

Strategies to Improve the Delivery of Child Health Care in North Carolina

Lessons from the Transition of Children (0 to 5) from Health Choice into Community Care of North Carolina Medicaid

Executive Summary of the Background Report prepared for
The Task Force *for a Healthier North Carolina*

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Background

North Carolina, like an estimated 39 other states, operates a hybrid financing system for providing health insurance coverage for low-income children.¹² Most states use a separate non-Medicaid SCHIP program, either alone or in combination with a Medicaid program. The remaining states use the Medicaid expansion model for SCHIP.¹² Based on age and family income, children are covered by either Medicaid or a separate SCHIP. In North Carolina, this tiered system of coverage is structured in the following way:

- All children ages 0-18 years, with family income at or below 100 percent of the federal poverty level (FPL), are eligible for coverage through Medicaid.²⁰
- As of January 2006, children ages 0-5 years with family income between 100 and 200 percent FPL, are also eligible for coverage through Medicaid (SCHIP Medicaid expansion).
- Children between the ages of 6 and 18 years with family income between 100 and 200 percent FPL are eligible for coverage through a separate SCHIP program (Health Choice).
- Beginning in March 2007, children ages 6-18 years enrolled in SCHIP were given access to the Medicaid managed care program (CCNC) that had already been providing services for children ages 0-5 years; however, the children receive the level of benefits in the Health Choice program.
- In addition to the current hybrid system, the recent state budget included funds for NC Kids Care which will extend access to coverage for up to 38,000 children living in families with incomes between 200 and 300 percent of the FPL. The new expansion is targeted to begin in July 2008. Families that qualify for coverage will share in the cost of care through deductibles, premiums, and co-payments for certain services. Costs will be on a sliding scale based on income.²⁶

On January 1, 2006, low income children between the ages of 0 and 5 years in families between 100 and 200 percent of the federal poverty level were transferred from the North Carolina Health Choice program, a separate State Children's Health Insurance Program (SCHIP), to the Community Care of North Carolina (CCNC) Medicaid managed care program. This transition allowed North Carolina to spend the SCHIP money on children in the 6- to 18- year old age bracket and to insure a larger number of children. The State would continue to benefit from the enhanced Federal match rate to expand Medicaid as one SCHIP option.²⁷ In addition, the transferred children were expected to benefit from CCNC's enhanced primary care case management (E-PCCM) structure. Beginning March 1, 2007 an additional 110,000 low income children in Health Choice (SCHIP), ages 6 to 18 years, were targeted to receive the same access to CCNC's networks, while remaining in the traditional Health Choice program.

A major goal of the Community Care of North Carolina Medicaid program is to "improve access to primary care and provide a more cost efficient health care system for Medicaid recipients," in part through linking Medicaid recipients with primary care providers who deliver and coordinate care.¹⁸ Community Care of North Carolina utilizes an enhanced primary care case management form of managed care. Primary care case management (PCCM) programs are typically designed to link each beneficiary with a primary care provider who is charged with providing the patient beneficiary with a "medical home," coordinating health care services, increasing use of primary care and preventive services, and decreasing use of emergency departments, inpatient services, and some specialty care services.^{2,8} The CCNC networks are structured with these core primary care case

management components, yet are “enhanced” by the development of local support services such as case management, disease management, and other programs that are intended to improve quality of care for enrolled Medicaid recipients with specific health needs. These local networks are state (Medicaid) supported, not-for-profit, and based on local collaboration and integration among providers.

The CCNC Medicaid program and networks implemented asthma, diabetes, and other disease management programs. These disease management initiatives utilize evidence-based practice management guidelines to increase the use of appropriate medications and other therapies with the expectation that utilization of emergency department and inpatient services for these health problems will decrease.¹ Case management services target patients who have experienced a significant increase in medical costs, emergency department utilization, or inpatient hospital stays as well as those identified as requiring follow-up, outreach, and/or health education. Case management services are supported by network-developed internet case management information systems.

