

***Advancing Medical Homes:
Evidence-Based Literature Review to Inform Health Policy.***

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NYS Primary Care Coalition
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“The better the primary care, the greater the cost savings, the better the health outcomes, and the greater the reduction in health and health care disparities.”(Epstein 2001)

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Introduction

A “medical home” is a patient centered source of personal primary health care where most patient problems are managed or coordinated with specialty and ancillary services as needed. The New York State Primary Care Coalition, consisting of the Community Health Center Association of New York State, the Primary Care Development Corporation, the New York State Area Health Education Center (AHEC) System, the New York State Chapter of the American College of Physicians and the New York State Academy of Family Physicians, commissioned this report to provide a reference of the evidence supporting the Medical Home Concept as the model of primary care essential to a quality health system. The tremendous expansion of diagnostic and treatment choices in all fields of medicine make it imperative that patients and families have a source of continuity care founded on a long term relationship with a provider and a provider team.

Health care for New Yorkers is in crisis. The National Business Group believes that without new options fewer employers will provide health benefits and Americans experience more adverse effects and medical errors than in any other country. Quality of care would be improved if New Yorkers had access to the right care, in the right place at the right time, coordinated by a primary care physician practicing in the medical home model. The debate is over. Twenty years of research, reviewed in this document, has consistently shown that population health quality is improved and costs are reduced when patients can identify a medical home base. Transitioning to a medical home model will require incentives that support the added value of primary care outside of the face to face visit. Savings are generated by limiting duplication, reducing unnecessary emergency visits and hospitalizations. Payments must support coordination of care, health information technology, e-mail and telephone consultation adjusted by case mix. A combination of fee-for-service, case management fees and quality outcome incentives has the greatest chance for success and acceptance. Oversight by a community/provider board would assure the public interest.

Definition of Medical Home

The medical home is a point of access to health care that is organized around the patient's needs built on a relationship between a patient and a physician. It is a primary health care base capable of providing 90% of health needs but also coordinating specialty referrals, and ancillary services. The medical home is a source of first contact care and comprehensive care across a continuum of preventive, acute and chronic health care needs. It is a place where they get to know you. (Grumbach and Bodenheimer 2002) The medical home is most often a primary care office however specialty offices may choose to organize themselves to provide or coordinate the spectrum of comprehensive services.

History of Medical Home Concept

The term "Medical Home" was first coined by the American Academy of Pediatrics (AAP) in 1967.(Sia, Tonniges et al. 2004) Over the past 5 years the American Academy of Family Physicians (AAFP) endorsed the model in its Future of Family Medicine project.(Committee 2004) and the American College of Physicians issued a report in 2006 embracing the concept.(Barr 2006)

The medical home is a vision of health care from the perspective of the patient and the family. It builds off a case management model developed by The Group Health Cooperative's Chronic Care Model,(Von Korff, Gruman et al. 1997) In the medical home responsibility for care and care coordination resides with the patient's personal physician in association with a health care team. The patient and the physician decide the specific health care objectives and then choose the best way to achieve these objectives.(Barr 2006) The team may form and reform according to patient needs and includes nurses, social workers, care managers, dietitians, pharmacists, physical and occupational therapists as well as family and community.

In the 1980s Hawaii organized its federal Maternal and Child Health Bureau's Division of Services for Children with Special Health Needs around a continuous system of care originating with a primary care physician in partnership with the parent. The enabled

primary care physician office facilitated family links to all medical and non-medical services.(Sia, Tonniges et al. 2004) The program identified physicians training, communication, and absence of reimbursement for coordination as challenges to implementation. The medical homes successfully addressed the components of care needed by these complex patients. They were: 1. diagnosing needs, 2. empowering families to participate in decisions, 3. identifying services, 4. finding resources, 5. coordinating services, 6. evaluating response, 7. providing normal preventive care including immunizations, 8. providing acute care, 9, identifying specialty consultations and referrals, 10. judging the patients capacity for participation in treatments.

The need for coordinating services becomes more evident as diagnostic and treatment choices expand in all fields of disease management. The medical home is an integration of the art and science of medicine with the focus on the patient with disease rather than just the disease.(DHHS 2007; Practitioners 2007)

Rationale: Why New York Needs Medical Homes

New York faces many of the same challenges faced by the rest of America, only more acutely. Today 93% of Medicare is spent on the 75% of beneficiaries who suffer 3 or more chronic conditions. Addressing only one problem at a time, in isolation from the others, has been a failed strategy for making patients well.(Enthoven, Crosson et al. 2007)

The AMA, AAFP, National Business Group on Health is convinced that the present fee-for-service payment system is problematic. Fee-for-service rewards procedures, a component of health care with the greatest potential for overuse, and undervalues primary care services.(Berenson 2007; Orszag and Ellis 2007) The National Business Group believes that without a new model, fewer employers will provide health benefits which have risen 50% in the past 5 years. (Health 2007) Their research confirms that mental illness and stress cause more days of work loss and work impairment than diabetes, asthma or arthritis. They support integration of medical services with behavioral services oriented around a general medical office focused on quality and accountability.(Finch 2005) This integrated bio-psycho-social view of a medical home is consistent with patient beliefs and documented to enhance wellness and reduce costs. (Engel 1977; Rosenthal and Campbell-Heider 2001; Bodenheimer, Lorig et al. 2002)

Reform in the 1990s was termed “managed care”. But it became focused on managing expenditures and pressured primary care physicians to see more patients in less time while increasing administrative paperwork and regulatory requirements. Add to this an increasingly technical and complicated medical environment and the trusting, intimate relationship patients deserve suffered. (Braddock and Snyder 2005) Consequently insufficient numbers of young physicians are entering careers in primary care. In New York access to personalized, coordinated care delivered at the right time, in the right place and by the right provider is challenged. (Zyzanski, Stange et al. 1998; Barr 2006) A 2007 meeting of healthcare, business leaders, and elected officials in Glen Falls declared the declining access to healthcare in rural New York State a crisis. (Friedman, Messerschmidt et al. 2007)

By 2010 the first wave of baby boomers will begin to be eligible for Medicare. By 2030 the population over age 85 will double. Reimbursement methods that encourage well reimbursed procedures and proceduralists is an industrial/market model and implies selling the customer more product encourages procedures, even when they are duplicative or futile.(Berwick 2002; Bureau 2007) In New York, Medicaid pays 31% of all health care costs making it imperative to maintain access while delivering quality, efficiently.

