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The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Health Care

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The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Health Care

A Policy Monograph of the
American College of Physicians

This paper, written by Michael Barr, MD, MBA, Vice President, Practice Advocacy & Improvement, and Jack Ginsburg, Director, Policy Analysis & Research, was developed for the Health and Public Policy Committee of the American College of Physicians: Jeffrey P. Harris, MD, *Chair*; David L. Bronson, MD, *Vice Chair*; CPT Julie Ake, MC, USA; Patricia P. Barry, MD; Molly Cooke, MD; Herbert S. Diamond, MD; Joel S. Levine, MD; Mark E. Mayer, MD; Thomas McGinn, MD; Robert M. McLean, MD; Ashley E. Starkweather, MD; and Frederick E. Turton, MD. It was approved by the Board of Regents on 22 January 2006.

Executive Summary

This policy monograph highlights some of the major problems with the health care system in the United States today and proposes a fundamental change in the way that primary care and principal care are delivered and financed. It recommends voluntary certification and recognition of primary care and specialty medical practices that provide patient-centered care based on the principles of the Chronic Care Model; use evidence-based guidelines; apply appropriate health information technology; and demonstrate the use of “best practices” to consistently and reliably meet the needs of patients while being accountable for the quality and value of care provided. The American College of Physicians (ACP) introduces the term “advanced medical home” to distinguish these practices and calls for consideration and testing of this model of care. The issues identified and positions offered in this monograph address major concerns about the status of the U.S. health-care system. The monograph contains the following four policy positions:

Position 1. ACP calls for a comprehensive public policy initiative that would fundamentally change the way that primary care and principal care (whether provided by primary care or specialty care physicians) are delivered to patients by linking patients to a personal physician in a practice that qualifies as an advanced medical home.

Position 2. Fundamental changes should be made in third party financing, reimbursement, coding, and coverage policies to support practices that qualify as advanced medical homes.

Position 3. Fundamental changes should be made in workforce and training policies to assure an adequate supply of physicians who are trained to deliver care consistent with the advanced medical home model, including internists and family physicians.

Position 4. Further research on the advanced medical home model and a revised reimbursement system to support practices structured according to this model should be conducted and should include national pilot testing.

An Environment for Change

The U.S. health care system is poorly prepared to meet the current, let alone the future, health care needs of an aging population. Health care costs are continuing to grow faster than the economy, and employers, government, and individuals are straining under the financial burden. Patients are dissatisfied (1–3) and, physicians are dissatisfied (4–7), and employers are cutting back on worker and retiree health insurance coverage and benefits (8–10). At the same time, 45.8 million Americans are uninsured and the number is rising. The Medicare Hospital Insurance Trust Fund will soon be insolvent (11). Funding the remainder of the Medicare program is being accomplished through cutbacks in services, decreasing reimbursements to physicians, and passing premium increases along to beneficiaries. The states’ and the federal government are also reducing Medicaid benefits and coverage, while costs continue to escalate.

In this environment, physicians are pressured to see more patients in less time (12); they are inundated with administrative paperwork and regulatory requirements; they have added pressure to stay current with an overload of information in a medical environment that is increasingly more technical and complicated, and they struggle to keep their practices afloat in the face of

declining revenues and increasing costs. Trusting, intimate relationships with patients have suffered as physicians and patients struggle with the financial and bureaucratic complexities of public and private insurance coverage issues, which can cause substantial stress within patient-physician relationships (13).

Many young physicians also must deal with paying off substantial medical education debts. The median indebtedness of medical school students graduating this year is expected to be \$120,000 for students in public medical schools and \$160,000 for students attending private medical schools. About 5% of all medical students will graduate with debts of \$200,000 or more (14). Physicians also must stay current with ever expanding medical knowledge and technology in accord with evolving medical standards of quality. To make matters worse, insufficient numbers of young physicians are entering careers in primary care, and increasing numbers of older physicians are dissatisfied with their careers and indicate that they will soon discontinue practice.

In addition, health care outcomes in the United States contrast poorly with those of other industrialized countries (15,16). In too many instances, unnecessary or inappropriate health care services are provided because there is little coordination of patient care among providers or across sites of service (17). Medical care at the end of life consumes more than a quarter of the Medicare budget (18). Avoidable errors and safety issues are common. Indefensible disparities in the quality of health care persist along geographic, racial, ethnic, and socioeconomic lines (19, 20).

Our system of private health insurance and governmental programs emphasizes episodic treatment for acute care. Care management, proactive or planned care, active cross-discipline management, and even some preventive care are often uncovered services or are poorly reimbursed. Yet, 45% of the U.S. population has a chronic medical condition and about half of these, 60 million people, have multiple chronic conditions (21). For the Medicare program, 83% of beneficiaries have one or more chronic conditions and 23% have five or more chronic conditions(22). Within 10 years (2015), an estimated 150 million Americans will have at least one chronic condition (21). The organization of health care as well as payment and reimbursement policies needs to change to accommodate this shift from acute to chronic care. But, who will care for the chronically ill and elderly patients, if current trends continue and there are not enough primary care physicians?

In this paper, ACP proposes consideration of an advanced medical home model that offers the potential to improve U.S. health care by focusing on strengthening and supporting the patient-physician relationship. This model entails a central resource (the advanced medical home) with a competent team, including a physician specialist in complex, chronic care management, and coordination and active involvement by informed patients. The ACP position paper, "Patient-Centered, Physician-Guided Care for the Chronically Ill" introduced this concept for patients with chronic disease (23). This monograph builds on the positions expressed in that paper and expands the scope to address the needs of patients as they navigate the health care system. A framework for redesigning the reimbursement system to support the recommendations is described and will be developed further in a paper to be released in mid-2006. Macro-level policy reforms (financing, coverage, reimbursement, physician education and training, and workforce distribution) will be needed to support this model, but the first step is to define the

principles that deserve support. Development of the macro-level changes that are required to implement and sustain the model will follow.

Position 1. ACP calls for a comprehensive public policy initiative that would fundamentally change the way that primary care and principal care (whether provided by primary care or specialty care physicians) are delivered to patients by linking patients to a personal physician in a practice that qualifies as an advanced medical home.

The Advanced Medical Home Model

The medical home concept has been previously described as early as 1967 by the American Academy of Pediatrics' Council on Pediatric Practice and the effectiveness of the model in caring for children with special needs has been demonstrated (24, 25). The American Academy of Family Physicians described the medical home in its Future of Family Medicine project (26). The advanced medical home builds on these concepts, which are based on a vision of health care from the perspective of a patient and his or her family. ACP describes the model in the context of redesigning the reimbursement system to support the evolution of care according to these principles.

The advanced medical home acknowledges that the best quality of care is provided not in episodic, illness-oriented, complaint-based care—but through patient-centered, physician-guided, cost-efficient, longitudinal care that encompasses and values both the art and science of medicine. Attributes of the advanced medical home include promotion of continuous healing relationships through delivery of care in a variety of care settings according to the needs of the patient and skills of the medical provider. Physicians are once again partners in coordinating and facilitating care to help patients navigate the complex and often confusing health care system by providing guidance, insight, and advice in language that is informative and specific to patients' needs.

In the advanced medical home model, patients will have a personal physician working with a team of healthcare professionals in a practice that is organized according to the principles of the advanced medical home. For most patients the personal physician would most appropriately be a primary care physician, but it could be a specialist or subspecialist for patients requiring on-going care for certain conditions, e.g., severe asthma, complex diabetes, complicated cardiovascular disease, rheumatologic disorders, and malignancies. Primary care physicians are defined as physicians who are trained to provide first contact, continuous, and comprehensive care (27). Principal care, that is, the predominant source of care for a patient based on his or her needs, can be provided by a primary care physician or medical specialist. In most cases, primary care physicians, with their office care team, are ideally suited to provide principal care and be a patient's care coordinator – a personal physician, in the advanced medical home model. However, a medical specialist with his or her office care team can fulfill the role of personal physician as defined in this paper if he or she so chooses. Rather than being a “gatekeeper” who restricts patient access to services, a personal physician leverages the key attributes of the advanced medical home to coordinate and facilitate the care of patients and is directly accountable to each patient. Personal physicians advocate for and provide guidance to patients and their families as they negotiate the complex health care system.

Key Attributes of the Advanced Medical Home

Practices and physicians that adopt the advanced medical home structure will: a) use evidence-based medicine and clinical decision support tools to guide decision making at the point of care based on patient-specific factors; b) organize the delivery of that care according to the Chronic Care Model (CCM) but leverage the core functions of the CCM to provide enhanced care for all patients with or without a chronic condition; c) create an integrated, coherent plan for ongoing medical care in partnership with patients and their families; d) provide enhanced and convenient access to care not only through face-to-face visits but also via telephone, email, and other modes of communication; e) identify and measure key quality indicators to demonstrate continuous improvement in health status indicators for individuals and populations treated; f) adopt and implement the use of health information technology to promote quality of care, to establish a safe environment in which to receive care, to protect the security of health information, and to promote the provision of health information exchange; and g) participate in programs that provide feedback and guidance on the overall performance of the practice and its physicians.

Drs. Ed Wagner and Michael von Korff and colleagues at Group Health Cooperative initially described the Chronic Care Model (CCM) (28). The College believes that the CCM can be equally applied across all clinical situations and offers a valuable framework for the redesign of the care delivery system. Therefore, this monograph will subsequently refer to the CCM as simply the “Care Model” to emphasize that the elements of the model can apply to all patients, not just those with chronic illness. The Care Model (CM) emphasizes that improved functional and clinical outcomes are the product of an informed, activated patient and a prepared, proactive practice team. A full description of the components of the CCM is included as an appendix to the “Patient-Centered, Physician-Guided Care for the Chronically Ill” paper from October 2004 (23).

In brief, the key practice-based components of the CM include encouraging patients to engage in the management of their own health (self-management) and providing them with the resources and skills to obtain appropriate health care services; designing the delivery system to assure the provision of effective, efficient clinical care; embedding clinical decision support tools into daily practice; and using information technology to support patient education, patient care planning, coordination of care, and monitoring of performance. The system-level attributes of the CM include the use of community resources, partnerships, and policies to support the health care system, and organization of health care to create a culture of safe and high-quality care. These elements of the CM are central to the distinct advantages of a health care delivery system that supports the economic viability of practices structured to be a patient’s advanced medical home.

Health care provided through a medical home is distinctly different from disease management programs. Typical disease management programs utilize “case managers” provided by the patient’s health plan or a contracted disease management company (29). The best programs attempt to include the treating physician and his or her team, but the emphasis is usually on the relationship between the patient and the case manager, with periodic input requested from the patient’s physician. In the advanced medical home model, the care and coordination of that care continually resides with the patient’s personal physician and his or her health care team. The patient and physician decide on specific health care objectives and then choose the best way to achieve these objectives. Advanced medical home practices will provide

a range of options for their patients to support their personal health goals (e.g., health education, nutrition services, disease management) either directly or through established relationships with external providers of these services, such as disease management companies. The patient, with support from the physician and other members of the health care team that may include nurses, social workers, care managers, dietitians, pharmacists, physical and occupational therapists, and other allied health care professionals, then becomes engaged in his or her health care, and the health care system better serves the needs of each individual patient.

[Please see the Appendix for three scenarios illustrating how patient care might be provided in physician practices using the advanced medical home model.]

Position 2. Fundamental changes should be made in third party financing, reimbursement, coding, and coverage policies to support practices that qualify as advanced medical homes.

A Reimbursement System to Support the Advanced Medical Home

The College believes that the advanced medical home model offers an opportunity to demonstrate the value of coordinated, patient-centered, physician-directed care that is enabled by health information technology and accountable for achieving measurable improvements in the quality of care provided. However, the current reimbursement system does not provide the financial support for practices and physicians to adopt, implement, and maintain the infrastructure and processes necessary for this model of care, except in integrated group practices that are largely funded through prepayments. The scenarios in the Appendix illustrate modes of care delivery that would not be reimbursed under the current reimbursement system. Therefore, a revised reimbursement model is absolutely essential for the advanced medical home to be adopted widely.