This report briefly reviews several operational domains of the transition of 0- to 5-year old children from Health Choice to CCNC Medicaid and offers recommendations for process or systems improvement. Data for this short-term evaluation were collected through review of program documents, performance of key informant interviews, requests for client enrollment, provider participation and primary care utilization reports (Health Plan Employer Data and Information Set [HEDIS®] measures), and literature reviews.^{15, 19} This review of the process and outcomes of linking the 0- to 5-year old children with CCNC primary care providers is expected to inform future efforts to link these children in the SCHIP Medicaid Expansion program as well as the 6- to 18-year olds who will remain in Health Choice yet utilize CCNC services, with PCPs.

I. Outreach and Enrollment

Beginning January 1, 2006, children were enrolled into CCNC from Health Choice and then linked with a primary care provider. This was done primarily by employees of county Departments of Social Services. The enrollment process was supplemented through outreach efforts of Health Check Coordinators (HCCs) and by permitting and encouraging physicians to enroll patients at their office using a mail-in application form.

Finding 1: Transitioning Children (0- to 5-Year Olds) from Health Choice to CCNC Medicaid and Linking Them to a CCNC Primary Care Provider

Enrollment Frequencies—Enrolling and Linking Children with CCNC Primary Care Providers

As of July 2007, of the 1,217,262 Medicaid recipients in North Carolina, 1,122,637 were eligible to be enrolled in North Carolina Medicaid managed care programs. Of those, 77.4 percent were enrolled in managed care programs.²¹ In July 2007, the highest percentage of enrollment in managed care programs was observed in Davidson County (88 percent), and the lowest in Swain County (45 percent). These data include all Medicaid recipients, as data were not reported separately for children enrolled in Medicaid.

During July 2007, 39,471 children, 0- to 5-years of age, were eligible for CCNC Medicaid through the SCHIP Medicaid Expansion Program.²² During the Federal Fiscal Year (FFY) 2006, the unduplicated number of children enrolled at any time during the year in the SCHIP Medicaid Expansion was 53,180.²³ The specific proportion of children, age 0 to 5 years in the SCHIP Medicaid Expansion program who were linked with PCPs, were not available. Anecdotal reports indicate that there were difficulties in getting the 0 to 5 year old children linked with CCNC primary care providers, and the process was incomplete. As of June 2007, of the 115,866 children (6 to 18 years) enrolled in North Carolina Health Choice, only 23.3 percent were enrolled with a CCNC primary care provider. Proportions of 6- to 18-year old Health Choice children linked with PCPs ranged from 3.5 percent in Hyde County to 39.9 percent in Craven County.

Process for Enrolling Children in CCNC Medicaid and Linking Enrollees with Primary Care Providers

The process for linking 0- to 5-year old children transferred from Health Choice to CCNC Medicaid with a primary care provider is fragmented, relatively uncoordinated, and lacks direct accountability. The primary responsibility for formally linking children younger than 6 years of age who have been transferred from Health Choice to CCNC Medicaid with a primary care provider resides with the county-based and -employed Department of Social Services (DSS) caseworkers. Yet, these Department of Social Services caseworkers generally do not have a direct reporting relationship with the CCNC administrative offices or CCNC networks. Therefore, state-level goals of linking 0- to 5-year old children who were transferred from Health Choice to CCNC Medicaid with a primary care provider are being delegated to employees who are accountable for meeting the goals of their respective counties, not those of the state. Because the effort to link children with primary care providers had not been fully successful, other mechanisms were added to try to increase the proportion of eligible children who get appropriately linked with primary care providers.

One supplemental approach to help link children with primary care providers was to use county-based Health Check Coordinators (HCCs). The Health Check Coordinators were provided with lists of children from the North Carolina Division of Medical Assistance (NCDMA) who were being transferred from Health Choice to Medicaid. They were then asked to assist with the linkage efforts. This supplemental approach was a strategic decision given that Health Check Coordinators are employed by 88 North Carolina counties to assist families with obtaining medical benefits and other services needed by children, educate families about Medicaid and Health Choice, help enroll eligible children, and follow Medicaid-enrolled children in their respective counties to assure that they are receiving well-child check-ups and recommended follow-up care.¹⁷ Having Health Check Coordinators link children with CCNC primary care providers tied in closely to their existing job responsibilities.