Consumer Reports lists 10 procedures (back surgery, heartburn surgery, prostate treatments, implanted defibrillators, coronary stents, cesarean sections, whole body screens, angiography, high-tech mammography, virtual colonoscopy) for which overuse is driven by existing payment methodologies.(Reports 2007) They conclude that unlike other developed nations where patients have a medical home, the US payment system discourages counseling, care coordination and evidence based assessment of options.

All developed countries have transitioned to health system management to achieve universal coverage. Every model is focused on enhancing the patient's access to, and experience with, independent primary care offices that are reimbursed according to evidence based guidelines and outcomes established by a consumer/provider board. In New York a heavy investment in technology has not been balanced by an investment in the *system* of health care. But it is impossible for technology to make increases in efficacy dramatic enough to overshadow the lack of essential primary services.(Woolf and Johnson 2005) In fact, Americans experience more adverse effects and medical errors than any other developed country.(Schoen, Osborn et al. 2004) Yet, while counties with adequate primary care supply experience a 5% lower mortality,(Macinko, Starfield et al. 2007) no similar findings exist for specialty supply.(Starfield, Shi et al. 2005)

Federally funded Community Health Centers (CHCs) form the largest network of medical homes in the United States. According to the 2005 Uniform Data System, the average cost caring for a patient in a CHC was \$2,569 compared with \$4,379 for the general population, a 41% savings. Special needs populations experience an even greater savings.(National Association of Community Health Centers 2005) CHCs now serve 3,600 urban and rural communities in the United States but still have capacity for fewer than 25% of Americans under 200% poverty level and only 1 in 8 un-insured.

While universal coverage models do a better job assuring primary care access, some have struggled to match the US access to indicated procedures. This is changing. Waiting times for non-urgent surgery is down to 9 weeks in England's National Health Service, all for about two-thirds the cost of US health care (NHS). Universal coverage implies some form of single payer arrangement creating a mandate for a public entity empowered to design and refine a system of health care.(Dixon, Chantler et al. 2007; Practitioners 2007)

The Medical Home, and patient centered care that it implies, is an internationally recognized strategy to cost effectively incorporate quality and value into health universal

health care.(Mahar 2006) New York State faces too large a challenge not to move to incorporation of the medical home as the foundation for health care organization.

Health Disparities:

The Commonwealth Fund 2006 Health Care Quality Survey found that when adults have a health care setting that provides timely, well-organized care, and enhanced access to the range of health providers, racial and ethnic disparities in access and quality are reduced or eliminated. With a medical home, minority patients are just as likely as whites to have care when needed, receive preventive screening, and have chronic conditions managed appropriately.(Beal, Doty et al. 2007) The relationship with a physician and a primary care team overcomes barriers experienced by vulnerable populations. (Shi, Forrest et al. 2003) US regions with high levels of social disparities, but an adequate supply of primary care practitioners, experience lower infant mortality, higher birth weights, and immunizations at or above national rates.(Gadomski, Jenkins et al. 1998; Shi, Macinko et al. 2004) Non-urban areas with an adequate supply of primary care physicians experience 2% lower all cause mortality, 4% lower heart disease mortality, 3% lower cancer mortality, and lower hospitalization rates for diabetes, hypertension and pneumonia.(Parchman and Culler 1994; Shi, Macinko et al. 2005)

In New York policymakers focus on health care as a universal answer to health problems while neglecting the social and economic roots of vulnerabilities and disparities. The success of the medical home relies on its inherent ability to focus on the needs of a patient or family one case at a time while recruiting social services *and* medical services to address problems.(Lantz, Lichtenstein et al. 2007) Quality improvement should include an explicit goal of reducing disparities, targeting conditions that are known to disproportionately affect minorities, and comparing performance measures between racial and ethnic subgroups within the practice. (Angeles and Somers 2007)

Medical homes will improve the value of health care in New York State. To work it depends on improving the availability, accessibility, and quality of the primary care component of health care. Increased use of medical homes will liberate resources to pay for societal wellness. Medical homes create value for all New Yorkers but will have an enormous payoff for lower income, minority, and medically underserved residents. (Rosenbaum, Shin et al. 2006; Fiscella and Holt 2007)

Consumer Expectations

One of the most extensive projects undertaken to define what American consumers want from medical providers was commissioned by the American Academy of Family Physicians in 2004.(Green, Graham et al. 2004) The Academy commissioned the Greenfield Consulting Group and the Roper ASW to develop an unbiased view of expectations by holding 13 consumer focus groups around the nation. They found that patients lack clarity about who primary care physicians are and what their roles should be. However consumers want a primary care provider who is in their insurance plan and conveniently located. They want to get an appointment quickly and at their convenience. They expect good communication and blame providers when communication fails.

Consumers value relationship above all else but appreciate the importance of technology and information management. They want coordination of their overall care but understand that no one person can be skilled in all areas of medicine. Patients desire quality care but generally assume it is provided. These values are universal and global.(Main, Tressler et al. 2002; Coulter 2005)

Methods:

Pubmed was searched using medical home and patient centered primary care as search phrases. The Internet web sites of the American Academy of Family Physicians, the American College of Physicians, and the American Academy of Pediatrics were searched as were the web sites of the Commonwealth Fund, Center for Healthcare Strategies, the State of North Carolina and the National Health Service of the United Kingdom. These sources lead to secondary searches of cited literature and reports. Over 160 publications and several books were reviewed. Key sources are cited in the bibliography.