A revised reimbursement system would acknowledge the value of both providing and receiving coordinated care in a system that incorporates the elements of the Care Model (CM) organized according to the advanced medical home model. Further, such a system would align incentives so physicians and patients would choose medical practices that deliver care according to these concepts. Physicians would elect to redesign their practices because the model is supported by enhanced reimbursement for system-based care in the advanced medical home, rather than the volume-based, episodic, fee-for-service system currently in place. Patients would select an advanced medical home based on service attributes, such as the patient-centeredness, improved access, and coordinated care of a practice, as well as value attributes as demonstrated by publicly available reports on quality and cost.

The revised reimbursement system would start with the identification of physicians and practices that can demonstrate consistent application of the key attributes described for the advanced medical home, as well as accomplishment of training in the principles of the CM and systems-based care. The College envisions a voluntary process to qualify practices for this designation prior to becoming eligible for the revised reimbursement model. As part of this practice qualification process, physicians in the practice would need to complete a self-paced educational

module on the CM and systems-based care provision, such as the Practice Improvement Modules of the American Board of Internal Medicine or comparable educational programs.

Further research and policy development will be necessary to determine a reasonable process for certifying practices that meet criteria as an advanced medical home (see position 4). Once qualified, a practice would become eligible for reimbursement based on the provision of care according to the advanced medical home concept. An analysis of potential reimbursement mechanisms will be the subject of a subsequent ACP monograph. However, the key elements of a revised reimbursement system should include compensation for the following: a) the coordination of care both within a given practice and between consultants, ancillary providers, and community resources; b) adoption and use of health information technology for quality improvement; c) provision of enhanced communication access such as secure e-mail and telephone consultation; d) remote monitoring of clinical data using technology; and e) pay-for-reporting or pay-for-performance. Examples of other features of a revised reimbursement model to consider include providing enhanced coverage for beneficiaries and reducing co-insurance for patients who select an advanced medical home for their principal care and reducing administrative burdens for physicians and practices, e.g., modification of documentation requirements for coding and elimination of need for advanced beneficiary notices.

A reimbursement model that supports the development of the advanced medical home would provide some of the financial benefits of the retainer or boutique model of care. However, access to these benefits would be more widely available, not just to those patients who could afford to pay an additional annual fee. If done correctly, by incorporating the elements of a revised reimbursement model cited above, qualified practices would benefit from reduced practice hassles and improved revenue, while building systems of care to meet the challenges of an aging population. This model of reimbursement to support practice redesign would provide an alternative for physicians who might otherwise become part of the niche market of concierge primary care (30) – an important consideration given the anticipated shortfall in physicians able to meet the growing needs of the U.S. population. Further, since this reimbursement system would recognize and compensate primary care physician practices for the quality of care delivered while reducing the typical administrative hassles, it may also help reverse the trends cited below that document a significant decline in medical students choosing primary care specialties.

Position 3. Fundamental changes should be made in workforce and training policies to assure an adequate supply of physicians who are trained to deliver care consistent with the advanced medical home model, including internists and family physicians.

The Crucial Role of Primary Care Physicians

Primary care physicians play an essential role in the advanced medical home model. While specialists may choose to provide care according to this model, in the vast majority of cases a primary care physician will serve as the patient's personal physician and will generally be the one who coordinates comprehensive and continuous care.

Internists are especially well prepared to evaluate and manage all aspects of illness---biomedical and psychosocial---in the whole patient, and thus are uniquely qualified to be the personal

physician for patients in qualified advanced medical home practices. Internists are expert diagnosticians who can treat and manage chronically ill patients with one or multiple complex and interactive illnesses. Internists also are experts in evidence-based disease prevention, early detection of disease, medication management, and health promotion. They serve as consultants when patients have difficult, undifferentiated problems and may also have special areas of expertise (31). With some additional training, they will be well equipped to assemble and guide care teams in an advanced medical home practice in the community, where they will prescribe necessary services and serve as the patient's guide and advocate in a complex health care environment. The advanced medical home model would utilize the internist's skill as a coordinator of services patients need from multiple other diagnostic and therapeutic specialties. Practices following the advanced medical home model would value the internist's familiarity with the science of clinical epidemiology and evidence-based medicine. Such a practice would also value the internist's thoughtful, cost-effective practice style for evaluation and management. A physician practice that qualifies as an advanced medical home would also be able to utilize the internist's skills as a clinical information manager who can take full advantage of health information technology.

As more practices adopt the advanced medical home model, the value of internists and other primary care physicians may be enhanced. However, there may not be enough of these physicians to meet the growing needs of the U.S. population. The need for physicians to care for patients with chronic and complex illnesses will increase substantially as the U.S. population ages. Within only 5 years, the first of a wave of 76 million baby boomers will begin to be eligible for Medicare. The population age 85 and over, which is most likely to require chronic care services for multiple conditions, will increase 50% from 2000 to 2010. It will more than double by 2030, and more than quadruple by 2050 (32).

For the nation to have a sufficient supply of primary care physicians to meet future needs for preventive care, the diagnosis and management of undifferentiated symptoms, and skill in designing unique plans for patients with multi-system problems, strong public financial support will be needed for primary care training and for innovative programs to increase the appeal of careers in primary care. Widespread adoption of the advanced medical home model will further enhance the need for training in primary care.

An Impending Crisis in Primary Care

There is growing evidence that shortages are developing for primary care physicians in the United States, particularly among general internists, geriatricians, family physicians, and for certain subspecialists in internal medicine. Previous expectations of an excess supply of physicians have not materialized. Current projections indicate that the future supply of physicians will be inadequate to meet the health care needs of the aging U.S. population, especially as baby boomers are beginning to reach retirement age in 2011, when they will be at increased risk for needing health care services. One recent study projects a shortage of 200,000 physicians by 2020 (33).

The American College of Physicians is particularly concerned about emerging shortages in internal medicine and its subspecialties. Over the past several years, numerous studies have found that shortages are occurring in internal medicine (34–36). Additionally, several internal medicine subspecialty societies—including the American College of Cardiology, the Committee on Manpower for Pulmonary and Critical Care Societies, and the American Geriatrics Society—have asserted that they are in or on the cusp of a workforce shortage (36–38).

Yet, medical student interest in careers in the primary care specialties of internal medicine, family medicine, pediatrics, and obstetrics/gynecology has been declining (39). The trend away from primary care has been well documented by the annual residency training match sponsored by the National Resident Matching Program. The number of U.S. medical school graduates who choose to enter generalist residency training has decreased from 50% in 1998 to less than 40% in 2004. The decrease has been greatest in family medicine training programs, which has declined 41%. Internal medicine and pediatrics declined by 9% and 8% respectively. It should be recognized that these data include physicians who began residency training in internal medicine and pediatrics but will go on to subspecialize. Consequently, the number of physicians who enter practice in primary care will be much lower. There also are a relatively small number of residency programs that provide a specific training track for primary care, and the number of trainees in these programs has also declined. Primary-care-track internal medicine residents declined 46% from 347 in 1999 to 188 in 2004, and primary care pediatrics declined 24% from 63 in 1999 to only 48 in 2005 (40).

A recently published study of the career plans of internal medicine residents documents the steep decline in the willingness of physicians to enter training for primary care. In 2003, only 19% of first year internal medicine residents planned to pursue careers in general medicine. Among third-year internal medicine residents, only 27% planned to practice general internal medicine compared to 54% in 1998 (41).

The Advanced Medical Home Model: Implications for Physician Education, Training, and Practice

The long pipeline of medical education and training and the retirement and career changes of older physicians require that the nation have a constant influx of new students embarking on medical careers, as well as training and continuing medical education for those already in practice. The demand for primary care physicians of all types will continue to increase as the population ages and its health care needs increase and as the demand for acute chronic and long-term care increases. To better prepare physicians for practice in settings using the advanced medical home model, changes in training will be needed in undergraduate and graduate medical education, as well as in continuing medical education. Funding also will be needed to develop training settings where principles of the model will be used.

The workforce needs of the advanced medical home model have yet to be determined. If in response to adoption of the model, physicians reduce their practice panels in order to provide more time for each patient, there will be an even greater need to increase the supply of primary care physicians. On the other hand, adoption of the model could result in positive changes in

physician career satisfaction that could result in more physicians entering and remaining in primary care careers.

In either case, medical education and training will need to change to better prepare young physicians for practice under the advanced medical home model. In a recent position paper of principles and goals for redesigning training in internal medicine, ACP identified some of the kinds of changes that will be needed in medical school training:

Training, particularly in the ambulatory setting, must occur in well-functioning practice environments that demonstrate a patient-centered, service-oriented approach. The fourth year is a time when students should receive “translational education” that allows them to translate the knowledge they have learned into effective and high quality care of patients. This involves an understanding of the shortcomings of current healthcare delivery, the need for effective and efficient systems of delivery of care, and the value of a team-based approach. Students should understand the principles of best models of care, and should have an opportunity to see how such models are effectively utilized (42).

To improve the attractiveness of careers in primary care, medical education and training will need to provide students, residents, and practicing physicians with the key skills necessary for successful and satisfying practices in the 21st century. These include an understanding of the importance of a multidisciplinary team-based approach for both inpatient and outpatient care, learning how to assemble and work with non-physician members of the health care team, innovative practice management concepts, and an adequate framework for understanding and adapting to evolving health care policy issues. Training for the advanced medical home model will need to prepare residents and practicing physicians to function as integral members of a health care team that may include nurses, social workers, care managers, dietitians, physical and occupational therapists, and other allied health care professionals.

Position 4. Further research on the advanced medical home model and a revised reimbursement system to support practices structured according to this model should be conducted and should include national pilot testing.

The Center for Medicaid and Medicare Services (CMS) should, in 2007, conduct a national pilot program in various primary care settings to determine the feasibility, cost effectiveness, and impact on patient care of the advanced medical home. This effort should specifically address the advanced medical home model but would complement ongoing and planned CMS pilot programs such as the Medicare Physician Group Practice Project, the Medicare Care Management Performance Demonstration (MMA Section 649), and Medicare Health Support Pilot (MMA Section 721) and Medicare Health Quality Demonstration Program (MMA Section 646). The Advanced Medical Home Demonstration Program should help determine appropriate criteria for qualifying a medical practice as an advanced medical home. The pilot should also identify and test various payment options to support practices that qualify as advanced medical homes. Metrics for evaluation of the pilot should include patient satisfaction, physician and staff satisfaction, clinical process and outcome measures, payment costs as well as cost offsets, and the potential economic impact on physicians who adopt the advanced medical home structure.

Modeling and testing of the advanced medical home should also consider its potential impact and ramifications on patient access to health care, health care costs, physician supply and specialty mix, physician practice costs and practice patterns, health insurance coverage, and medical education and training.

Conclusion

Donald Berwick described four levels of the U.S. health care system (43): the experience of patients (Level A); the functioning of small units of care delivery (“microsystems”) (Level B); the functioning of the organizations that house or support microsystems (Level C); and the environment of policy, payment, regulation, etc. (Level D), which influences Levels B and C. This monograph highlights the significant issues our health care system is currently facing, and will continue to experience, in Level D. Policies, payments, and the regulations that codify these processes are ill suited to the challenges outlined. The current dysfunctional physician payment system fosters an environment that is leading to declining access, accelerating costs, and mediocre quality—trends that are clearly contrary to the needs and desires of patients, physicians, and society. The current method of physician payment rewards quantity rather than quality and undervalues primary and preventive care. The current system cannot support the patient-centered care envisioned by the advanced medical care model.

The American College of Physicians believes that the advanced medical home model, applied in the context of a revised reimbursement system addresses all four of Berwick’s levels.