The third strategy for linking eligible children with CCNC primary care providers involves primary care physician practices. These physician practices were provided with brief forms and instructions to help formally link children who already come to their practice for care with primary care providers. Some Health Check Coordinators and community-based CCNC case managers then asked medical practice staff members to assist Medicaid clients with completing the brief enrollment forms and faxing completed forms to the Department of Social Services. The overall success of these three strategies has not yet been validated with quantitative evidence; however, anecdotal reports and completed key informant interviews indicate that number of eligible children

linked with primary care providers has not met expectations. In addition, the interview data provide initial evidence that the processes to link patients with primary care providers vary from network to network and county to county, and that collaboration and communication among all involved entities have been inconsistent. Some CCNC networks and providers seem unaware of the respective roles of those responsible for the linkage process. However, one CCNC network directly supervises Health Check Coordinators in their geographic area; and at least one other CCNC network partners with the Health Check Coordinators for pediatric patient care issues.

Other Potential Barriers to Linking 0- to 5-Year Old Children Transferred from Health Choice to CCNC Medicaid with Primary Care Providers

Perceptions of Department of Social Services caseworkers and Health Check Coordinators about the potential advantages and disadvantages of linking children with CCNC Medicaid primary care providers is likely to influence the diligence with which the linkage process occurs. Comments made during key informant interviews suggest that there may be resistance to linking children with CCNC Medicaid primary care providers. Several persons interviewed indicated that they believe they are advocating for children by encouraging them to “exempt out” of linking with a CCNC primary care provider. Some caseworkers may believe that by linking children with CCNC primary care providers they are limiting care choices for patients. They may view the primary care provider as a “gatekeeper” who restricts service access rather than a provider who coordinates care. The “exempt out” process may also be viewed by some as less time-consuming than linking children with primary care providers. In addition, some caseworkers have expressed concern that it may be inefficient for them to link children with primary care providers because children may later show up at other provider practices and need to be re-linked. This concern about the additional workload discourages some caseworkers from diligently striving to link children with primary care providers.

The Health Check Coordinators’ specific role in linking 6- to 18-year olds enrolled in Health Choice with a CCNC primary care provider is not clear. Responsibility for Health Choice clients is specified repeatedly in the Health Check Coordinator position description.¹⁷ However, the documented expected roles and responsibilities for working with Health Choice clients are vague. And, according to key informant interviews, Health Check Coordinators may not be aware of their responsibility for Health Choice clients and do not work with them. This seems to contradict the written position description.

Information Management Systems Utilized Within North Carolina Medicaid and Health Choice

The use of multiple non-integrated information systems within North Carolina Medicaid and Health Choice poses a barrier to efficient and effective linkage of children with CCNC primary care providers. The North Carolina Medicaid and Health Choice programs, Department of Social Services caseworkers, Health Check Coordinators, CCNC networks and case managers, and CCNC participating providers utilize a number of databases to manage Medicaid and Health Choice enrollees. Yet, the multiple agencies and people involved in the care of children enrolled in Medicaid and Health Choice do not access or use the same databases. These databases serve to document and manage Medicaid and Health Choice eligibility, enrollment, linkage with primary care providers, case management performed by CCNC case managers, case management performed by clinicians, disease management and registry functions, and efforts to facilitate compliance with well-child screenings, immunizations, and referrals for special health care problems. In general a distinct database exists for each primary information system activity instead of utilizing one

integrated information system. For example, the State Eligibility Information System (SEIS) is used by Department of Social Services caseworkers to formally link enrollees with primary care providers during Medicaid eligibility determinations and re-determinations. Second, the Automated Information and Notification System (AINS) is used by Health Check Coordinators to track Medicaid-eligible children from birth through 20 years of age.¹⁷ This system provides lists of those Medicaid-eligible children who are receiving regular well-child screenings and immunizations. Third, the Clinical Management Information System (CMIS) supports case management and disease management activities within the CCNC Medicaid networks. Fourth, some CCNC Medicaid networks utilize their own databases to manage similar client information [Appendix C].

Based on findings from key informant interviews, evidence suggests that the existing standard databases are not integrated to the degree necessary for tracking or managing the linkage of patients with primary care physicians, as well as identifying patients (ages 6- to 18-years in Health Choice) in need of case management services. Persons interviewed revealed that there are no true “tracking systems” to monitor real-time linkage of clients with primary care providers. Therefore, the 0- to 5-year old children who were transferred from North Carolina Health Choice to CCNC Medicaid may not be linked to primary care providers in an efficient manner or possibly not at all.