Evidence Based Review of Medical Home Principles

The primary care reform agenda set forth by the NY Commission on Health Care Facilities in the 21st Century recognizes that shifting the locus of health care will require ensuring that all New York residents have a “primary care home”. The Commission acknowledged a need to invest in primary care infrastructure, including workforce, facilities, equipment, and information technology.(Century 2006) Some patient-centered “medical home” practices, such as providing same-day appointments to patients when requested, are becoming common but other practice changes will require systematic changes in the way health care is provided and reimbursed. (Audet, Davis et al. 2006)

What follows is an evidence based review of the components of the patient centered, primary care medical home as it is described in a joint statement by the Academy of Pediatrics, the American Academy of Family Physicians and the American College of Physicians in 2006. (Barr 2006)

Personal physician - Each patient should have an ongoing relationship with a personal physician trained to provide first contact, continuous and comprehensive care. Currently Americans spend less time with a primary care physician than patients in countries with better health outcomes.(Bindman, Forrest et al. 2007)

Evidence:

Human beings make sense of the world around them through stories. When people become sick, they tell stories about themselves. The ability of a doctor to treat and heal is bound up in the provider’s ability to accurately perceive the essence of a patient’s story.(Brody 1997) When providers miss the opportunity to appreciate the patient’s story their ability to help is diminished. A longitudinal doctor-patient relationship develops like the incremental scaffolding of all human relationships and derives from a match of patient and provider personalities.(Pink 2006) Relationship alone cannot replace the

technical expertise required in medicine, but it is essential to altering the patient's story to one of positive health fulfillment.(Charon 2001) The empathy generated by understanding the story powers the personal care physician.(Halpern 2001)

States with the highest ratio of primary care physician to population have the best health outcomes, longer lives, fewer cerebral vascular strokes, and lower cancer mortality. (Shi 1992) (Vogel and Ackermann 1998; Campbell, Ramirez et al. 2003; Shi, Macinko et al. 2003) These findings have held up over 20 years of research and regardless of the level of analysis (state, county, region) or outcome measured.(Starfield, Shi et al. 2005) These results lead to estimates that 120,000 deaths a year in the United States could be prevented by increasing the access to a personal medical home.(Shi, Macinko et al. 2005)

A meta-analysis of 40 studies addressing the relationship between physician/patient continuity and outcomes concluded that for a total of 81 care outcomes that were tracked, 41 were significantly improved by continuity, and only 2 were adversely impacted. Twenty of the studies tracked cost of care. Of the 41 cost variables tracked, expenditures were significantly less for thirty-five.(Saultz and Lochner 2005) Countries with universal health coverage, in this case Canada, confirm that physician/patient continuity results in better cancer screening, fewer ER visits and greater rates of vaccination.(Menec, Sirski et al. 2005)

By introducing continuity and improving the relationship formed between patient and physician fewer errors will occur. Patients believe that 70% of the errors they perceive result from the breakdown of the patient-physician relationship are result in psychological or emotional strain.(Kuzel, Woolf et al. 2004) Patient described barriers to obtaining care include physical limitations, lack of knowledge, financial constraints, logistics of obtaining care, a need for social and emotional support, aggravation of one condition by symptoms of or treatment of another, and problems with medications.(Bayliss, Steiner et al. 2003)

In 2001 UK's National Health Service instituted model "contracts" with general practitioners to provide a defined set of services to patients. When evaluated in 2005 these contracts had improved quality of care and teamwork within practices.(Campbell, Steiner et al. 2005) The rate of improvement accelerated when financial incentives were added in 2005.(Campbell, Reeves et al. 2007) By re-introducing some classic market forces quality increased once again and costs declined.(Pollock, Price et al. 2007)

Physician directed medical practice – the personal physician leads a team of individuals at the practice level who collectively take responsibility for the ongoing care of patients. Eighty-seven percent of primary care physicians think a team of individuals from several disciplines improve quality of care.(Audet, Davis et al. 2006)

Evidence:

Federally funded community health centers are one model of primary care oriented, team health care delivered in the outpatient setting. Populations served by community health centers are healthier than populations with comparable levels of social status receiving care from other models.(O'Malley, Forrest et al. 2005) In both white and minority

populations, rural and urban communities, the rates of low birth weight are reduced when the source of care is a community health center.(Politzer, Yoon et al. 2001)

The NYS Rural Health Council reviewed six primary care offices in upstate New York that were considered model high quality providers. Regardless of organizational structure (private practice, CHC, hospital-owned) all were organized around a primary care physician and coordinated (or directly provided) a spectrum of services including: social services, rehabilitation and coordinated specialty care.(Rosenthal and Campbell-Heider 2001) A study of high performing practices in California confirms these findings.(Feifer, Nemeth et al. 2007)

A team approach expands on the limited potential of the typical 15-minute visit to provide the range of services that makes primary care work. Competing demands on the visit time are created by a patient who needs preventive care, chronic disease management and acute care for a new complaint. Diabetic patients who are having difficulty controlling their disease but bring up new complaints at a visit are less likely to have their diabetes medication changed at that visit.(Parchman, Pugh et al. 2007) This challenge to comprehensive care can be addressed by more frequent office visits or a team contact between visits or a combination of both.

In one model a medical assistant working with a physician does an exam room pre-visit, remains with the patient during the physician encounter and remains for a post-visit debriefing with the patient. This same assistant contacts the patient between visits.(Bodenheimer and Laing 2007) The model has been successful in oversubscribed migrant clinics in Wyoming County, NY. Other models include: beginning of session overviews with staff to identify special need patients, scheduled case reviews, and case managers.

There is a gap in the literature on the evaluation of team care models but a study by the Group Health Cooperative demonstrated that the key component to good team outcomes is a primary care physician/patient relationship.(Phelan, Balderson et al. 2007) Team models that focus on one specific disease perform well in the management of the focal disease but deal less successfully with co-morbidities.(Starfield, Shi et al. 2005)

Whole person orientation – The personal physician maintains responsibility for providing for all the patient’s health care needs or for arranging care with other qualified professionals. This includes care for all stages of life; acute care; chronic care; preventive services; end of life care.