- It will revitalize the patient-physician relationship and place the patient and his or her family at the center of care;
- It will stimulate practice-level innovation to provide enhanced quality, effectiveness, safety, efficiency, and value because practices will be able to invest in systems-based care and measurement of that care;
- It will enhance coordination of care across all domains of the health care system (hospitals, home health agencies, nursing homes, consultants, and other components of our complex health care network);
- It will recognize that care provided by a personal physician, operating in accord with the advanced medical home model is a highly valuable service; and
- It will lead to the macro system changes required to support this enriched health care model (financing, coverage, reimbursement, physician education and training, and workforce distribution).

Appendix

The following scenarios illustrate how three different medical practices might implement the advanced medical home model. The scenarios were designed to highlight the key attributes of the model recognizing that the current reimbursement system limits many practices from investing in the systems and technology described.

Scenario #1: Dr. X and Ms. Jones

Practice Setting: Dr. X is a solo practitioner in an established practice supported by a full-time administrative assistant and a full-time clinical assistant. The practice uses a fairly typical practice management system, but does not have an electronic medical record. However, Dr. X and her team implemented a free registry program she obtained from the state Quality Improvement Organization (QIO). The registry is a simple database that Dr. X and her team use to keep track of a limited number of patient-specific clinical indicators. While the database is capable of tracking many parameters, Dr. X uses it just to enter data pertaining to the performance measures endorsed by the Ambulatory Care Quality Alliance (AQA) for diabetes mellitus, congestive heart failure, and coronary artery disease. The registry also allows Dr. X to create clinical rules for preventative health care. Dr. X uses an internet-based e-prescribing program associated with a national laboratory vendor for a monthly fee. On-line lab ordering and retrieval are free.

Clinical Care: Each month, Dr. X's assistant runs a query built into the registry to generate a list of patients who are due for a condition-specific intervention. This month, the assistant notes that among the patients who need to be seen is Ms. Jones, a 67-year-old diabetic, who is due for a visit and needs her hemoglobin A1c checked. Dr. X's assistant notes that the registry also has prompted her that Ms. Jones is due for her tetanus vaccine, mammogram, and a lipid profile. The assistant enters the laboratory orders on-line and contacts the patient to discuss the need for these laboratory tests, the mammography, and tetanus vaccine. Once she sets up an appointment with Dr. X, the assistant schedules the laboratory tests for anytime the week prior to the appointment, as well as a mammography appointment for later on the same day as the appointment with Dr. X. On the day of Ms. Jones' appointment, the clinical assistant makes sure that the laboratory results from the week prior are in the chart. Ms. Jones arrives for the appointment. Because Dr. X has an established standing order for routine vaccinations, the clinical assistant is able to provide Ms. Jones with the tetanus vaccine while Dr. X finishes up with the previous patient. The assistant also asks Ms. Jones to update her self-management goal checklist and to self-address a fold-over result notification card. As the assistant leaves the room, she takes Ms. Jones's home glucose monitoring log to enter results into the registry database and reminds Ms. Jones to remove her shoes and stockings so that Dr. X can do a diabetic foot exam. The assistant enters representative glucose values from the log into the registry and checks off that a tetanus vaccination was provided. Later she will take the self-addressed fold-over card and place it in a weekly file to prompt her that there are outstanding test results pending.

Dr. X enters the room after reviewing the laboratory tests attached to the chart, the registry-generated data sheet indicating the need for Ms. Jones' annual breast exam, Ms. Jones' home

monitoring log, and the graph of the home glucose monitoring results printed out by his assistant. She hands Ms. Jones her log and congratulates her on how well she is keeping track of her home testing results. Dr. X reviews Ms. Jones's chart and the self-management checklist that they agreed upon at the last visit. After noting that Ms. Jones' weight has increased (as well as a slight increase in her hemoglobin A1c and LDL), Dr. X and Ms. Jones briefly discuss nutrition and exercise, and Dr. X asks Ms. Jones if she would like to speak to a Certified Diabetic Educator (CDE). After some initial hesitation, Ms. Jones agrees to meet with the CDE. Dr. X has contracted (along with two other community physicians in solo practice) with a local CDE who visits each of their offices on a rotating basis to provide consultation for patients. Dr. X completes the rest of her history taking and physical exam, including a diabetic foot exam and breast exam at which time Dr. X also provides Ms. Jones with a refresher course on breast self-examination. As the visit draws to a close, Dr. X asks Ms. Jones if she has any questions. They also review her self-management goals and agree to set up a telephone visit every 2 weeks for the next 6 weeks so that Dr. X can answer her questions and provide encouragement for Ms. Jones. The assistant arranges an appointment with the CDE for Ms. Jones and provides her with a reminder card for her next appointment---a telephone visit in 2 weeks. Ms. Jones leaves the office and proceeds to her mammography appointment. When Dr. X receives the normal mammography report, she initials the result and forwards it to her assistant who then completes the result notification card self-addressed by the patient and mails it to the patient.

Scenario #2: Dr. Y and Mr. Smith

Practice Setting: Dr. Y is in a group of three physicians and a nurse practitioner. The practice uses a practice management that is integrated with electronic medical records. The system provides access for patients online to request appointments, referrals, and medication refills. The practice Web site also includes a link to a Personal Health Record program controlled by each patient but customized to receive data from the practice. The practice uses advanced scheduling, i.e., Open Access, so that patients who call prior to 1 p.m. can be seen on the same day; no appointments are booked more than 2 weeks in advance.

Clinical Care: Mr. Smith is a 42-year-old man with long-standing asthma and fairly erratic medical care because of his busy schedule. Approximately 6 months ago, he had a pretty severe exacerbation of his asthma that required a visit to the local emergency department for several hours. Once he was stable, the emergency department physician gave him Dr. Y's office number and encouraged him to call to establish himself with Dr. Y. Mr. Smith was not too anxious to see a physician since he typically was able to manage his asthma fairly well on his own, but this visit to the emergency department was his third in the past 4 months. Mr. Smith calls Dr. Y's office expecting to be told that the next available appointment is in two months. He is surprised when the receptionist asks if he could come in later that day. After Mr. Smith agrees to come in that day, the receptionist places him on hold briefly until Dr. Y's clinical assistant gets on the phone to ask Mr. Smith a few questions about his medical history, medication, allergies, current symptoms, and health maintenance. Mr. Smith is encouraged to arrive approximately 15 minutes in advance of his appointment time. When he arrives, the receptionist asks him a few questions and then directs him to a nearby kiosk to complete, via touch screen, a questionnaire about his health. He notes that the clinical assistant and the receptionist have already entered the

information he provided previously. Mr. Smith is able to complete the computer-generated forms in about 5 minutes. Shortly thereafter, he is escorted to an examination room.

The clinical assistant asks him a few additional questions and then does some pulmonary function tests pre and post-bronchodilator. The assistant asks whether Mr. Smith monitors his peak flow at home. Mr. Smith indicates that he used to do that but didn't understand what to do with the information---so, he just stopped doing it. The assistant takes the opportunity to coach Mr. Smith on the proper technique of doing peak flows at home and how to properly use the metered dose inhaler. She also provides Mr. Smith with a copy of a generic asthma action plan to review while he waits for Dr. Y. Dr. Y walks in a few minutes later and already seems quite familiar with the information Mr. Smith provided on the phone and through interactions with the receptionist, clinical assistant, and computer kiosk. Dr. Y completes his history and physical. Dr. Y explains what an asthma action plan is and how to use peak flow results to adjust his medication regimen in order to minimize asthma exacerbations. Dr. Y is able to provide Mr. Smith customized patient education material generated by the electronic medical records clinical decision support function. In addition, the clinical decision support module generates an alert for Dr. Y indicating that a recent study suggested that long-acting beta agonist inhalers might cause asthma exacerbations in some patients. Dr. Y reviews Mr. Smith's medication again and notes that approximately six months ago, a physician he saw just once prescribed Mr. Smith such an inhaler. Dr. Y recommends that Mr. Smith discontinue the long-acting beta agonist and prescribes a medication regimen that includes short-acting bronchodilators and inhaled corticosteroids with instructions on Mr. Smith's action plan about what to do if his peak flow drops below a certain number. Dr. Y provides Mr. Smith with information about the practices' Web site and access to his personal health record. With Mr. Smith's permission, Dr. Y is able to send key clinical information to Mr. Smith's personal health record, including treatment recommendations, medications prescribed through the e-prescribing module in the electronic health record, and health maintenance reminders. Dr. Y also encourages Mr. Smith to e-mail him any non-urgent questions or concerns. Mr. Smith agrees to send his morning peak flow results via e-mail to Dr. Y in 3–5 days and to call if his peak flow drops below a certain value or if his asthma symptoms get worse despite following the asthma action plan. Dr. Y contemplates enrolling Mr. Smith in a remote monitoring program whereby his daily peak flow results will be transmitted electronically to a contracted disease management firm with nurse case managers but decides to see how Mr. Smith does before taking that next step. However, Dr. Y does review a self-management checklist with Mr. Smith that includes the need for Mr. Smith to assess his home environment, do daily aerobic exercise, and commit to using the asthma action plan guide. Dr. Y asks his assistant to provide Mr. Smith with a reminder card to call his office in approximately 2–3 weeks before noon for a same day appointment or to call and schedule an appointment up to 2 weeks in advance.

During the subsequent week, Dr. Y receives 2–3 e-mails from Mr. Smith indicating worsening of his asthma symptoms and a slight decrease in peak flow despite adjustments in medications according to the asthma action plan reviewed in the office. Dr. Y schedules a telephone consultation with Mr. Smith to review his medication regimen and to discuss Mr. Smith's evaluation of his home environment. Based on Mr. Smith's worsening condition and the absence of an identifiable cause, Dr. Y recommends to refer Mr. Smith to an allergist to help identify potential environmental triggers for the exacerbation of his asthma. Though Mr. Smith is

somewhat reluctant to see another physician, Dr. Y explains that the allergist sees a number of his patients and has specially trained asthma educators to help get his asthma under control. The allergist will receive an electronic summary of Mr. Smith's records in advance of his visit, which will be incorporated into the allergist's electronic health record for review. The report of Mr. Smith's visit to the allergist will likewise be sent securely back to Dr. Y for his electronic health record so that Dr. Y can coordinate the follow-up management of Mr. Smith's asthma once the consultation is complete.

Scenario #3: Dr. Z and Mrs. Murphy

Practice Setting: Dr. Z is an internist in a multi-specialty practice with several internists, cardiologists, an endocrinologist, and several other medical subspecialists. The practice, just like the smaller group described in Scenario #2, uses an electronic medical record (EMR) integrated with a practice management system. The EMR is used across all specialties in the practice and also provides secure access to authorized external providers through a health information exchange portal.

Clinical Care: Mrs. Murphy is an 85-year-old woman with several chronic medical problems including type II diabetes mellitus, congestive heart failure, atrial fibrillation, and based on a recent assessment by Dr. Z, mild dementia. For these conditions, Mrs. Murphy takes several medications, including oral medication for diabetes, an anticoagulant (warfarin) and digoxin for her atrial fibrillation, a diuretic ("water pill") and a beta-blocker for her congestive heart failure, and an angiotensin converting enzyme inhibitor. While Mrs. Murphy has been generally compliant with her visits, Dr. Z is somewhat concerned because she missed an appointment with him today, and as his assistant reviewed the practice management system, she noted that Mrs. Murphy also missed a telephone follow-up visit with the cardiologist and a laboratory visit, where a test for her anticoagulation status (ordered by a doctor in the practices' After Hours Clinic) and a chemistry profile (ordered by the cardiologist) were to be done. Dr. Z reviews the note from the most recent cardiology visit and becomes even more concerned when he sees that the cardiologist increased the dose of Mrs. Murphy's diuretic because of some shortness of breath, weight gain, and swelling during the last visit. Dr. Z also notes that Mrs. Murphy was seen in the practice's After Hours Clinic 5 days previously with a fever and a cough and was prescribed an antibiotic. The After Hours physician coordinated the anticoagulation test with the scheduled visit to Dr. Z because she could see the appointment in the system and was prompted to consider the test by the EMR's clinical decision support program, which reminded her of the potential for antibiotics to interact with anticoagulation medication. As Dr. Z contemplates the best course of action, he receives a secure e-mail from the pharmacist managing Mrs. Murphy's anticoagulation indicating some concern because he was aware of her visit to the After Hours Clinic and expected Mrs. Murphy to get her laboratory test earlier that morning.