Recommendation 1: Improve the Linkage of Children with Primary Care Providers

Recommendation 1.1: Strengthen Collaborative Efforts Among CCNC Medicaid Networks, County Departments of Social Services, and Health Check Coordinators

- *Collaborative Strategic Planning:* Encourage the CCNC Medicaid networks, through future contractual requirements, to work collaboratively with Departments of Social Services and Health Check Coordinators in their geographic service areas to develop, implement, and evaluate annual strategic plans to link children with primary care providers and promote the CCNC systems and medical home concept.
- *Create formal relationships and accountability:* Develop a mechanism that creates a reporting relationship or accountability between county Department of Social Services caseworkers and CCNC.
- *Restructure Health Check Coordinator Responsibilities:* Restructure the outreach strategies of Health Check Coordinators to proactively educate Medicaid and Health Choice families about the CCNC networks at the time of enrollment or re-enrollment.
- *Clarify the Health Check Coordinator Role:* Clarify the role of the Health Check Coordinator in linking 6- to 18-year old children who are enrolled in Health Choice with a CCNC primary care provider.

Recommendation 1.2: Improve Collaboration and Communication by Exploring Options for New Technology to Enhance Existing Information Systems

- Explore the use of new, integrated, or enhanced information systems utilized by Department of Social Services caseworkers, Health Check Coordinators, and others involved with linking children to CCNC primary care providers.
- Link the State Eligibility Information System and Automated Information and Notification System databases to improve the efficiency and availability of information available to Health Check Coordinators.

II. Utilization of Primary Care Providers for Routine Well-Child and Preventive Visits

It was expected that the children transferred from Health Choice to CCNC Medicaid could benefit from CCNC's enhanced primary care case management structure and services. The objectives of the Community Care of North Carolina (CCNC) Medicaid managed care models are "cost effectiveness, appropriate use of health care services, and improved access to primary preventive care."¹⁸ These objectives are expected to be accomplished, in part, through the process of linking children in the CCNC networks with primary care providers who are responsible for coordinating care and providing primary care and preventive services. The efforts of primary care providers in achieving health access and quality of care goals can be enhanced with systematic implementation of evidence-based administrative support systems.

In this report, the utilization of primary care providers for routine well-child visits and preventive care was briefly assessed by performing a limited review of HEDIS® measures, comparing CCNC Medicaid programs with Health Choice, North Carolina fee-for-service Medicaid, national averages, and 2006 Medicaid HEDIS ninetieth-percentile benchmarks, as available. Additionally, interview data and program documents were reviewed to ascertain some of the strategies used by the CCNC Medicaid program and provider networks to encourage and facilitate appropriate utilization of well-child and preventive care services.

Finding 2: Utilization of Primary Care and Preventive Services

HEDIS Performance Measures

Children's access to primary care providers is generally defined within HEDIS® as the percentages of persons 12 to 24 months, 25 months to 6 years, 7 to 11 years, and 12 to 19 years of age who had a visit with a primary care provider during the measurement year.¹⁹ For the 12 to 24 month old children, CCNC Medicaid and North Carolina Health Choice performance were nearly identical for this measure. Yet, for the other three age groups, North Carolina Health Choice measures exceeded the CCNC Medicaid measures by 1.2 to 5.7 percentage points. The CCNC Medicaid programs and NC Health Choice exceeded the national averages on this measure for each of the four age groups in calendar years 2003, 2004, and 2005 by approximately 2 to 11 percentage points.¹⁹ Yet, the CCNC 2005 rates were 1.3 to 8.2 percentage points lower than the 2006 Medicaid HEDIS benchmarks (90th percentile).

Well child visits in the first fifteen months of life is defined within HEDIS® as “the percentage of persons who turned 15 months old during the measurement year and who had the following number of well-child visits with a primary care practitioner during the first 15 months of life: zero; one; two; three; four; five; six or more.”¹⁹ Within the CCNC networks during calendar year 2005, 62.8 percent of children had six or more well-child visits with a primary care practitioner during the first 15 months of life.¹⁹ This measure exceeds that of Health Choice (39.0 percent) and the HEDIS® national mean of 45.0 percent, yet is less than the 2006 Medicaid HEDIS® ninetieth-percentile benchmark of 68.6 percent.

