A Recommendation.	The USPSTF recommends screening for sickle cell disease in newborns.
Speech and language delay (2006)	Grade: I Statement.	The USPSTF concludes that the evidence is insufficient to recommend for or against routine use of brief, formal screening instruments in primary care to detect speech and language delay in children up to 5 years of age.
Vision (2004)	Grade: B Recommendation.	The USPSTF recommends screening to detect amblyopia, strabismus, and defects in visual acuity in children younger than age 5 years.

Table 2. Bright Futures Prevention Recommendations by select age groups

Age Groups	Preventative Measures
By age 6 months	<p>Universal: History, Measurement of body, Physical Examination, Hearing, Developmental Surveillance, Psychosocial/Behavioral assessment, Newborn screening, Immunizations</p> <p>If positive on risk assessment: Hematocrit /hemoglobin screening, tuberculin test, lead screening, Oral Health, Vision, Blood Pressure</p> <p>Anticipatory Guidance: Family readiness/adjustment/functioning; Parent-child interaction; Infant behavior; New born transition; Advice to mother on mental health, breastfeeding, healthy eating, smoking cessation; Safety; Routine baby/newborn care; Nutritional adequacy/routines/guidance; Surveillance of social-emotional, communicative, cognitive, and physical development, Oral health</p>
By age 2	<p>Universal: History, Measurement of body, Physical Examination, Developmental Screening, Developmental Surveillance, Psychosocial/Behavioral assessment, Immunizations, BMI, Autism Screening, Oral Health</p> <p>If positive on risk assessment: Hematocrit /hemoglobin screening, Tuberculin test, Lead screening, Dyslipidemia screening, Oral Health, Hearing, Vision, Blood Pressure</p> <p>Anticipatory Guidance: Family adaptation and support; Child independence; Establishing routines; Safety; Nutritional adequacy/routines/guidance; Surveillance of social-emotional, communicative, cognitive, and physical development, Dental Home; Healthy Teeth; Sleep routines; Temper tantrums and discipline; Language promotion/hearing; Toilet training</p>
By age 5	<p>Universal: History, Measurement of body, Physical Examination, Developmental Screening, Developmental Surveillance, Psychosocial/Behavioral assessment, Immunizations, BMI, Blood Pressure, Vision, Hearing, Oral Health</p> <p>If positive on risk assessment: Hematocrit /hemoglobin screening, Tuberculin test, Lead screening, Dyslipidemia screening, Oral Health</p> <p>Anticipatory Guidance: Family routines and support; Safety; Nutritional adequacy/routines/guidance; Surveillance of social-emotional, communicative, cognitive, and physical development, Temper tantrums and discipline; Language development; Toilet training; Television time; Promotion development; Preschool considerations; Encouraging literacy; Playing with peers; Promoting physical activity; School readiness; Developing healthy personal habits; Child and family involvement and safety in the community</p>
By age 13	<p>Universal: History, Measurement of body, Physical Examination, Developmental Surveillance, Psychosocial/Behavioral assessment, Immunizations, BMI, Blood Pressure, Vision, Hearing, Oral Health</p> <p>If positive on risk assessment: Alcohol and drug use assessment, Hematocrit/ hemoglobin screening, Tuberculin test, Lead screening, Dyslipidemia screening, STI screening, Cervical Dysplasia screening</p> <p>Anticipatory Guidance: Surveillance of social-emotional, communicative, cognitive, and physical development; School readiness; Development and mental health; Nutrition and physical activity; Oral Health; Safety; School; Physical growth and development; Social and academic competency; Emotional well-being; Risk reduction; Violence and injury prevention</p>