Dr. Z calls Mrs. Murphy, and after several rings, she picks up the phone. Mrs. Murphy is clearly somewhat out of breath but professes to be doing well. She indicates that her cough is better but doesn't recall her appointment today or the scheduled laboratory tests. Dr. Z knows that the practice management system automatically calls to remind patients 1 day in advance for every appointment, including important scheduled laboratory tests, such as anticoagulation monitoring. His assistant confirms by checking the system that Mrs. Murphy was called and answered the phone yesterday afternoon. Based on his conversation with Mrs. Murphy, Dr. Z decides that

rather than upset her by calling an ambulance or asking her granddaughter, who is her primary family caregiver, to take her to the Emergency Department, he will ask the home health agency nurse to make a visit this afternoon. Through a secure e-mail exchange, Dr. Z initiates an urgent referral to the affiliated home health agency to set up a visit for that afternoon to check on Mrs. Murphy. Within a few minutes, the home health agency confirms that Nurse A, with whom Dr. Z usually works, is available and will make a point to see Mrs. Murphy within the next 2–3 hours.

Dr. Z returns to seeing patients. About 3 hours later, he receives a secure e-mail notification from Nurse A indicating that she wants urgently to meet with Dr. Z. Dr. Z excuses himself from the patient he is seeing and calls his assistant into the examination room to provide some just-in-time education to his patient while he meets with Nurse A. After going to his office, Dr. Z clicks on the video link to Nurse A and simultaneously opens up the progress note already started by Nurse A. He can see immediately that Mrs. Murphy has a temperature of 101 °F, has gained about four pounds, and has an elevated blood pressure. The whole blood glucose done by Nurse A is also recorded and is significantly higher than her usual random glucose. Nurse A joins the video call and shares that Mrs. Murphy is in moderate distress and pans the video cam to Mrs. Murphy sitting on the edge of her bed, leaning forward. Nurse A points out that Mrs. Murphy has some bruising on her arms and lower extremities and raises the potential that Mrs. Murphy may be over-anticoagulated. Dr. Z can clearly see that the mild shortness of breath he heard over the phone is either worse than he perceived, or Mrs. Murphy's condition has deteriorated in the past few hours. Dr. Z decides that the best and safest way to quickly manage Mrs. Murphy multiple medical problems is to admit her to the hospital. Nurse A agrees to call the ambulance transport company and remain with Mrs. Murphy until they arrive. During that time she completes her assessment and contacts Mrs. Murphy's granddaughter.

Dr. Z documents his assessment and plan in the EMR and then sends a clinical record summary to the hospital admitting department with his initial admitting orders via secure e-mail. The e-mail is also sent to the cardiologist and endocrinologist with a copy to the pharmacist to alert them that Mrs. Murphy is to be admitted and requesting that the cardiologist assist in the management of what he expects to be complications related to worsening congestive heart failure. Dr. Z is sent a secure e-mail when Mrs. Murphy arrives at the hospital. Mrs. Murphy is taken to an assessment area where laboratory tests, an electrocardiogram, and a chest x-ray are completed per Dr. Z's orders. Shortly thereafter, Dr. Z arrives to see Mrs. Murphy and accompanies her up to the hospital room.

Mrs. Murphy is treated for pneumonia, congestive heart failure, and excess anticoagulation. The morning after her admission, a hospital discharge planner visits her and reviews her clinical record. The discharge planner notes that Mrs. Murphy lives alone and sees the recent diagnosis of mild dementia. At the multidisciplinary hospital discharge planning team meeting that afternoon, Mrs. Murphy's case is discussed and the planners decide to recommend a new remote monitoring program to Dr. Z for Mrs. Murphy. At the time of discharge, Mrs. Murphy is accompanied home by Nurse A. When they arrive at Mrs. Murphy's apartment, a technician from the remote monitoring program is already waiting for them. While Nurse A reviews Mrs. Murphy's medication and self-management goals, the technician installs a wireless network hooked up to a secure internet connection. He places a scale in Mrs. Murphy's bathroom, a docking station for Mrs. Murphy's pill bottles, and a home glucose monitor, all connected

wirelessly to the computer. Nurse A explains to Mrs. Murphy that Dr. Z will monitor her condition through the computer and that Nurse A will be helping Dr. Z. Mrs. Murphy doesn't understand how it all works, but she agrees to weigh herself in the morning, take her pills when she hears the reminder from the pill bottle docking station, and check her sugar in the morning. Mrs. Murphy agrees that her granddaughter will be informed about these new interventions.

A couple of days later, both Dr. Z and Nurse A get an automated alert via secure e-mail that Mrs. Murphy has gained two pounds in the past 2 days. After a quick e-mail exchange, Nurse A calls Mrs. Murphy and per Dr. Z's order, asks Mrs. Murphy to take an extra diuretic pill now and one at 6 p.m. tonight. Via the internet, Nurse A is able to reprogram the medication reminder system to prompt Mrs. Murphy to take the correct dose at the correct time. At 6:30 p.m., Nurse A receives a notification from Mrs. Murphy's computer that the diuretic pill bottle has not been opened or moved since noon. Nurse A calls Mrs. Murphy who admits that she has been entertaining a friend and hadn't taken her pill yet but promises to do so in the next few minutes.

These three scenarios illustrate how patient-centered care could be provided through solo, small, and multi-specialty practices based on the advanced medical care model. In the above examples, patient-centered care is provided through a combination of face-to-face visits, telephone and e-mail consultations, and referrals to other health professionals as appropriate. Evidence-based clinical decision-making is aided by utilization of health information technology, such as PIER (Physicians' Information and Education Resource), a web-based decision-support tool developed by ACP that provides physicians with rapid, up-to-date, evidence-based guidance at the point of care. Electronic medical records, electronic prescribing, and open scheduling further add to the improvement of patient care and enable care to be provided more efficiently and in a manner that values the time of patients and physicians. This markedly contrasts with traditional patient care where patients often must schedule multiple office visits, where preventive and educational services are not covered by insurance and therefore are not provided, where evidence-based care is not always provided, where avoidable errors occur, and where the time of patients and physicians is under-valued.

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Community Care of North Carolina

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Overview

Community Care of North Carolina, (formerly known as Access II & III) is a demonstration program that began in July 1998 and aims to build upon North Carolinas' Primary Care Case Management Program - Carolina Access - by working with community providers to better manage the enrolled Medicaid population. (The program is sponsored by the Office of the Secretary, the Division of Medical Assistance and the N.C. Foundation for Advanced Health Programs, Inc. Program direction, administration and technical assistance is provided by the Office of Rural Health and Community Care.)

Community Care of North Carolina (CCNC) is designed to bring together providers to cooperatively plan for meeting patient needs and to strengthen the community health care delivery infrastructure. Providers are expected to take responsibility for managing the care of an enrolled population, to provide preventive services and to develop processes by which at-risk patients can be identified and their care managed before high cost interventions are necessary.

The CCNC program is distinguished by the following features:

- **Partnership**

The program is a partnership of essential local providers. Community physicians, hospitals, health departments, and departments of social services working cooperatively to plan and to develop programs for meeting the health needs of local Medicaid enrollees. The program is also a state/local partnership, in which the State provides resources, information and technical support to help the CCNC networks to effectively deliver and manage enrollee care.

- **Population Health Management Approach**

Under a population health management approach, participating networks address the overall health status of enrollees by pro-actively managing their care. By employing such tools as risk stratification, disease management, case management and access management, the networks are establishing the care management processes and support mechanisms needed to improve enrollee care and achieve program objectives.

- **Accountability**

All CCNC networks are working together and with the State, in defining, tracking, and reporting performance measures that will gauge the effectiveness of participating networks in achieving quality, utilization, and cost objectives.

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North Carolina is attempting to stop the rapid rise of health care costs in the Medicaid population while at the same time aiming to improve the quality of care and health outcomes. In states like North Carolina, the challenge in finding an innovative approach to address the quality and cost problem is much greater – it has a diffused population, with a significant percentage still living in rural areas; its medical services infrastructure remains dominated by small physician practices and loosely connected health organizations; and managed care penetration is low. To help address these challenges, North Carolina began building in 1998 regional community-based networks of providers – Community Care of North Carolina (CCNC) – that is statewide and provides the infrastructure to improve health care for all Medicaid beneficiaries.

CCNC has demonstrated success in participating practices/physicians in selecting and adopting evidence-based practice guidelines for asthma, diabetes, congestive heart failure, depression and chronic obstructive pulmonary disease. The networks have integrated targeted care management initiatives to help physicians manage and care for the most frail and costly patients. Case managers, hired locally by the networks, work closely with primary care physicians and patients/families to implement care and disease management interventions. CCNC produces and distributes reports to physicians and practices that highlight their effectiveness in meeting performance measures and goals and offers tools to improve outcomes. CCNC has demonstrated that if you engage those community providers who care for the patients and provide them with a system and support, community-based health is effective in improving quality of care and helping preserve limited health care resources.

The importance to North Carolina of having a statewide provider network in place cannot be overstated. Not only is the Community Care system achieving documented improvements in the quality, utilization and cost-effectiveness of care for Medicaid, it also has given North Carolina a community-based infrastructure that can be used to tackle a range of problems. By providing a structure for community providers to work together, by providing tools and supports for networks to design and develop programs, and by providing resources to implement programs, North Carolina has created a system that, if nurtured, can continue to grow and respond to state and local health care needs.

As data from the CCNC initiatives presented in the previous seven chapters demonstrate, the projects are all ongoing works in progress.

Two of these initiatives, asthma and diabetes, have had a longer implementation history than the others and there are more data points for comparing rates. For them we have longer trends showing that statewide implementation has been effective in providing not only useful data but also that the information given to the networks is used for specific improvements in the care of the patients afflicted with those conditions. Both the claims and the chart audit data have provided a wealth of information that helps CCNC to determine the effectiveness of these programs. CCNC plans to continue to monitor these initiatives to ensure quality and to maintain best health care practices among providers.

Other disease initiatives are in more developmental stages than either asthma or diabetes. For example, currently there is only baseline data for COPD. CCNC will follow up with the five pilot sites over the next year with another round of chart reviews and claims data to produce a longitudinal analysis. This analysis will help drive decisions and strategies in spreading and replicating the initiative statewide.

A similar situation is taking place with CHF except that the implementation of the treatment model was launched statewide instead of being piloted. All 14 networks are presently participating in this initiative and CCNC will monitor trends over the next two years. Using those trends, which are primarily based on claims data, CCNC will collaborate with the networks to improve CHF treatment protocols.

Two other initiatives, Chronic Care and Mental Health, are also still in their formative periods. Chronic Care is a very comprehensive component of CCNC as it will include a variety of Medicaid eligibility categories (e.g., aged, blind, and disabled) and which, by its nature, overlaps with many other diseases. This overlap results in a complex web of co-morbidities that make follow up more complex and challenging. Fortunately, CCNC is now working with the Centers for Medicare and Medicaid (CMS) to obtain a waiver to allow for a demonstration of how managed care improves efficiency of services and results in cost effectiveness for the Medicaid population that is also Medicare eligible. This population is called "dually eligible" because of their eligibility for both Medicaid and Medicare. The implementation of the waiver, referred to as the 646 waiver, will take a full three to five years to demonstrate its effectiveness and to show whether managed care results in significant savings among this higher risk population.