Well child visits in the third, fourth, fifth, and sixth years of life is defined within HEDIS® as “the percentage of persons who were three, four, five, or six years of age during the measurement year who received one or more well-child visits with a primary care practitioner during the measurement year.”¹⁹ CCNC Medicaid (63.3 percent, 2005) exceeded NC Health Choice (58.2 percent) on this measure by 5.1 percentage points and the national HEDIS® mean (62.0 percent) by 1.3 percentage points. CCNC fell short of the 2006 Medicaid HEDIS® ninetieth percentile benchmark of 77.6 percent by 14.2 percentage points.

Adolescent well care visits is defined within HEDIS® as “the percentage of persons who were 12 to 19 years of age who had a least one comprehensive well-care visit with a primary care practitioner or an OB/GYN during the measurement year.”¹⁹ CCNC Medicaid did not meet the HEDIS® national mean values in calendar years 2003, 2004, or 2005. Only 32.2 percent of adolescents enrolled in CCNC Medicaid were reported to have received a well-care visit (as defined above) during calendar year 2005. Data were not available for North Carolina Health Choice for this measure.

Childhood immunization rates are defined within HEDIS® as the percentage of enrolled children who turned 2 years of age during the measurement year and who received all appropriate immunizations by their second birthday. Childhood immunization rates in CCNC Medicaid were slightly lower than the national HEDIS® average in calendar year 2004, for combined rates I and II. The 2004 CCNC Child Immunization Rate II was 26.1 percentage points lower than the 2006 Medicaid benchmark of 82.7 percent. No comparable data are available for North Carolina Health Choice.

Adolescent immunization rates are defined within HEDIS® as the percentage of children who have received the appropriate immunizations by age 13 years.¹⁹ In calendar year 2004, CCNC Medicaid reported an Adolescent Immunization Rate I of 21.3 percent, less than half of the HEDIS® national mean value of 51.9 percent.¹⁹ The 2004 CCNC Medicaid Adolescent Immunization Combination II rate of 1.9 percent is 59.6 percentage points lower than the 2006 Medicaid HEDIS® benchmark rate. No data are available for NC Health Choice for these measures.

In summary, the reported HEDIS data suggest that NC Health Choice exceeded CCNC Medicaid on some standard performance measures of well-child and preventive services, CCNC Medicaid performed better than Health Choice on others, and data were missing for Health Choice for some measures. For non-immunization measures CCNC Medicaid generally met or exceeded the national average performance levels, but often fell short of the 90th percentile benchmark levels. For immunization measures, CCNC Medicaid did not meet the 2006 Medicaid 90th percentile

benchmark or even the national mean values. Health Choice immunization performance data were not available.

Health Status and Health Behaviors of Children in North Carolina Medicaid

Child Health Assessment and Monitoring Program

The Child Health Assessment and Monitoring Program (CHAMP) survey was developed in the fall of 2004 and implemented by the North Carolina State Center for Health Statistics in January 2005.²⁹ CHAMP measures the health characteristics of children ages 0 to 17. Eligible children for the survey are drawn each month from the BRFSS (Behavioral Risk Factor Surveillance System) random telephone survey of North Carolina residents aged 18 and older in households with telephones.

The CHAMP survey collects data on a variety of health-related topics, including breast feeding, early childhood development, access to health care services, oral health, mental health, physical health, nutrition, physical activity, family involvement, and parent opinion on topics such as tobacco and childhood obesity.