Evidence:

Family physicians manage 3.05 problems per encounter. They chart only 2.82 problems and bill for only 1.97. Ninety percent of their patients have at least 2 problems.(Fortin, Bravo et al. 2005) Patients over the age of 65 average 3.88 problems per visit and diabetics average 4.6.(Beasley, Hankey et al. 2004) Multi-tasking is efficient and largely explains the quality and cost containment of the medical home. The patient’s co-morbidities and compliance potential occasionally take precedence over management of

any singular problem at any moment in time. Multiple visits over time (continuity) renews opportunities to build management and teaching strategies tailored to individual progress and receptivity, leading to greater patient satisfaction and wellness.(Moscovice and Rosenblatt 2000; Moore 2006) A recent article in the New England Journal of Medicine found that patients with multiple medical problems actually get more preventive care and concluded that this is due to more frequent visits, particularly if the visits included primary care physicians.(Higashi, Wenger et al. 2007)

It takes 4 visits with the same provider to realize the advantage of a medical home.(Hjortdahl and Borchgrevink 1991) A Virginia Medicaid primary care program demonstrated that the patient/doctor relationship was strongly associated with fewer specialty referrals and emergency visits.(Hurley, Paul et al. 1989) A continuity relationship increases time efficiency each visit and results in fewer laboratory tests, and lower expenditures.(O'Malley and Forrest 1996; Raddish, Horn et al. 1999) The more attributes of a medical home incorporated into a practice the greater the performance of the practice,(Raddish, Horn et al. 1999) lower the cost of care,(De Maeseneer, De Prins et al. 2003) and the fewer emergency room visits.(Richman, Clark et al. 2007)

Headaches cared for in the primary care setting result in CT scans for only 3% of patients. Of the completed scans only 5% had significant findings.(Becker, Green et al. 1993) If the history and physical failed to raise suspicion of an intracranial process these patients were treated for their symptoms, advised when to expect relief and given criteria for returning if symptoms did not resolve. Confidence in the relationship continuity is essential for this strategy to work dependably. Immediate, complete and exhaustive diagnostic work ups for most complaints arrive at the correct diagnosis within 24 hours 96% of the time. Using continuity care, work-up driven by findings and revisits results in the correct first visit diagnosis 93% of the time. The revisit (wait-and-see) confidence depends on the continuity relationship.(Rosenthal, Riemenschneider et al. 1996)

Previous knowledge of a patient increases the likelihood that psychosocial problems will be recognized.(Gulbrandsen, Hjortdahl et al. 1997) Sensitivity to psychosocial contributors to illness cuts costs by 10% and improves clinical outcomes while absenteeism from work is decreased.(Wang, Simon et al. 2007)

Care is coordinated and/or integrated across all domains of the health care system

- Modern health care is characterized by many choices. There are often several options for any complaint creating important options for recovery as well as a potential for overuse and confusion. Yet, 74% of PCPs report difficulties in accessing consultant reports, medical records, test results, or other information at scheduled visits.(Audet, Davis et al. 2006)

Using back pain as an example, good primary care should be available to patients soon after injury. Patients with serious orthopedic or neurologic complications need to be identified. Others are counseled on diet and exercise, pain relief, and treatments such as stretching or physical therapy. A small minority of patients may later need help selecting

the most appropriate surgeon and comprehensive rehabilitation with adaptations upon return to work. (Enthoven, Crosson et al. 2007) Chronic back pain most often arises when the patient's fears and misunderstandings are not addressed.

It is difficult for specialists, who are trained to see a subset of the population pre-selected for the likelihood of a condition within their specialty, not to over estimate the likelihood of those conditions. As a consequence, often with good intent, diagnostic and therapeutic modalities are overused increasing the cost and the potential for adverse effects.(Franks, Clancy et al. 1992; Hashem, Chi et al. 2003) Partnership with a generalist physician can reassure the specialist that the work up reached a logical conclusion and need not be continued.

When specialists are more available than primary care physicians, they often refer patients to another specialist rather than back to the primary care provider. For example, a patient admitted to a hospital for a myocardial infarction may be referred by the consulting cardiologist to an endocrinologist, pulmonologist and a rheumatologist to manage the patient's long standing diabetes, COPD and osteoarthritis. Newly initiated work-ups may repeat tests already documented in the primary care record. Also, when plentiful, specialists are more likely to invite patients back for recheck appointments, 75% of which have been shown to duplicate follow-up provided by the primary care physician.(Hewlett, Kirwan et al. 2005)

Evidence:

Primary care physicians improve outcomes even when patients are referred. Children with tonsillitis or otitis media who are referred to surgeons have fewer postoperative complications than do children whose parents bypassed the primary care provider. (Roos 1979) In the 1980s Spain created a national program of primary health centers. A 10 year evaluation showed that death rates from hypertension, stroke, and lung cancer fell. (Villalbi, Guarga et al. 1999)

Ten to 20 percent of patients are best served by including a consultation or referral to a specialist physician. Evidence from Kaiser-Permanente shows that hospitalization rates and resource utilization rates are lowered when a system is designed to enhance coordination between specialist and generalist.(Feachem, Sekhri et al. 2002)

Mature primary care models also integrate mental health care.(Blount 1998) The separation of problems into discrete emotional and physical arenas does not reflect generation or resolution of human conditions. A broadly trained primary care provider can move integration beyond simple co-location and reduce stigma associated with mental health treatment. There is no physical problem without stress and all stressful reactions include physical symptoms.(Rosenthal, Griswold et al. 2007) When persistent these reactions become disabling. The medical home should offer care from a bio-medical-psycho-social perspective.

Quality and Safety- Clinical excellence is enhanced by further integration of health information technology into medical practice, adoption of quality measures, improved

patient safety, elimination of health care disparities and implementation of best care principles for the elderly. Following guidelines improves care and decreases hospital costs.(Pham, Ginsburg et al. 2007)

- **Evidence-based medicine** and clinical decision-support tools should guide decision making.