Mental Health also just launched its pilot study over the past two years and is still looking at the results from those four sites. Based on preliminary findings, CCNC has already proceeded to contract with 41 practices across the state to follow up on implementing co-location models during the next two years. These models are similar to the ones implemented in the pilot sites and even involve sites where reverse co-location (i.e., having a primary care provider present in behavioral health practices) will be tried for the first time. Results from the co-location grants will not be available until the end of 2009.

Last, the pharmacy initiative is distinct from the other six insofar as it does not involve a disease but rather monitors how medications are prescribed to the CCNC population. CCNC is highly committed to providing the most cost effective system to bring about beneficial drug use. CCNC has already given networks funds to hire pharmacists who work at the local level in an effort to accomplish the aforementioned goals. The results from their work will be available within the next year or so.

This summary outlines the complex and varied ways by which CCNC works with networks to provide the best possible care to more than 750,000 Medicaid patients. CCNC is undergoing a period of growth during which it will extend its health care model to new populations in need. These populations not only include a segment of the Medicare patients but also those in the North Carolina Child Health Insurance Programs (CHIP). This work is taking place during 2007 and should be completed by early 2008. It will bring an additional 110,000 children into the CCNC networks for health care. It is possible that, within two years, CCNC will be in charge of managing care for more than 1 million patients in North Carolina.

Future reports will continue to monitor the results of the multiple ways by which CCNC aims to accomplish its ultimate goal of improving health for the citizens of the state.



ACCESS II & III

Community Care At a Glance

Leadership Works • Partnership Works • Innovation Works

► Overview

Under the Community Care program (formerly known as Access), North Carolina is building community health networks that are organized and operated by community physicians, hospitals, health departments and departments of social services.

By establishing provider networks, the program is putting in place the local systems that are needed to achieve long-term quality, cost, access and utilization objectives in the management of care for Medicaid recipients. Fourteen networks with more than 3,000 physicians across North Carolina are working with their local health departments, hospitals, and social service agencies to better manage the care of 762,814 Medicaid & NCHC Enrollees

► Approach

How does the Community Care approach differ from other efforts? Community Care of North Carolina:

- Works directly with those community providers who have traditionally cared for North Carolina's low-income residents.
- Builds private and public partnerships where community providers can work together to cooperatively plan for meeting patient needs and where existing resources can be used most efficiently.
- Conveys responsibility for managing the care of a specific Medicaid population to a community network.
- Places responsibility for performance (and improvement) in the hands of those who actually deliver the care.
- Ensures that all funds are kept local and go to providing care.
- Puts in place the local networks that can manage all Medicaid patients and Medicaid services, and can address larger community health issues.

► Savings

A recent actuarial study from Mercer Human Resource Consulting Group found, when comparing what the access model would have cost in SFY04 without any concerted efforts to control costs in SFY04, the program saved approximately \$124 million.

► Network

Access Care (150 provider sites including UNC)	Community Care Plan of Eastern Carolina (Beaufort, Bertie, Camden, Carteret, Chowan, Craven, Currituck, Dare, Duplin, Edgecombe, Gates, Greene, Halifax, Hertford, Hyde, Jones, Lenoir, Martin, Nash, Northampton, Pamlico, Pasquotank, Perquimans, Pitt, Tyrrell, Washington and Wilson)
Access II Care of Western NC (Burke, Henderson, Madison, Mitchell, McDowell, Polk, Transylvania and Yancey)	Community Health Partners (Gaston and Lincoln)
Access III of Lower Cape Fear (Bladen, Brunswick, Columbus, New Hanover, Onslow and Pender)	Northern Piedmont Community Care (Durham, Franklin, Granville, Person, Vance and Warren)
Carolina Collaborative Community Care (Cumberland)	Partnership for Health Management (Gulford, Randolph and Rockingham)
Carolina Community Health Partnership (Cleveland and Rutherford)	Sandhills Community Care Network (Harret, Hoke, Lee, Montgomery, Moore, Richmond and Scotland)
Northwest Community Care (Davie, Forsyth, Stokes, Surry, Wilkes and Yadkin)	Southern Piedmont Community Care Plan (Cabarrus, Rowan and Stanly)
Community Care Partners of Greater Mecklenburg (Anson, Mecklenburg, Union)	
Community Care of Wake and Johnston Counties (Wake, Johnston & Franklin)	

► **Community Care Networks**

- Non-Profit Organization Comprised of Safety Net Providers
- Steering and Medical Management Committees
- Receive \$2.50 PMPM from the State
- Manage Care of Medicaid Enrollees
- Hire Case Managers/Medical Management Staff

► **Key Elements**

Community networks are putting into place the management tools that programs need to achieve improved performance:

- Implementing Best Practices
- Implementing Disease Management
- Managing High-Risk Patients
- Managing High-Cost Services
- Building Accountability

► **Clinical Improvement Initiatives**

Physician leaders from participating networks come together to design and develop clinical improvement initiatives:

- Asthma Disease Management
- Congestive Heart Failure Disease Management
- Diabetes Disease Management
- Emergency Room Initiatives
- Pharmacy Management Initiatives
- Case Management of High Risk / High Cost Patients

► **Pilot Initiatives**

- Aged, Blind, Disabled/Chronic Care
- Health Choice
- COPD
- Special Needs Children

► **Performance and Results**

Asthma Disease Management 2000-2005

- All practices adopted best practice guidelines from National Institute Health with expansion to 700 additional practices from 2002-2004.
- 28% increase in flu vaccines
- Over 90% of staged asthma patients on appropriate preventive medication.
- The Sheps Center Report estimated the asthma disease management program saved \$9.5 million from 2000-2002 from lower inpatient admissions and emergency department visits.

Diabetes Disease Management 2000-2004

- 10% increase in referrals for eye exams.
- 62% increase in flu vaccines.
- Continued Care visits are at 94%. Improved 7% since baseline.
- BP at every cc visit at 96%. Improved 8% since baseline.
- Foot exams are at 71%. Improved 18% since baseline.
- Lipid testing is at 77%. Improved 11% from 2004-2005.
- All practices adopted best practice guidelines from American Diabetes Association.
- The Sheps Center Report estimated the diabetes disease management program saved \$2.1 million from 2000-2002.

Emergency Department Initiative 2001-2002

- Care management follow-up, outreach and education on all enrollees with 3 or more visits to the ED in a six month period of time
- 30% lower per member per month cost
- 13% lower ED rate

Pharmacy Management Initiatives

- Prescription Advantage List (PAL)
- 22% lower expenditures in PAL Pilot (\$640,000 actual savings from February – March 2003)
- Polled out statewide November 2003
- In 2004, cost savings from over-the-counter (OTC) prescribing estimated at \$1.7 million

Nursing Home Polypharmacy

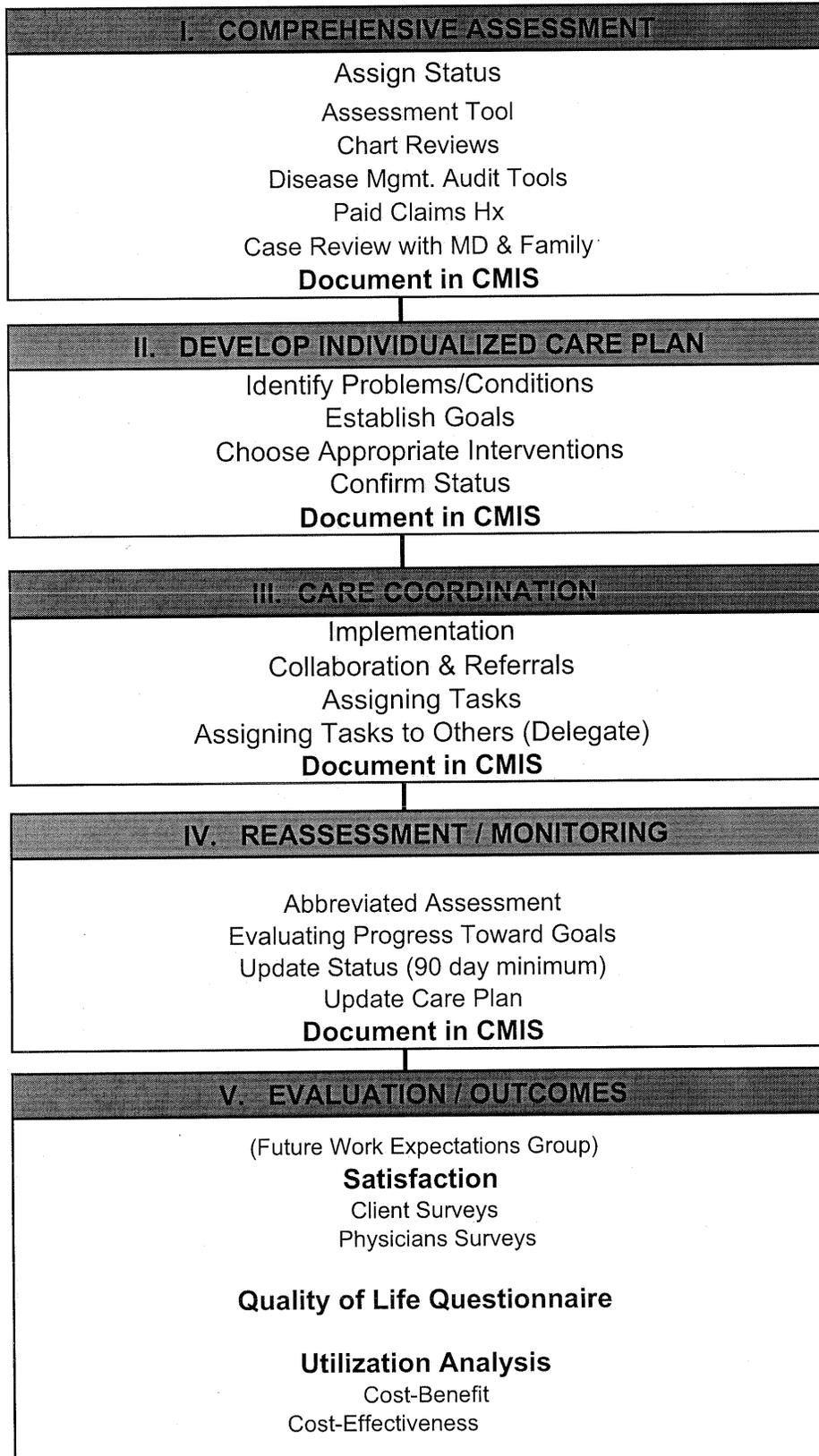
- Patients Reviewed – 9,208
- Recommendations Made – 8,559 (74% implemented)
- Physician / pharmacist team review drug regime and make recommendations to change prescriptions
- \$6 million in cumulative savings since November 2002 (savings of \$9 million estimated for 2004)

Case Management of High Cost/ High Risk

- Care management follow-up, outreach and education on recipients with \$25,000 or more in Medicaid expenditures in six months period of time.
- Defining process to use DXCG predictive modeling to target individuals at greatest risk based on historical utilization and diagnoses.

CASE MANAGEMENT

Components Flow Chart



Physician Incentive Program

As Community Care of North Carolina (CCNC) expands state wide and brings on practices with fewer Medicaid enrollees, it will be a challenge to spread the quality improvement initiatives to all the practices within the program. The Physician Incentive Program was developed primarily to reward those physician practices that have excelled in meeting program objectives. And secondly, to motivate those physicians that need to improve in meeting performance measures and program objectives.

A workgroup of the interested Clinical Directors met to discuss potential incentive strategies that would reward both pediatric and adult Medicaid providers. They picked measures that would have an impact on cost and could be gathered using existing data sources, such as Medicaid claims and chart audits. Asthma emergency department rates, HbA1c performed every six (6) months, and prescribing OTC medications were chosen as measures for the first year.