The 2006 CHAMP survey results help to identify key areas for health improvement in North Carolina children in general, as well as for children enrolled in North Carolina Medicaid and Health Choice. For example, more than 30 percent of Medicaid and Health Choice children evaluated were “overweight” (body mass index [BMI] between eighty-fifth and ninety-fourth percentile) or “obese” (BMI at or above ninety-fifth percentile).²⁹ Health Choice exceeded NC Medicaid for overweight or obese children by 3 percentage points. The health status and economic implications of overweight are staggering. Approximately one-third of responding parents of children in NC Medicaid indicated that their children smoke cigarettes, exceeding the Health Choice rate by 15.1 percentage points.²⁹ More than half (53.8%) of responding NC Medicaid parents report that their children do *not* use sunscreen with a Sun Protective Factor (SPF) of 15 or more when outside on a sunny summer day for more than 15 minutes between the hours of 10 a.m. and 4 p.m, compared with 36.8% of Health Choice parents.²⁹ Injuries that prevented children from participating in usual activities for at least a day during the previous month were reported by six percent of Medicaid parents and 7.3 percent of Health Choice parents.²⁹ And, approximately 14 percent of Medicaid children missed at least 2 weeks of school in the prior 12 months because of injury or illness, compared with 16.8 percent of Health Choice children.²⁹

In general, it appears that NC Health Choice parents generally reported healthier behaviors for their children than NC Medicaid parents. Many factors could account for these differences, including those which are independent of health care service delivery.

Systems to Promote Use of Primary Care and Preventive Services

The CCNC Medicaid and SCHIP programs have implemented a Medical Home Campaign to emphasize to patients the importance of having a “medical home” that provides preventive and primary health care services.¹⁸ In addition, the CCNC Medicaid program formalizes this important concept by linking each enrolled child with a primary care provider. The North Carolina Health Check/EPSTD Program also supports this goal through efforts of 105 Health Check Coordinators who are based in 88 of 100 counties in the state.¹⁷ Yet, several key informant interview

respondents mentioned that CCNC focuses on chronic diseases and does not actively focus on preventive services because of the emphasis on cost containment and quality improvement in those enrollees with known disease. The lack of systems within CCNC to promote well-child and preventive care services seems to contradict one goal of transferring children from NC Health Choice to CCNC Medicaid, to improve well-child and preventive care for these children.

Recommendation 2: Utilization of Primary Care and Preventive Services

Recommendation 2.1: Explore Options for New Information Management Systems to Improve Primary Care and Prevention through Population-Based Strategies

- *Develop Integrated Information Systems to Support Population-Based Strategies:* Explore the use of new, integrated, or enhanced information systems utilized by Health Check Coordinators, CCNC case managers, and primary care providers to identify children in need of primary care and/or preventive services, document interventions, outcomes, and plans, and monitor outcomes, including overall compliance with primary care and prevention-based services.
- *Monitor Health Behaviors of All Enrolled Children:* Expand the administration of the CHAMP survey, or a subset of CHAMP survey questions, to parents of all North Carolina Medicaid and Health Choice children.
- *Systematically Identify Health Promotion and Primary Prevention Needs of Children:* Develop strategies to synthesize data from the “mini-CHAMP,” health care claims (HEDIS® measures, such as compliance with well-child checks), the immunization registry, and Clinical Management Information Systems to identify enrolled children who are in need of primary care and preventive health care services. This system should include online real-time reports of enrollees, stratified by needs.

Recommendation 2.2: Implement Population-Based Strategies and Improve Collaboration Among Primary Care Providers, Case Managers, and Health Check Coordinators to Improve Utilization of Primary Care and Preventive Services and Improve Health Behaviors and Health of Enrolled Populations

- *Collaborative and Coordinated Primary and Preventive Care:* Encourage the CCNC networks, through future contractual requirements, to work collaboratively with primary care practices and providers, case managers, and Health Check Coordinators in their geographic service areas to develop annual strategic plans to implement population-based strategies to improve the delivery of primary and preventive health care services and the health status of enrollees.

III. Emerging Hybrid System of Financing Care for Low-Income Children

Finding 3: Emerging Hybrid System of Financing Care for Low-Income Children

Some states have experienced problems of coordination and equity because of the differences between Medicaid and SCHIP in processes such as enrollment.¹³ North Carolina has worked to create an enrollment process and form(s) that are the same for Medicaid and Health Choice programs to reduce coordination issues. However, respondents of key informant interviews mentioned several problems experienced because of the separate SCHIP and Medicaid programs in North Carolina [Appendix C]. Some blended families have children enrolled in Medicaid and Health Choice, and other children who are uninsured because the biological children of both parents in the blended family do not qualify for either program. Parents with children in both programs, for example, 0- to 5-year olds in CCNC Medicaid, and 6- to 18-year olds in Health Choice, often have a difficult time understanding the differences in coverage between Medicaid and Health Choice. Data which quantify the number of families with children enrolled in both NC Medicaid and Health Choice are not currently available.