Evidence:

Studies designed by specialists comparing their quality of care to generalists often find that specialists are better at adhering to guidelines within their field of expertise. Examples include new treatment recommendations in asthma, ulcer disease and heart failure. (Bartter and Pratter 1996; Hirth, Fendrick et al. 1996; Harrold, Field et al. 1999) Studies have also shown that primary care group practices supported by organizational systems of care meet guidelines equally well when caring for patients who specifically meet the conditions for which the intervention was designed and absent co-morbidities not covered by the guideline.(James, Cowan et al. 1997; Donohoe 1998; Grumbach, Selby et al. 1999; James, Cowan et al. 1999) Generalists have been shown to do better in following generic, patient centered guidelines including breast feeding, smoking cessation, use of seat belts, being physically active, eating a healthy diet, etc. In fact, if the analysis is done from the community's perspective rather than the practice, having a medical home is the major determinant of a population receiving disease specific and general preventive care.(Bindman, Grumbach et al. 1996)

Much of the research comparing specialists and generalists is from studies of patients who had a myocardial infarction. Generalists and cardiologists differ substantially with respect to their patients and practice environments. Results comparing patient outcomes by specialty are often influenced by important patient or resource characteristics that were not taken into account. No studies adequately took into account reasons the patient did not have care by a cardiologist, eg, patient preferences, severity of comorbid disease, general health status, or resource availability.(Hartz and James 2006)

The applicability of guidelines developed from a randomized controlled trials has limited application in patients with co-morbidities. Studies must define inclusion and exclusion criteria. Realistically the patient in the exam room may not have met the inclusion criteria when personal financial, social, genetic, intellectual and behavioral resources are considered.(Kravitz, Duan et al. 2004; Rothwell 2005)

None-the-less, guidelines represent the best method to track, reward and study process and outcomes of care. The medical home should be expected to develop and measure itself against evidence based guidelines.(Future of Family Medicine Project Leadership Committee 2004) Guideline implementation in Community Health Centers had been associated with cost effective improvements in the quality of life gains.(Huang, Zhang et al. 2007)

- Physicians in the practice accept **accountability for continuous quality** improvement through voluntary engagement in performance measurement and improvement. Fifty-five percent of PCPs agree that performance data should be

shared with patients. Only 21% have access to specialists' quality data when making referrals.(Audet, Davis et al. 2006)

Evidence:

Public performance reporting alters physician performance.(Berwick 2002)

The NYS Department of Health has shown that measurement does drive improvement and influences priorities but are limited in their ability to explain variations or assure that treatments are appropriate.(Gesten 2007)

The Health Plan Employer Data Information Set (HEDIS) is the most widely used set of performance measures in the managed care industry. HEDIS is developed and maintained by the National Committee for Quality Assurance. There are more than 60 different measures in HEDIS including: immunizations, women's health, maternity care, behavioral health, and asthma but is limited because the data comes from patient billing records.

The richest and most accurate data on health care is the physician's patient record. Mechanism to accurately collect patient record data is being piloted by the Wisconsin Collaboration for Healthcare Quality. (www.wchq.org) Standardization of quality measures based on evidence is still needed and will require interoperability information technology to implement. Commonly used measures include Hemoglobin A1c screening and control, LDL screening and control, monitoring renal function with microproteinuria, and control of blood pressure. Established preventive measures include breast, cervical and colon cancer screening.

Assessing continuity of care must take into consideration specialists, especially non-board certified specialists, who may spend as much as 27% of patient contact time performing primary care services.(Fryer, Consoli et al. 2004) The Institute of Medicine has observed that specialists respond to overcapacity in their field by providing primary care, diluting the time spent in their specialty.(Donaldson, Yordy et al. 1996) When compared to general internists, specialists practicing outside of their specialty field are less efficient, order more tests, make more referrals, and their patients experience more complications.(Greenfield, Nelson et al. 1992; Weingarten, Lloyd et al. 2002) The most efficient and effective model is a generalist backed up by specialty care as needed.(Starfield, Lemke et al. 2003)

Research conducted in community based family practices in upstate New York has demonstrated that a team based approach to identifying patient safety issues improves quality of care. All employees in an office are interviewed about their individual observations and concerns identify relevant patient safety challenges in the office. The list generated is then ranked by the entire office staff, including physicians, to identify the issues considered to be priorities for management. The office team brainstorms solutions, implements an action plan then monitors results. Everyone becomes engaged in achieving best outcomes.(Singh, Singh et al. 2006) Because the medical home is a continuum of care results are best measured over time.(Nutting, Goodwin et al. 2003)

- **Patients actively participate** in decision-making including seeking feedback to ensure patients' expectations are being met.

Evidence:

Presently only 36 percent of PCPs and 20 percent of specialists said they receive data based on patient surveys.(Audet, Davis et al. 2006) Yet studies confirm that active patient participation is essential to achieving the complex changes required to meet wellness goals. One limited study confirmed that patient participation in the selection of referrals enhances quality of care and reduces hospitalizations.(Hewlett, Kirwan et al. 2005)

Electronic communication can also enhance access. Virtual office visits, using email or Web-based portal use, can address the need for timely access through sequential communication that does not take time from the patients work. Kaiser Permanente of Colorado is reimbursing 95% of the 99213 office visit fee per virtual office visit (CPT code 0074T ~ \$50 in 2007) (Eads 2007) Medfusion (<http://www.medfusion.net>) and DocInTouch (<https://www.fcintouch.com>) among other provide web portals to physicians at a fee. Web portals may be more secure than email communication.

- **Information technology** is utilized appropriately to support optimal patient care, performance measurement, patient education, and enhanced communication. Only 18 percent of PCPs say they can generate a list of patients who take high-risk medications. Twenty-three percent are currently using electronic medical records; but another 23% would like to implement electronic records within the next year. (Audet, Davis et al. 2006)

Evidence:

Primary care in the US is at a tipping point for implementation of electronic health records.(EHRs) In the first year of use EHRs do little to raise the quality of medical care. After the first year physicians begin to see the potential of the EHR to radically change the opportunities to track data and inform office system change.(Crosson, Stroebel et al. 2005) A 5 year comparison of a practice with EHR and one without demonstrated that in the office with the EHR patients had significantly lower HbA1c and LDL levels.(O'Connor, Crain et al. 2005) EHRs also increase the efficiency and accuracy of quality reports to third parties.

Implementing an EHR costs \$18,000 to \$22,000 per provider for hardware and software plus 50% reduced productivity for 6 weeks after start-up, estimated to be another \$12,400 of lost income. This comes to roughly \$32,000 per provider. Maintenance costs \$5,000 per provider per year.

- Practices go through a **voluntary recognition** process by an appropriate non-governmental entity to demonstrate that they have the **capabilities to provide patient centered services** consistent with the medical home model.