The workgroup developed two levels for the reward methodology: Excellent Performance and Quality Improvement. Excellence in performance is defined as the best practice goal or the top 15th percentile of the program baseline. To achieve the Quality Improvement reward, there must be improvement from own network baseline by 20% and exceed the 50th percentile of the program baseline. The incentive awards will be based upon the performance of the networks. The networks can develop their own internal reward distribution methods.

In addition to the incentive strategies, the workgroup developed the following benchmarks for the asthma and diabetes quality improvement initiatives.

Asthma Benchmarks

- Asthma patients staged = 80%
- Asthma action plan (AAP) when staged II - IV = 80%
- Asthma patients with annual flu vaccine = 80%

Diabetes Benchmarks

- Diabetic patients documentation of blood pressure at every continuing care visit = 95%
- Diabetic patients referred for annual eye exam = 80%
- HbA1c level determined twice in past year = 80%
- Monofilament exam performed in past year = 60%
- Lipid profile performed in past year = 85%
- Annual flu vaccine = 80%

 [CCNC Physician Incentives & Benchmarking Plan](#)

Details on Incentive Plan along w/ CCNC workplan are on the Primary Care Commission website.

CCNC Physician Incentives and Benchmarking Plan

PHYSICIAN INCENTIVE PLAN

Incentive Reward Methodology:

- #1) Define minimum performance = 50th percentile of program baseline
- #2) Define excellence in performance = best practice stretch goal or top 15th percentile of program baseline

Two Reward Levels

- Excellent Performance = best practice goal
- Quality Improvement = improve from own network baseline by 20% and exceed 50th percentile of program baseline

Asthma ED Rate per 1000

- Network Low = 7.59
 - Network High = 35.71
 - 50th percentile of program baseline = 19.67
 - Top 15th percentile of program baseline = 10.75
- 1) Excellent Performance Goal = 10.75 (rate per 1000)
 - 2) Quality improvement goal = improve by 20% from network baseline AND reach a level of 19.67 or below (50th percentile)

HbA1C Performed Every 6 Months

- Use latest process measures as determined by most recent audit (currently underway).
 - Define Network High = 89 %
 - Define 50th percentile of program baseline = 73 %
 - Define Top 15th percentile of program baseline = 88 %
 - Incentive based on process measurements obtained via audits, because claims data does not adequately reflect improvement activity.
- 1) Define Excellent Performance Goal for HbA1C every 6 months = 88%
 - 2) Define Quality improvement goal for HbA1C every 6 months = improve by 20% from network baseline AND exceed 73 %
 - 3) Consider for 2nd year: Provide an incentive to a network that has 80% of their diabetics in a disease registry (CCNC program office will work with networks interested in implementing a disease registry).

PAL Performance in Prescribing OTC Medications

- 1) Achieving 60% prescribing Loratadine OTC in tier one of the Non-Sedating Antihistamines therapeutic class
- 2) Achieving 60% prescribing Prilosec OTC in tier one of the Proton Pump Inhibitors therapeutic class
- 3) Provide improvement goal for achieving a 20% increase from baseline in prescribing OTC medications.

BENCHMARKING PLAN

Asthma Benchmarks

- Asthma patients staged = 80 %
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- Asthma patients with annual flu vaccine = 80%

Diabetes Benchmarks

- Diabetic patients documentation of blood pressure at every continuing care visit = 95%
- Diabetic patients referred for annual eye exam = 80%
- HbA1c level determined twice in past year = 80%
- Monofilament exam performed in past year = 60%
- Lipid profile performed in past year = 85%
- Annual flu vaccine = 80%
- Annual pneumococcal vaccine = 80%



ACCESS H & III

COMMUNITY CARE OF NORTH CAROLINA

Workplan Care Management

July 1, 2005 - June 30, 2006

URGENT - ACTION REQUIRED
IMPORTANT UPDATE
FOR YOUR INFORMATION

SFY 2005-2006

INITIATIVE	STRATEGY	TARGET	EXPECTATION
Chronic Care Project (Aged, Blind, and Disabled)	<ul style="list-style-type: none"> Develop a model that will improve the management of services for the target population. 	Fall 2005	<ul style="list-style-type: none"> The networks will implement a chronic care initiative.
	<ul style="list-style-type: none"> Develop a plan design document in collaboration with CCNC, DHHS, local networks and the long term care community. 		<ul style="list-style-type: none"> CCNC will create a NC system for improving the care of the aged, blind and disabled Medicaid and those dually-eligible for both Medicaid and Medicare – where key system components (such as screening, assessment, and care plan development and approval) are locally owned and operated.
	<ul style="list-style-type: none"> Define the financial support needed to implement the program. Create the local and state level infrastructure needed to support the chronic care project. Begin implementation in selected counties and networks. 	Jan 2006	<ul style="list-style-type: none"> Have an integrated care management system that will enhance access to and coordination of services for persons with chronic illnesses.
Congestive Heart Failure	<ul style="list-style-type: none"> Provide on-site technical assistance and train all existing and new networks and practices on the heart failure best practice guidelines. 	Fall 2005 and Ongoing	<ul style="list-style-type: none"> The networks will implement a CHF initiative.
	<ul style="list-style-type: none"> Develop centralized support and outreach with "healthlink". 		<ul style="list-style-type: none"> Improvement in achieving benchmarks will be demonstrated.
	<ul style="list-style-type: none"> Complete and disseminate the CHF provider toolkits. Baseline measurements and benchmarks will be established. 		<ul style="list-style-type: none"> The CHF program will be in place in all CCNC networks.
Asthma Disease Management	<ul style="list-style-type: none"> Provide on-site technical assistance and train all new networks and practices on the asthma best practice protocols. 	Ongoing	<ul style="list-style-type: none"> The networks will achieve their target goals and benchmarks for asthma management.
	<ul style="list-style-type: none"> Target technical assistance to networks and practices who are not achieving benchmarks. 		<ul style="list-style-type: none"> Practices unable to achieve benchmarks will develop improvement strategies.
	<ul style="list-style-type: none"> Develop new tools and reporting capabilities to help clinicians in the implementation and evaluation of asthma efforts. Complete and disseminate asthma provider toolkits. 	2 months from practice start date 6 months	<ul style="list-style-type: none"> Progress will be made towards specific benchmarks. New practices and networks will receive best practice guidelines and implementation plan defined.

more ▶

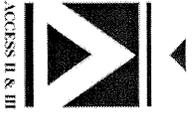
DRAFT

<p>Diabetes Disease Management</p>	<ul style="list-style-type: none"> Benchmarks will be established. Provide on-site technical assistance and train all new networks and practices on the diabetes best practice protocols. Target technical assistance to networks and practices who are not achieving benchmarks. Develop new tools and reporting capabilities to help clinicians in the implementation and evaluation of diabetes efforts. Complete and disseminate diabetes provider toolkits. Benchmarks will be established. 	<p><i>from practice start date</i></p> <p><i>Ongoing</i></p> <p><i>2 months from practice start date</i></p> <p><i>6 months from practice start date</i></p>	<ul style="list-style-type: none"> The asthma disease management program will be in place in new practices and networks. The networks will achieve their target goals and benchmarks for diabetes management. Practices unable to achieve benchmarks will develop improvement strategies. Progress will be made towards specific benchmarks. New practices and networks will receive best practice guidelines and implementation plan defined. The diabetes disease management program will be in place in new practices and networks.
<p>Emergency Department</p>	<ul style="list-style-type: none"> Target inappropriate emergency department (ED) users for follow-up and education. Develop and test new strategies to reduce unnecessary ED utilization. Partner with health check coordinators in outreach and education efforts. Work with DMA policy section to review and refine ED policy. 	<p><i>Ongoing</i></p>	<ul style="list-style-type: none"> The networks will lower unnecessary emergency department utilization. Enrollee understanding of "medical home" will increase and utilization for non-urgent ED visits will decrease.
<p>High Cost and High Risk</p>	<ul style="list-style-type: none"> Standardized reports developed that target high cost and high-risk enrollees for care management. Ambulatory care sensitive reports used to target care-management efforts. Standardized care management process and nomenclature adopted by all networks. 	<p><i>Quarterly</i></p> <p><i>Summer 2005</i></p>	<ul style="list-style-type: none"> The networks are able to identify target recipients and assess their effectiveness in managing their care. High risk / high cost case management processes, expectations, and reporting are standardized across the networks.

DRAFT

Pharmacy - Prescription Advantage List

- | | Quarterly |
|--|--|
| <ul style="list-style-type: none">• The network clinicians will use the prescription advantage list (PAL) Version 2, when appropriate, to prescribe the most cost-effective drugs.• Monitor and encourage OTC prescribing.• A PAL scorecard is developed and distributed for practices to monitor their progress every quarter.• Update PAL on a regular basis. | <ul style="list-style-type: none">• Evaluation will demonstrate a positive impact on drug costs.• Prescribing of PAL Tier 1 drugs and OTC drugs will increase and PAL Tier 3 drugs will decrease. |



COMMUNITY CARE OF NORTH CAROLINA

Workplan Special Initiatives

July 1, 2005 - June 30, 2006

URGENT - ACTION REQUIRED
 IMPORTANT UPDATE
 FOR YOUR INFORMATION **▶**

SFY 2005-06

INITIATIVE	STRATEGY	TARGET	EXPECTATION
Mental Health Integration	<ul style="list-style-type: none"> Four pilot mental health integration started Standard processes and assessments in place. Uniform evaluation process and outcome measures to be collected. Implement best practice guidelines for depression in primary care. 	<p>July 2005</p> <p>Fall 2005</p>	<ul style="list-style-type: none"> Replicable model will emerge from the pilot programs. Processes for improved integration between PCPs and LMEs will be developed. Depression care will be integrated into PCP practices, as appropriate.
	Disparities	<ul style="list-style-type: none"> Three pilot projects – Northern Piedmont Community Care, Northampton / Halifax and Lower Cape Fear completed one of two years. Define model program components and implementation steps with networks. Monitoring and tracking processes defined. Preliminary evaluation. 	<p>July 2005</p> <p>Summer 2005</p> <ul style="list-style-type: none"> Three pilot sites completed 1st year. Diabetes project and implementation plan is developed and approved. Based on evaluation, consider replication in other networks.
Children with Special Needs	<ul style="list-style-type: none"> In partnership with key tertiary medical centers, develop a special needs model in concert with local CCNC networks. Develop processes that enhance communication and understanding in the PCP practices / medical homes in caring for children with special needs. 	<p>Fall 2005</p>	<ul style="list-style-type: none"> A replicable model that improves the coordination, management and outcome of care for children with special needs will be demonstrated.
	Chronic Obstructive Lung Disease (COPD)	<ul style="list-style-type: none"> Pilot a COPD initiative in interested networks. Define and develop best practices and models for replication and expansion. Preliminary evaluation of pilot initiatives. 	<p>Fall 2005</p> <p>March 2006</p> <ul style="list-style-type: none"> A replicable model that improves the coordination, management and outcome of care for individuals with COPD will be demonstrated.