Both providers and clients seem confused by the multiple program names, such as CCNC, Carolina ACCESS, SCHIP, Health Choice, and individual CCNC network names. And, Health Check Coordinators answer families' questions about Medicaid, yet must refer families to Blue Cross & Blue Shield to answer questions about Health Choice. The problems associated with a lack of integrated databases were outlined previously.

Recommendation 3: Emerging Hybrid System of Financing Care for Low-Income Children

- Because families are likely to have children enrolled in both Medicaid and Health Choice, it is important to improve coordination between the two programs, first by enhancing the integration of databases, and second by increasing the responsibility of Health Check Coordinators for Health Choice beneficiaries.

Conclusion

North Carolina has taken significant action to help ensure appropriate and affordable coverage for low-income children; Medicaid and the Health Choice program are critical components of this effort. Providing access to the services available through the CCNC managed care network offers another opportunity to make health coverage more comprehensive for these children and to focus on preventive care, which is beneficial for both the individual and the state. The process of linking eligible children to these services should continue to be improved through enhanced collaboration and more streamlined data management systems.

References:

1. AccessCare, Programs & Initiatives [accessed on July 17, 2007 at: <http://www.ncaccesscare.org/>].
2. Adams EK, Bronstein JM, Florence CS. The impact of Medicaid primary care case management on office-based physician supply in Alabama and Georgia. *Inquiry*. 2003; 40:269-282.
3. Bardenheier B, Kong Y, Shefer A, Zhou F, Shih S. Managed care organizations' performance in delivery of childhood immunizations. *Am J Manag Care*. 2007; 13(4):193-200.
4. CDC, National Center for Chronic Disease Prevention and Health Promotion. Healthy youth! Childhood overweight. 2006 [Accessed on May 15, 2006 at: <http://www.cdc.gov/healthyyouth/obesity/>].
5. Ebbeling CB, Feldman HA, Osganian SK, Chomitz VR, Ellenbogen SJ, Ludwig DS. Effects of decreasing sugar-sweetened beverage consumption on body weight in adolescents: a randomized, controlled pilot study. *Pediatrics*. 2006; 117(3):673 – 680.
6. Friedman N, Fanning EL. Overweight and obesity: an overview of prevalence, clinical impact, and economic impact. *Disease Management*. 2004; 7(S1):S1-S6.
7. Halpern R, Boulter P. Population-based health care: definitions and applications. Tufts Managed Care Institute, November 2000 [accessed on July 28, 2007 at: https://www.thci.org/downloads/topic11_00.PDF]
8. Hurley RE, Freund DA, Taylor DE. Emergency room use and primary care case management: evidence from four Medicaid demonstration programs. *AJPH*. 1989; 79(7):843-847.
9. Ibrahim MA, Savitz LA, Carey TS, Wagner EH. Population-based health principles in managed care. Report prepared for Group Health Cooperative of Puget Sound.
10. Jacobson Vann JC, Szilagyi P. Patient reminder and recall systems to improve immunization rates. *The Cochrane Library, Cochrane Database Syst Rev*. 2005; [www.cochrane.org/reviews/en/ab003941.html].
11. Johnson S. Overweight in toddlers: motivating parents and caregivers. Medscape continuing education. 2006; [accessed on January 21, 2006 at: <https://mir.ncaccesscare.org/Session/216-tBBDhF3v6HfsyesfAPyW/MessagePart/INBOX...>].
12. Kenney G, Yee J. SCHIP at a crossroads: experiences to date and challenges ahead. *Health Affairs*. 2007; 26(2):356-369.
13. Kenney G, Chang DI. The State Children's Health Insurance Program: successes, shortcomings, and challenges. *Health Affairs*. 2004; 23(5):51-62.
14. National Committee for Quality Assurance, The State of Health Care Quality 2006, [accessed on July 24, 2007 at: <http://web.ncqa.org/Default.aspx?tabid=447>].