Table 3. Relevant HEDIS Measures

Domain	Measure	Data Source
Effectiveness of Care	Childhood Immunization Status	Hybrid
	Adolescent Immunization Status	Hybrid
	Appropriate Treatment for Children With Upper Respiratory Infection	Administrative
	Appropriate Testing for Children With Pharyngitis	Administrative
	Use of Appropriate Medications for People With Asthma	Administrative
	Follow-Up Care for Children Prescribed ADHD Medication	Administrative
	Lead Screening (new measure for 2008, <i>Medicaid only</i>)	Hybrid
	Weight Assessment and Counseling for Nutrition and Physical Activity	Hybrid
Access/ Availability of Care	Children's and Adolescents' Access to Primary Care Practitioners	Administrative
	Prenatal and Postpartum Care	Hybrid
	Annual Dental Visit (<i>Medicaid only</i>)	Administrative
Patient Experiences	CAHPS Health Plan Survey 3.0H, Child Version	Survey
	Children With Chronic Conditions (<i>Medicaid only</i>)	Survey
Use of Services	Frequency of Ongoing Prenatal Care	Hybrid
	Well-Child Visits in the First 15 Months of Life	Hybrid
	Well-Child Visits in the Third, Fourth, Fifth and Sixth Years of Life	Hybrid
	Adolescent Well-Care Visits	Hybrid

Table 4. Framework for Evaluating Comprehensive Well Child Care

Infant (6 months)	By Age 2	By Age 6	By Age 13	By Age 18
Protection of Health				
Newborn Hearing Screening Newborn Metabolic Screening <i>Hip dysplasia</i>	Immunizations Oral Health Exam Iron Deficiency Assessment and Supplementation Lead Screening	Immunizations Vision Screening Oral Health Exam Blood Pressure Assessment <i>Hearing</i>	Immunizations Vision Screening Oral Health Exam Blood Pressure Assessment <i>Hearing</i>	Immunizations Vision Screening Oral Health Exam Blood Pressure Assessment Cervical Cancer Screening Chlamydia Screening
Healthy Development				
Breastfeeding Counseling for Mother Physical Growth Assessment Maternal Depression Screening <i>Parental Competencies</i> <i>Developmental Screening</i>	Developmental Screening Autism Screening Physical Growth Assessment Maternal Depression Screening <i>Parental Competencies</i> <i>Maternal Depression Screening</i> <i>Nutritional Adequacy</i>	Developmental Screening Mental Health Assessment Weight Assessment and Counseling for Nutrition and Physical Activity <i>Counseling on Screen Time</i> <i>Parental Competencies</i>	Risky Behavior Screening Mental Health Assessment Weight Assessment and Counseling for Nutrition and Physical Activity <i>Counseling on Screen Time</i> <i>Parental Competencies</i>	Risky Behavior Screening Mental Health Assessment Weight Assessment and Counseling for Nutrition and Physical Activity <i>Counseling on Screen Time</i>
Safe Environment				
Sudden Infant Death Syndrome Counseling Environmental Tobacco Assessment and Counseling <i>Domestic Violence</i> <i>Burn Prevention</i> <i>Fall Prevention</i> <i>Choking Prevention</i> <i>Drowning Prevention</i> <i>Cardiopulmonary Resuscitation</i> <i>Vehicle Safety</i>	Environmental Tobacco Assessment and Counseling <i>Domestic Violence</i> <i>Burn Prevention</i> <i>Fall Prevention</i> <i>Poison Prevention</i> <i>Drowning Prevention</i> <i>Firearm Safety</i> <i>Vehicle Safety</i>	Environmental Tobacco Assessment and Counseling <i>Domestic Violence</i> <i>Firearm Safety</i> <i>Vehicle Safety</i> <i>Water Safety</i> <i>Sports Safety</i>	<i>Home Safety</i> <i>Domestic Violence</i> <i>Firearm Safety</i> <i>Vehicle Safety</i> <i>Water Safety</i> <i>Sports Safety</i>	<i>Domestic Violence</i> <i>Firearm Safety</i> <i>Vehicle Safety</i>
Management & Follow-Up of Health Problems				
Individualized Care Plan	Individualized Care Plan	Individualized Care Plan	Individualized Care Plan	Individualized Care Plan

NCQA is currently specifying and testing measures addressing the topics shown in bold for data collection through medical chart review or administrative data in order to evaluate performance by health plans and physicians.

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⁴¹ For example, NCQA has a recognition program which is being used in many public and private sector demonstration programs to evaluate the impact of the PCMH, the Physician Practice Connections[®]--Patient-Centered Medical Home[™] (PPC[®]-PCMH[™]), <http://www.ncqa.org/tabid/631/Default.aspx>.