CAP/C Care Management		Fall 2005	
<ul style="list-style-type: none"> Implement CAP/C care management in networks where involvement is needed. The following networks are involved in CAP/C care management: Southern Piedmont Community Care Plan; Wake County Access II; Northern Piedmont Community Care; Access III of Lower Cape Fear; and Access II Care of Western NC. 	<ul style="list-style-type: none"> Develop and replicate model, as appropriate. 	<ul style="list-style-type: none"> Plan implemented. Replication to other counties and networks. Analysis of impact on quality and cost objectives occurs. 	
Prevention	<ul style="list-style-type: none"> Working in concert with DPH, pilot prevention models have been identified: <ul style="list-style-type: none"> Obesity in less than 21 years of age (AccessCare); GAPS - guidelines for adolescence prevention services (risk behaviors, adolescent issues) (Partnership for Health Management); Low birth weight (Craven County); Smoking cessation (Community Care of Eastern Carolina); and Substance and alcohol abuse (Community Care of Eastern Carolina). 	<ul style="list-style-type: none"> Fall and Spring of 2005/06 	<ul style="list-style-type: none"> Model pilots will monitor programs and share results with all CCNC networks. Replication plan developed based on evaluation of pilots.
Sickle Cell	<ul style="list-style-type: none"> Pilot implementation site – Wake county. Define monitoring and evaluation criteria for program evaluation in concert with Public Health. Model program elements to be defined 	<ul style="list-style-type: none"> Fall 2005 January 2005 	<ul style="list-style-type: none"> A replicable model that improves the coordination, management and outcome of care for individuals with sickle cell disease will be demonstrated.
Child Development (ABCD)	<ul style="list-style-type: none"> Partnership for Health Management (Guilford) developed and implemented the ABCD program and replication is occurring in Gaston, Forsyth, Pitt, Wake and select AccessCare sites. Provide practices with tools for integrating screening and referral into the practice setting. 	<ul style="list-style-type: none"> Ongoing 	<ul style="list-style-type: none"> Initial evaluation from Guilford was very positive. A positive impact will be demonstrated on % referred, % served, and patient and provider satisfaction in expansion counties. Replicate in interested CCNC networks.

Five Reasons Multiple Hospital Affiliations Are Good for Kansans

1. **More Cures. Better Health.**

With the additional investment in the KU School of Medicine, we will be able to attract world-class researchers and clinicians to our faculty. The Medical Center is striving to become a leader in clinical and translational research – which means taking discoveries in the laboratory and applying them to improve human health. As part of our expanded research effort, Kansas patients will have greater access to clinical trials and cutting-edge cures.

2. **More Doctors.**

We can train more doctors. With multiple education and research affiliations, the KU School of Medicine will be able to increase the number of residency slots and train more doctors – many of whom will likely choose to stay and practice in the state and region.

3. **Better Doctors.**

We can train better doctors. Multiple hospital affiliations allow for a diverse environment in which our students can learn from the best. With additional resources to the KU School of Medicine, we will be able to expand the faculty and attract new talent to our campuses in Kansas City and Wichita. In an academic medical setting, these experts will work with our medical students and residents to better prepare them for futures in health care.

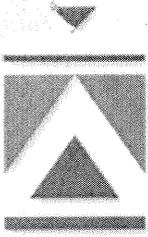
4. **A National Cancer Institute (NCI) Cancer Center for Kansas.**

To achieve NCI designation for a comprehensive cancer center at KU, we will need access to a multitude of doctors and patients to facilitate clinical trials. Community collaboration is a key component in every successful application to the NCI. Partnerships between the Medical Center and every research hospital in the region will help us reach our goal.

5. **A Stronger Kansas Economy.**

With multiple hospital affiliations comes additional investment in the KU School of Medicine and the Medical Center as a whole. More resources allow us to continue to build new facilities like the \$57 million Kansas Life Sciences Innovation Center, which recently opened on the KUMC campus. In addition to the economic impact of their construction and renovation, these facilities also attract new talent to the region along with the grant dollars they bring. With increased collaboration among various institutions, we are more likely to leverage our discoveries in the marketplace by commercializing the results of our research.

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Community Care of North Carolina

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History of CCNC

Medicaid managed care in North Carolina consists of two initiatives: the Carolina Access Program and Community Care of North Carolina (Access II & III). Since April 1991, North Carolina has operated the Carolina Access program, a Medicaid primary care case management (PCCM) program currently operating in every county of the State. Carolina Access was developed to enhance recipient access to primary care, to improve the coordination of care, and to reduce recipient reliance on hospital emergency departments. To learn more about Carolina Access, please visit www.dhhs.state.nc.us/dma/mangcarewho.html.

Community Care Of NC (CCNC), initiated in July of 1998, is the most recent option available under Medicaid managed care. Currently, out of 1,225,586 Medicaid eligibles, there are approximately 897,968 enrolled in Carolina Access and 762,814 of those are also participating in the CCNC program.

While there is no question that the Carolina Access program has accomplished its original objective of providing Medicaid recipients with a medical home, it was never intended to be an integrated delivery system that could manage large populations. Although primary care providers working alone can effectively render patient care, they rarely have the tools, information, or support to effectively manage the care of an enrolled population. CCNC networks are intended to help primary care providers (PCPs) develop the capacity to manage the health care needs of the Medicaid population and to improve the quality of their care by taking a group management approach. Under CCNC, PCPs are given the opportunity to work together and with other community providers and network case managers to develop the tools, information and support needed to meet the health care needs of Medicaid recipients.

As both the State and health care providers analyzed how best to build an optimum health care system for Medicaid recipients that could improve quality and access and could contain costs, five key concepts emerged: 1) the importance of a public / private partnership that would bring all the key local health care and social service providers together, 2) the importance of local control and physician leadership in building sustainable community care systems, 3) a primary focus on improving the quality of care through population management approaches, 4) a shared State/local responsibility to develop the tools and support needed to manage the Medicaid population, and 5) a system of shared incentives that better aligns State and community goals with desired outcomes.

The CCNC program, begun in July 1998, is designed to support the development of community care systems that can develop programs and infrastructures to manage the care of an enrolled Medicaid population that include the following components:

- Medical and administrative committees that provide direction on care management activities.
- Dedicated case managers to carry out such population management activities as risk assessment, case management, and disease management.
- Care management processes that apply both new and existing resources, such as health department support services, in meeting the needs of enrollees.
- Regular reporting and profiling of target initiatives that allow networks to monitor their progress in achieving target goals.

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KU School of Medicine is No. 1 in graduates entering family medicine programs

According to a report prepared by the American Academy of Family Physicians on the percentage of each U.S. medical school's graduates entering family medicine residency programs in 2005, the KU School of Medicine ranked first, both in the number, 39, and the percentage, 22.8 percent. The KU School of Medicine also had the highest three-year average at 21.1 percent for the period ending in June 2005.

"While, unfortunately, the number of graduates nationally choosing family medicine has declined in recent years, I'm pleased to see the KU School of Medicine honoring its 100-year tradition of preparing graduates to serve their communities," said Joshua Freeman, professor and chair of the Department of Family Medicine. Freeman was recently named a Bishop fellow for the 2007-08 academic year by the Society of Teachers of Family Medicine Foundation, which fosters leadership among family medicine faculty.

Nearly half of U.S. medical school graduates who entered a family medicine residency program in 2005 stayed in the same state for their residency.

KU was close to the national average with 44.7 percent.

"During their third and fourth years in Wichita, many of our medical students learn community medicine from those physicians who do it best," said Rick Kellerman, professor and chair of the Department of Family and Community Medicine at the School of Medicine-Wichita. Kellerman is president of the American Academy of Family Physicians. "Because of the value of their experience here, 40 percent of our students chose family medicine residencies in 2005," he said.

According to the academy's report, medical school graduates from the 76 publicly funded medical schools were more likely to be first-year family medicine residents in October 2005 than were residents from the 48 privately funded schools, 9.9 percent compared with 5.8 percent.

"Countries with primary care physicians as the foundation of the health care system have better health outcomes for the population at lower cost," the academy's report concluded. "The United States needs, and its population deserves, a primary care physician-based health care delivery system."

The entire report is available at www.stfm.org/fmhub/fm2006/October/Perry626.pdf.

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Brief History of KU School of Medicine

The University of Kansas School of Medicine began as a two-year medical preparatory program in 1880 on the University of Kansas campus in Lawrence, Kansas. In 1889, Simeon Bell, MD, donated land and money to the state of Kansas for a medical school in Rosedale, a suburb just south of Kansas City, Kansas. Dr. Bell's intent was to build a teaching hospital so that the University of Kansas could provide medical education for future physicians. The school and Bell Memorial Hospital, named after his wife Eleanor, moved to its present location in Kansas City, Kansas in 1924.

The hospital, now a quasi public authority known as The University of Kansas Hospital, is part of a large campus known as the University of Kansas Medical Center (KUMC) that is comprised of the School of Medicine, School of Allied Health, School of Nursing, Graduate Studies, Kansas University Research Institute, and several other research and clinical centers.

KU graduated 57 students from the medical school's first class in 1906. Today, the school annually enrolls 175 students in its four-year MD program. Students spend their first two years, the pre-clinical phase, in Kansas City. The remaining two years, the clinical phase, are completed at either the KUMC campus in Kansas City or at the school's branch clinical campus in Wichita. After graduation, students enter into residency training programs all over the country.

Other degrees offered by the school include a Masters in Public Health, a Masters in Health Policy Management, and a MD/PhD degree. These outstanding basic science programs offer graduate degrees in the following disciplines: microbiology, molecular genetics and immunology, anatomy and cell biology, biochemistry and molecular biology, pharmacology, toxicology, and therapeutics, pathology laboratory medicine, molecular and integrative physiology.

The faculty and staff of the KU School of Medicine in Kansas City and Wichita are dedicated to preparing their students for the future of medicine by providing innovative education and training needed to practice in today's ever-changing health care delivery system.



Barbara Atkinson, MD
Executive Dean and Vice
Chancellor for Clinical
Affairs
KU School of Medicine

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THE UNIVERSITY OF KANSAS HOSPITAL

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The Academic Medical Center Advantage

Unique Strengths

At The University of Kansas Hospital, you'll benefit from the unique strengths of the region's premier academic medical center, where compassionate patient care, research and education come together to provide more options and more hope.

You'll find physicians representing more than 200 medical specialties and services. Among the top specialists in their fields, they care for patients, collaborate in breakthroughs in prevention, diagnosis and treatment of disease, and pass along their knowledge to the next generation of health care professionals.

The scope of knowledge, the depth of expertise, the breadth of scientific inquiry and the advanced technological resources are unmatched by community hospitals.

Advanced Research

The hospital's physicians are not only faculty members at the University of Kansas School of Medicine, they are also at the forefront of medical discoveries taking place at The University of Kansas Medical Center. The medical center is a research leader in:

- Cancer treatment and prevention
- Neurology
- Kidney disease
- Urology
- Liver and kidney transplantation
- Pain management

The schools of Allied Health and Nursing are also nationally recognized for their research accomplishments.

Collaboration

Because The University of Kansas Hospital is an academic medical center, you benefit from multidisciplinary collaboration among physicians. You'll have access to the latest and most comprehensive diagnostic and treatment options and a continuous network of care. Specialists are often located across the hall instead of across town.

Our unique combination of research, education and compassion ensures that you will receive the most advanced level of care possible.

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Special Programs

Clinical Skills Assessment

A day-long clinical skills examination is conducted for all senior medical students. Standardized patient cases represent all required third year clerkships and a diverse patient population. Skills assessed include history taking, physical examination, interpersonal communication, and case management. Standardized patients are trained to observe and record student behavior, while videotaping provides a permanent record of each encounter. To help students achieve competency in patient skills, medical procedures, and interpersonal communication with patients and colleagues, the KU School of Medicine has developed a Clinical Skills Laboratory. This state of the art skills lab is used to help students develop proficiency in essential clinical skills. Medical students work with computer programs, manikins, standardized patients, and emerging virtual reality simulations to learn, broaden, and assess their competence with basic and advanced clinical procedures.

Students with Disabilities

Services for students with disabilities are provided by the Equal Opportunity Office at KUMC. Applicants for admission or enrolled students may contact Carol Wagner, EO disabilities specialist, for assistance and advice regarding their rights and responsibilities, disability services, and procedures for filing a discrimination complaint. The University of Kansas Medical Center complies with the Americans with Disabilities Act and Section 504 of the Federal Rehabilitation Act, which requires reasonable accommodation for qualified individuals with covered disabilities. Requests for accommodation are considered on a case-by-case basis by program heads in consultation with the school disability officer and ADA/504 coordinator. For information, contact the Office of Equal Opportunity, 1040 Wescoe (913) 588-1206 (voice) or (913) 588-7963 (TDD).