Successful phase in of the medical model will be more likely if high performing practices wishing to be measured against benchmarks volunteer to participate. During this period

measures that work and lead to improved patient management will be identified and actual costs of care and savings demonstrated. It will realistically take 10 years to roll out this major evolution to health care and train the primary care providers necessary to meet the needs of all New Yorkers and avoid the balloon in demand for primary care providers encountered by Massachusetts when implementing universal coverage.(Wall Street Journal, July 25, 2007)

- **Enhanced access** to care through systems such as open scheduling, expanded hours and new options for communication between patients, their personal physician, and office staff.

The principle benefit of health insurance in the United States is that insurance facilitates access to primary care and the closer the primary care model behaves as a medical home the better the health outcomes.(Lillie-Blanton and Hoffman 2005) The literature is consistent and compelling. In fact, the higher measure of medical home attributes a primary care practice demonstrates the more likely patients are up-to-date on screening, immunizations and health habit counseling and less likely to use emergency rooms. (Crabtree, Miller et al. 1998; Flocke, Stange et al. 1998; Ryan, Riley et al. 2001) By definition the medical home incorporates several strategies noted above to assure that patients get access to the right care, at the right time in the right place. Access to the right specialty care is enhanced by primary care and patient satisfaction with health care increases.

Demonstration Projects: Implementation of the Medical Home

The large insurers are also incorporating the medical home concept. UnitedHealth Group pilot project in primary care practices in Florida began selection of sites in August of 2007. UnitedHealth Group will support participating primary care practices by helping them incorporate quality improvement and care management systems to increase access and improve quality. CIGNA, Humana, Wellpoint and Aetna have all expressed interest in using reimbursement strategies to support medical homes.(Backer 2007)

Boeing created the Ambulatory Intensive Care Unit to improve affordability as well as quality and patient experience. (Helle and Fernandopulle 2007) The program focuses on team health care and linkage of specialists. Incremental costs of the project were 9.9% but the project, to date focused on 700 high utilizing patients, has saved 46.8% over historic costs. At the heart of the program is a dedicated physician and nurse with 24/7 access via email, phone and home visits charged with providing proactive, evidence-based care and improve the patient's health status.

North Carolina's Medicaid management program, known as [Community Care of North Carolina](#) (CCNC)(Carolina 2007) is a group of physician-led networks that rely on the medical home model to save costs and improve health care quality. For a capitation of \$5.50 per Medicaid patient per month, practices use evidence based guidelines for at least 3 conditions, track tests and referrals, measure and report on clinical and service performance. The program spent \$8.1 million between July 2002 and July 2003, but it saved more than \$60 million over historic expenditures. In the second year of the

program \$10.2 million were spent but \$124 million was saved. In 2005 the savings grew to \$231million. (Arvantes 2007)

Erie County, New York implemented a Partial Capitation Managed Program in 1990 for Medicaid/Medicare patients with chronic disabilities including substance abuse. The model established a capitated primary care home for each enrollee. Patient access to special services defined by their unique mental health diagnosis in the community continued at usual Medicaid fee-for-service. Annual audits confirm improved quality of care at a savings of approximately one million dollars per year for every one thousand enrollees.(Rosenthal, Horwitz et al. 1996) There was less duplication of diagnostic testing and fewer emergency room visits and hospitalizations.

The Buffalo Medical Group, a 100 physician, private, multi-specialty group in Buffalo, NY, has undertaken efforts to provide a medical home for its diabetic patients. They identified all of the diabetics in their practice (n=2151) and assigned a nurse case manager for every 800 patients to score the quality of management of these patients every three months. The nurse schedules lab tests, eye appointments and appointments with the primary care provider. The group now achieves target HbA1c (<7) on 57% of their patients, exceeding NCQA standards. The cost of this program is \$11.90 per patient per month which is partly reimbursed through negotiated contracts with area insurance carriers.(Notaro 2007)

The Veterans Affairs Administration integrated information technology based on primary care and realized improved quality of care at significant savings. It now costs \$6,000 less per year to care for veteran over age 65 than for a Medicare recipient.(Moran 2005)

Medicare has been mandated to implement a medical home demonstration project in the Tax Relief and Health Care Act of 2006. The project must start by 2010 and the Center for Medicare and Medicaid Services are defining CPT codes for care management to facilitate payment to practices. Senators Richard Durbin, R-Ill. and Richard Burr, R-N.C. have introduced a bipartisan bill that would give states money to establish patient-centered medical home demonstration projects for Medicaid and State Children's Health Insurance Programs, or SCHIPs. The bill is titled the Medical Homes Act of 2007.

Training Physicians for the Medical Home

Ultimately there needs to be reform in physician training. Residents in primary care training programs need theory and experience in the management of a population of patients, patient-centered care, personal medical home, best knowledge at the point of care, continuous access to multimodal communication, a new platform of care, time intensive visits, group visits, teamwork and interpersonal skills, and financial practice management.(Scherger 2007) We will also need to increase workers from the many racial and ethnic profiles represented in New York through programs such as the New York Area Health Education System and capital development programs for underserved communities as developed by the Primary Care Development Corporation.

Reimbursing the Medical Home

Rationale for payment reform: The CMS Resource-Based Relative Value Scale, designed to reduce inequality between fees for office visits and payment for procedures, has failed. It failed because the number of well reimbursed diagnostic procedures increased but there was little capacity of any one primary care physician to increase the number of office visits in a day.