15. National Committee for Quality Assurance. National Medicaid Results for Selected 2000 HEDIS® and HEDIS/CAHPS® Measures. [accessed on July 24, 2007 at: <http://www.ncqa.org/Programs/HEDIS/medicaidchildhood00.htm>].
16. National Committee for Quality Assurance. Medicaid HEDIS 2006 Means, Percentiles and Ratios, [accessed on July 27, 2007 at: http://web.ncqa.org/Portals/0/HEDISQM/Programs/CompAud/MPR/HEDIS_2006_Means_Percentiles_Medicaid.pdf].
17. North Carolina Division of Medical Assistance, Health Check/EPSDT Program Policies and Procedures, July 16, 2007 [accessed on July 27, 2007 at: <http://www.dhhs.state.nc.us/dma/healthcheck/hcmanual.htm>].
18. North Carolina Division of Medical Assistance, Carolina Access Overview, [accessed on July 17, 2007 at <http://www.dhhs.state.nc.us/dma/ca/caoverview.pdf>].
19. North Carolina Division of Medical Assistance, DMA HEDIS Data (Health Plan Employer Data and Information Set), HEDIS Reporting for CY2005, [accessed on July 20, 2007 at: <http://www.dhhs.state.nc.us/dma/ca/hedisreport2006.pdf>].
20. North Carolina Division of Medical Assistance, Medicaid Eligibility, (accessed on August 9, 2007 at: <http://www.dhhs.state.nc.us/dma/basicmedelig.pdf>).
21. North Carolina Division of Medical Assistance, North Carolina Medicaid, Carolina ACCESS Statewide Enrollment Reports, 2006 and 2007; [accessed on July 28, 2007 at: <http://www.ncdhhs.gov/dma/ca/enroll/enroll.htm>].
22. North Carolina Division of Medical Assistance, North Carolina Eligibility Information – Authorized Eligibles by County, reports by month and year; [accessed on July 28, 2007 at: <http://www.ncdhhs.gov/dma/elig/elig.html>].
23. North Carolina Division of Medical Assistance, Draft: Framework for the Annual Report of the State Children’s Health Insurance Plans Under Title XXI of the Social Security Act. July 2007 (draft annual report).
24. North Carolina Division of Medical Assistance, “Quality, Evaluation, and Health Outcomes (QEHO) Initiatives,” <http://www.dhhs.state.nc.us/dma/ca/qehoinitiatives.html>.
25. North Carolina Division of Public Health, Women & Child Health Section, Immunize North Carolina, North Carolina Immunization Registry, [accessed on July 23, 2007 at: <http://www.immunizenc.com/NCIR.htm>].
26. Action for Children North Carolina. Press Release, August 1, 2007, [assessed on December 10, 2007 at <http://www.ncchild.org/content/view/683/149/>].

27. North Carolina Institute of Medicine. NC Health Choice: 2003, [accessed on December 19 at: <http://www.nciom.org/pubs/child.html>].
28. North Carolina Oral Health Section, Department of Health and Human Services, Division of Public Health. Into the Mouth of Babes, NC Dental Screening & Varnish Project, [accessed on August 7, 2007 at: http://www.communityhealth.dhhs.state.nc.us/dental/Into_the_Mouths_of_Babes.htm].
29. North Carolina State Center for Health Statistics, Child Health Assessment and Monitoring Program, [accessed on July 23, 2007 at: <http://www.schs.state.nc.us/SCHS/champ/index.html>].
30. North Carolina State Center for Health Statistics, Behavioral Risk Factor Surveillance System (BRFSS), [accessed on July 25, 2007 at: <http://www.schs.state.nc.us/SCHS/brfss/>].
31. O'Connor PJ, Pronk NP. Integrating population health concepts, clinical guidelines, and ambulatory medical systems to improve diabetes care. *J Ambulatory Care Manage*, 1998; 21(1):67-73.
32. Rivo ML. It's time to start practicing population-based health care. *Family Practice Management*. 1998; 5(6); (accessed on July 31, 2007 at: <http://www.aafp.org/fpm/980600fm/popbased.html>).
33. Roberts MW, Vann WF. Access to dental care for young children in North Carolina: history and current status of workforce issues. *NC Med J*. 2005; 66(6):452-455.

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