Note Service

This is a nonprofit, student-financed, student-operated organization. All students who subscribe take notes on a rotational basis. This service covers regularly scheduled lectures in the basic science years.

Academic Societies

As part of an effort to enhance student advising and mentoring and to develop professionalism in the students of the School of Medicine, the seven academic societies were founded in the 1999-2000 academic year and named after past leaders of the School of Medicine. Each society is headed by a faculty director, who also serves as an assistant dean for student affairs. Society members include

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many of the faculty of the school along with students. The purpose of the societies is to

- enhance student-faculty interaction;
- enhance student interaction, particularly across classes;
- provide a structure for student advising;
- promote a sense of community for students and faculty; and
- encourage the development of professional attitudes and behaviors among students.

The academic societies are an essential component of the School of Medicine's Professionalism Initiative. By allowing more individualized and small-group contact between students and faculty, the society environment encourages open discussions of professionalism in all academic settings as well as the expansion of a formal curriculum for the teaching of professionalism. Societies sponsor periodic gatherings for students and faculty. These gatherings are both academic (e.g., invited speakers) and social (e.g., dinners). Faculty members serve as academic advisers for one to two students in each class. To the extent possible, students are matched with faculty based on interests. Faculty also may provide career advice for students and serve as resources for their advisees during their entire four years at the School of Medicine.

KU Women in Medicine and Science

The KU Women in Medicine and Science (WIMS) program in the School of Medicine fosters equality in the academic community by promoting excellence through leadership, mentoring, and community involvement. The goals of the organization are to help individuals at all levels

- understand KU's rules and system,;
- foster mentoring;
- provide advice for career advancement and networking;
- aid in advancing the careers of faculty, residents, and students.

For more information, visit us on the Web at www2.kumc.edu/wim. For information on programming and how to get involved, please contact Amy O'Brien-Ladner (aladner@kumc.edu) or Julie McCollum (jmccollum@kumc.edu).

Mini Medical School

A profound crisis is facing our nation's biomedical research community. The public is experiencing a declining confidence in, and understanding of, science. One of the reasons behind this decline in public confidence and understanding is that the members of the scientific community have not been effective at communicating the significance, complexity, and hope embodied in biomedical research. Presented by the School of Medicine, the eight-week Mini Medical School course educates the community about the clinical and basic biomedical sciences and the latest advances in research and health care delivery. Tuition is \$95. A limited number of scholarships are available. Pre-enrollment is required. Call (913) 588-1227 for

information.

Medical Education Network Sites

The Medical Education Network Sites are an integral part of the School of Medicine's mission to implement rural health initiatives throughout the state. Each of the five sites represents a region of Kansas. Each region has a medical education director, a practicing physician who also works for the school's Office of Medical Education. Medical education directors help coordinate efforts to mentor, train, and place physicians throughout Kansas. Network sites work closely with the Health Policy Institute, State Data Board, Department of Health and Environment, Office of Rural Health, and all health profession schools at KU and other Regents institutions. Activities include support of local medical center educational programs through support services to community-based faculty and learners; coordination of local premedical student recruitment activities, including the Summer Mentor Program and Scholars in Primary Care; identification and development of collaborative practices to become health profession education sites; and assisting communities in recruiting health-care providers.

Rural Track

The need for rural primary care physicians continues to be critical in the majority of Kansas counties, and a rural track for medical students helps address this need. Two third-year students are assigned to the North Central Medical Education Network Site in Salina, which is also the home of the Smoky Hill Family Practice Residency Program. These students complete a semester of their third year and at least three courses during their fourth year in Salina. Students accepted into the Rural Track live in the region, and assurances are made that they will complete the same educational objectives for each clerkship as those in Kansas City or Wichita even though the delivery method may vary considerably. They engage in more self-directed learning, as time in the classroom and with peers is reduced. Generalist medical education predominates. Course requirements and evaluation instruments are the same for Rural Track students as for other medical students.

Nicodemus Project

Despite remarkable advances in science and health care, health disparities persist in the United States. Health disparities exist in Kansas, too, and the disparate morbidity and mortality and leading causes of death and disease for ethnic minorities in Kansas reflect those of the nation. In Kansas, African-American adults, for example, are at higher risk of death and disease due to heart disease, cancer, cerebrovascular accidents, and other chronic conditions. African-American Kansans have issues related to less access to high-quality health care and information about health promotion and disease prevention compared to nonminority Kansans. The Nicodemus Project is a multidisciplinary, health screening, promotion of wellness, disease prevention, service learning, and community outreach project in a culturally sensitive setting. The Nicodemus Project takes place in the rural and historic African-American town of Nicodemus, Kansas, during the town's Annual Homecoming Celebration, commemorating the exodus of

former slaves to the promised land of Kansas. The Nicodemus project is coordinated and led by the School of Medicine's Office of Cultural Enhancement and Diversity.

Scholars in Primary Care

The Scholars in Primary Care program offers college sophomores from Kansas a two-year premedical curriculum featuring community-based primary care experiences and other activities. Each year, six scholars demonstrating high probability that they will pursue careers as primary care physicians in medically underserved areas of Kansas are selected. Students who successfully complete the program during their junior and senior years are assured admission to the School of Medicine. Additional information is available at www.kumc.edu/som/scholars.html.

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Wichita Campus

Community-oriented Education

The University of Kansas School of Medicine — Wichita is a community-oriented medical school. It relies on the cooperation and support of Wichita's private and public health care institutions and area physicians. A model of community cooperation, the academic program is affiliated with local hospitals, giving students the opportunity to observe and participate with medical staff in the care and supervision of patients. Via Christi Regional Medical Center (St. Francis and St. Joseph campuses), Wesley Medical Center, and the Robert J. Dole Department of Veterans Affairs Medical and Regional Office Center together offer a total licensed-bed capacity of more than 3,000.

Brief History

The KU School of Medicine — Wichita campus was established by the Kansas Board of Regents in 1971, accredited in 1974, and graduated its first class of students in 1975. In 1979, the Kansas Legislature and Sedgwick County Board of Commissioners approved the E.B. Allen Memorial Hospital, 1010 N. Kansas, as the permanent home of the KU School of Medicine — Wichita. A \$4.6-million renovation of the original building was completed in 1990, providing a modern facility with 100,000 square feet. In February 1996, construction was completed on the 30,000-square-foot Daniel K. Roberts Center for Research and the Kansas Health Foundation Center for Primary Care.

Academic Program

The KU School of Medicine — Wichita provides education and training for about 120 third- and fourth-year medical students who have completed two years of basic science courses at the KU Medical Center in Kansas City, Kansas. They then elect to complete their education in the clinical program in Wichita. Instruction is offered in seven major disciplines, including family and community medicine, internal medicine, obstetrics/gynecology, pediatrics, preventive medicine, psychiatry, and surgery. Additionally, elective programs are available in anesthesiology, emergency medicine, ENT, ophthalmology, orthopedic surgery, pathology, and radiology. Medical students are supervised by more than 50 full-time and nearly 60 part-time faculty members. There are also about 700 volunteer faculty members who donate their time to train future doctors.

Master of Public Health

The medical school, in collaboration with the KU School of Medicine — Kansas City, offers instruction leading to a Master of Public Health degree. The program offers opportunities for health care providers and researchers to develop and apply

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individual and population-based approaches to improving the health of the public. The only program of its type in the region accredited by the Council on Education for Public Health, the M.P.H. program tied for second in the nation among public universities, according to the 2006 edition of U.S. News America's Best Graduate Schools.

Research

Medical research is conducted at the medical school and at affiliated institutions. The school supports and encourages clinical, epidemiologic, health services, and human trials research that promotes the primary mission of education and involves collaboration between departments and community partners to improve the health and health outcomes in Wichita and Kansas. The Office of Research provides collaboration toward high-quality research outcomes. This includes biostatistical and other assistance to researchers in obtaining support for their endeavors. The Office of Research also promotes and monitors ethical and regulatory compliance related to research endeavors. A Research Committee promotes and supports research in the Wichita community and on campus.

United States Medical Licensing

The Wichita campus offers an on-site testing center for USMLE licensure examinations. Step1, Step2 Clinical Knowledge, and Step 3 are the only examinations administered at this site, making it a desirable testing atmosphere. Students from both campuses may complete their licensure examinations at this center. For scheduling information, contact Academic and Student Affairs on the Wichita campus.

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Degree Programs

KU Medical Center includes the Schools of Allied Health, Medicine, Nursing, and an Office of Graduate Studies. Information about Allied Health or Nursing is available from those schools or in the appropriate sections of the KU Undergraduate Catalog and Graduate School Catalog.

Degrees

The following individual and combined-degree programs are offered:

- Anatomy and Cell Biology:
M.A., Ph.D., M.D./Ph.D.
- Biochemistry and Molecular Biology:
M.S., Ph.D., M.D./Ph.D.
- Health Policy and Management:
M.H.S.A., M.D./M.H.S.A., M.S./M.H.S.A.
- Microbiology, Molecular Genetics, and Immunology:
M.A., Ph.D., M.D./Ph.D.
- Molecular and Integrative Physiology:
M.S., Ph.D., M.D./Ph.D.
- Neuroscience:
Ph.D., M.D./Ph.D.
- Pathology and Laboratory Medicine:
M.A., Ph.D., M.D./Ph.D.
- Pharmacology, Toxicology, and Therapeutics:
M.A., M.S., Ph.D., M.D./Ph.D. in Pharmacology or Toxicology
- Preventive Medicine and Public Health:
M.P.H., M.D./M.P.H., M.P.H./Ph.D. in Applied Behavioral Science

Combined M.D./Ph.D. Degree Programs

The KU School of Medicine offers combined degree programs in the Schools of Medicine and Nursing for students with serious interest in advanced study in the biomedical sciences. Strong candidates for the competitive M.D./Ph.D. program must have had previous research experience. Information may be obtained from the M.D./Ph.D. Physician Scientist Program, Office of Graduate Studies, 5015 Wescoe, Mail Stop 1040, KU Medical Center, 3901 Rainbow Blvd., Kansas City, KS 66160.

M.D./M.P.H. Program

The combined M.D./Master of Public Health program is ideal for medical students interested in public health, community medicine, preventive medicine, occupational medicine, and health care administration. The integrated, five-year curriculum prepares students for careers in both the public and private sectors including local,

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federal, and state health care agencies; outcomes and disease management; research institutions; and private foundations. Candidates should demonstrate notable academic credentials and have at least one year of experience in a health-related field. Students in the joint program complete the three-semester, 36-hour M.P.H. requirements in addition to the four-year M.D. curriculum. The M.P.H. degree may be completed after years two or three of medical school. To obtain admission materials or for more information, call (913) 588-2720.

Department of Health Policy and Management

The Department of Health Policy and Management, known as the Department of Health Services Administration until its move to the School of Medicine in 1998, was established in 1982 on KU's Lawrence campus. The mission of the department states, "We are an interdisciplinary community, engaged in scholarship that seeks to improve health and health services delivery through integration of policy and management in education, research, and community and professional service." The department has awarded the Master of Health Services Administration degree to almost 400 students. Graduates of the M.H.S.A. program work in management and leadership positions in a variety of organizations, including hospitals, health care systems, long-term care organizations, physician group practices, and insurance and managed care firms. The Accrediting Commission on Education for Health Services Administration (ACEHSA) accredits the M.H.S.A. program. The M.H.S.A. degree is a 55-credit-hour graduate professional degree. Full-time students complete the degree in two academic years, with an internship during the summer. Part-time students typically finish the degree in three to four years, completing a research practicum as a capstone experience. The curriculum combines social science and business content in the context of health care. The department offers several joint degree programs, including the M.H.S.A./M.S.N., M.H.S.A./M.B.A., M.H.S.A./J.D., and M.H.S.A./M.D.

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