The American Medical Association (AMA) sponsors the resource-based relative value scale update committee (RUC) (RUC) 2007) Functionally, the RUC is the primary advisor to CMS for all work RVU decisions. The RUC has 30 members with 23 of its members appointed by national medical specialty societies. Meetings are closed to outside observation except by invitation of the chair. Three seats rotate on a 2-year basis but most members have no term limits. Seventeen of the permanent seats on the RUC are assigned to AMA-recognized specialty societies including those that account for a very small portion of all professional Medicare billing, such as neurosurgery, plastic surgery, pathology, and otolaryngology. Proceedings are not publicly available for review. To date, more than 90% of the RUC's recommendations are accepted and enacted by CMS. From 1992 to 2002, the number of evaluation and management services as measured by RVUs increased 18% while the number of nonmajor procedures increased 21%, and the number of imaging services increased 70%. As a result, the resource-based relative value scale system "defies gravity" with the upward movement of nearly all codes. In 2006, based on RUC recommendations, CMS increased RVUs for 227 services and decreased them for 26. (Goodson 2007)

Finally, private insurers mirror Medicare therefore they also pay higher per time unit fees for procedures. Between 2000 and 2004 primary care income increased 9.9% while specialty incomes increased 15.8%. Payment reform is essential to recreate an effective primary care base. (Bodenheimer, Berenson et al. 2007)

Payment must recognize the added value provided to patients by physician and non-physician staff who make the patient centered medical home work, including those activities that fall outside of the face-to-face visit. Care coordination between consultants, ancillary providers, and community resources as well as emotional and psychological support and management must be reimbursed. Payment strategies need to support health information technology, e-mail and telephone consultation and be adjusted by case mix. Experience with Medicaid managed care demonstrates that lofty quality targets require incentives. (Landon, Schneider et al. 2007)

In many cases practices that consistently apply the attributes of the medical home will be a classic primary care practice of family physicians, general internists or pediatricians. However endocrinologists caring for diabetic patients or nephrologists caring for patients on dialysis may elect to incorporate the medical home attributes to become eligible for medical home reimbursements and achieve similar outcomes. (McDonald, Harrison et al. 2007)

Where will the money come from? Areas with higher ratios of primary care physicians have lower total health care costs due to preventive care, fewer hospitalizations, less duplication, and more appropriate use of technology.(Mark, Gottlieb et al. 1996; Franks and Fiscella 1998) A case of community acquired pneumonia is more expensive if cared for by specialists with no difference in outcomes.(Whittle, Lin et al. 1998) A 20% increase in the supply of generalists in the United Kingdom is associated with 14/100,000 population fewer admissions for acute illnesses and 11/100,000 fewer for chronic diseases decrease.(Gulliford 2002) The rates of hospitalizations for heart disease and diabetic patients (case mix controlled) were 90% higher for cardiologists and 50% higher for endocrinologists over family physicians.(Greenfield, Nelson et al. 1992; Basu and Clancy 2001) Populations served by Community Health Centers show lower rates of costly health conditions and 5.8 fewer preventable hospitalizations per 1000 persons. (Epstein 2001; Starfield and Shi 2004)

The source of funds for supporting the medical home will come from the anticipated 30% savings realized by assuring every patient has access to a personal care physician practicing in a medical home model practice.

Quality also saves. Maintaining a HbA1c at 7 in diabetic patient saves \$279 a year in health costs per patient. Keeping a diabetic's LDL below 100 saves \$369 per year and keeping the blood pressure below 130/80 saves \$494 according to data collected from patients cared for in the Bridges to Excellence program. Keeping all measures at target saves \$1,059 per patient per year. Preventing one MI saves \$36,256 and avoiding one dialysis patient by controlling diabetes can save \$44,206.(Excellence 2005)

After reporting of quality and outcomes was initiated in the United Kingdom in 2000 the quality of care improved. However, when financial incentives were added in 2004 the quality improvement curve steepened as practices employed more provider staff, installed EHRs and increased networking with community agencies. Nurses were given greater team responsibility and reported greater job satisfaction.(Campbell, Reeves et al. 2007; McDonald, Harrison et al. 2007)

Reimbursement strategies for medical homes should incorporate a fee-for-service component, a per-patient care-management stipend and a pay-for-quality award. The present fee-for-service payments fails to compensate primary care physicians arranging for referrals, completing benefit forms and communicating with patients and other providers, estimated to be 40% of the work of primary care.(Gottschalk and Flocke 2005) The Medicare RBRVS based fee schedule established in 1992 has never compensated coordinating care and patient education and has undervalued the office visit. Recent 2007 changes increased primary care reimbursement only 5%, not the 37% projected by Medicare. (Ginsburg and Berenson 2007)

Reimbursement models: Little data exists comparing reimbursement methodologies for medical homes. However, a pure fee-for-service methodology is a barrier to achieving society's goals for health care.(Medicine 2006) Reimbursement strategies must create an active care coordination center for case management between

the medical home and the patient that will ultimately reduce the number of physicians billing for patient care.(Pham, Schrag et al. 2007)

Large practices and small practices will benefit from a statewide, specialty based, assistance program as has been modeled by the AAFP, AAP and ACP, though large practices may have greater internal expertise to adopt medical home principles. Medical practices, including Community Health Centers, are business entities. Rewards for change must exceed the cost of change for change to take place. Making the conversion to a medical home model costs \$50,000 for every three physicians. While single disease programs offer attractive simplicity they require an investment similar to global programs that have the potential to impact all patients, regardless of diagnosis. Global programs are also less likely to lead to discrimination against patients who are unable to achieve benchmarks.(de Brantes 2007)

Reform should begin by establishing a blended fee schedule consisting of a fee-for-service (per visit) fee plus a monthly management fee for practices serving as medical homes and an additional bonus for meeting and reporting quality performance goals.(Davis 2007) Blended payments create the most positive re-enforcement for quality.

Besides the office visit face-to-face **fee-for-service** charges, virtual office visits, using email or Web-based portal use, should also be reimbursed. Kaiser Permanente of Colorado is reimbursing 95% of the 99213 office visit fee per virtual office visit (CPT code 0074T ~ \$50 in 2007) (Eads 2007)

Several models have used a **per-member-per-month management fee** approach with ranges from \$5.50 per month for all Medicaid patients with or without chronic disease in North Carolina(Carolina 2007) to \$10.00 per member per month for patients with mental health diagnosis complicated by a medical condition.(Rosenthal, Horwitz et al. 1996) Other models have paid fractional fees for specific activities. These include maintenance of chronic disease registries, testing records, guidelines implementation, outcomes tracking and hospitalization rates. The Bridges to Excellence project has demonstrated that *well* persons with a medical home realizes cost savings of \$110 per patient per year.(Excellence 2005) Therefore capitation of \$5.50 per-member-per-month, yielding \$66 per year to the practice comes close to splitting the savings between provider and payer.

At \$5.50 PMPM for a typical primary care panel of 1800 patients per provider generates \$99,000 per year. This would offset physician management time, lower fee-for-service billable income and is enough to hire a full time RN case manager and an assistant to:

- Ensure primary prevention and screening.
- Ensure secondary prevention of chronic diseases.
- Run self management patient education classes.
- Do telephonic case management for more severe illnesses.
- Track patients who fail to follow up.

- Run data tracking reports against desired outcomes.
- Work with all staff to optimize work flow to maintain patient centered values
- Collaborate with the medical director run quality insurance projects.

Beyond the management fee, a **quality incentive** should also be offered. This is a pay-for-performance (P4P) fee that recognizes achievement of standards of care. HMOs have traditionally relied on claims data for tracking but the most accurate source of data is the patient record.(Pawlson, Scholle et al. 2007) Though essential to quality management and ultimate savings, tracking P4P criteria requires resources. Rewards must be enough to trigger continuous efforts at improvement but infrequent enough to reflect actual change. The most common interval of payment is every 3 months. Standards must be adjusted for patient population and community but should aspire to national standards of care.

The AMA Physician Consortium for Performance Improvement and the National Quality Forum have endorsed a list of quality measures eligible for incentives. (<http://www.ama-assn.org/ama/pub/category/4837.html>) (See appendix) Programs that have started by a focus on a limited number of incentives and grown as skill at collection and validation of data improved have been the most successful. Suggested initial incentives include: 70% of a physician's glycosylated hemoglobin being below 8 or 70% of blood pressures being below 140/90 and 70% of LDL levels below 130. The 70% strategy diminishes the likelihood of cherry picking for compliant patients yet stimulates tracking of values and reporting that effectively drives quality. Immunization benchmarks are often set at 90% as are preventive tests such as cervical and breast cancer screens. Colonoscopy rates have not risen above 50% in the community therefore the initial target may be set at 60% until barriers at achieving higher compliance are identified. The targets should evolve over time as methods improve for insuring performance and should be set by a review board of consumers, providers and insurers.

Patients in health plans that include a pay-for-performance incentive do receive higher quality care that persists and improves over 6 years of follow-up.(Gilmore, Zhao et al. 2007)

Payments must be enough to encourage change.(Casalino, Devers et al. 2003) Incentives should also be made public as evidence suggests reporting improves patient trust.(Health 2007) Criteria should be measurable, based on evidence and amenable to medical case management.(Dunbar, Hiza et al. 2004) It is difficult to arrive at specific reimbursement amounts for P4P because existing programs are very different. In New York State Fidelis Care has offered \$6 per month for achieving a list of criteria similar to the National Quality Forum. Taken individually this is approximately \$1 per measured criteria per member per month if thresholds are achieved.

Oversight will be essential to the success of a statewide medical home model. The England and Wales instituted the National Institute for Health and Clinical Excellence (NICE) to manage incentives and define objectives of the health care system. NICE publishes clinical appraisals on diagnostic and treatment efficacy developed by a team of full time investigators, health professionals working in the National Health Service,

patients, employers and government.(Excellence 2005) NICE is challenged to balance national agendas versus individual benefit and to avoid over emphasis on cost containment. (www.nice.org.uk) A functional oversight group informs, advises and protects providers through the development of evidence based guidelines and would be important to a statewide health system.

Primary Care Coalition Members:

The Community Health Center Association of New York State (CHICANYS)

The Primary Care Development Corporation (PCDC)

The New York State Area Health Education Center (AHEC) System

The New York Chapter of the American College of Physicians

The New York State Academy of Family Physicians

Appendix

RECOMMENDED STARTER SET CLINICAL PERFORMANCE MEASURES FOR AMBULATORY CARE National Quality Forum 2004

Prevention Measures	
1. Breast Cancer Screening	Percentage of women who had a mammogram during the measurement year or year prior to the measurement year.
2. Colorectal Cancer Screening	The percentage of adults who had an appropriate screening for colorectal cancer. One or more of the following: FOBT – during measurement year, Flexible sigmoidoscopy – during the measurement year or the four years prior to the measurement year, DCBE – during the measurement year or the four years prior, Colonoscopy – during the measurement or nine years prior.
3. Cervical Cancer Screening	Percentage of women who had one or more Pap tests during the measurement year or the two prior years.
4. Tobacco Use	Percentage of patients who were queried about tobacco use one or more times during the two-year measurement period.
5. Advising Smokers to Quit	Percentage of patients who received advice to quit smoking.
6. Influenza Vaccination	Percentage of patients 50-64 who received an influenza vaccination. Note: NQF also preliminarily approved this measure for patients 65 and older.
7. Pneumonia Vaccination	Percentage of patients who ever received a pneumococcal vaccine.
Coronary Artery Disease (CAD)	
8. Drug Therapy for Lowering LDL Cholesterol	Percentage of patients with CAD who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines)
9. Beta-Blocker Treatment after Heart Attack	Percentage of patients hospitalized with acute myocardial infarction (AMI) who received an ambulatory prescription for beta-blocker therapy (within 7 days of discharge)
10. Beta-Blocker Therapy – Post MI	Percentage patients hospitalized with AMI who received persistent beta-blocker treatment (6 months after discharge). Note: This measure was not reviewed by the NQF and therefore it is not approved.
Heart Failure	
11. ACE Inhibitor / ARB Therapy	Percentage of patients with heart failure who also have LVSD who were prescribed ACE inhibitor or ARB therapy. Angiotensin receptor blocker (ARB) drugs are collected under this measure.
12. LVF Assessment	Percentage of patients with heart failure with quantitative or qualitative results of LVF assessment recorded
Diabetes	Note: These measures were not approved during the NQF expedited review, as NQF has taken previous action on diabetes measures.
13. HbA1C Management	Percentage of patients with diabetes with one or more A1C test(s) conducted during the measurement year.
14. HbA1C Management Control	Percentage of patients with diabetes with most recent A1C level greater than 9.0% (poor control).

15. Blood Pressure Management	Percentage of patients with diabetes who had their blood pressure documented in the past year less than 140/90 mm Hg.
16. Lipid Measurement	Percentage of patients with diabetes with at least one Low Density Lipoprotein cholesterol (LDL-C) test (or ALL component tests).
17. LDL Cholesterol Level (<130 mg/dL)	Percentage of patients with diabetes with most recent LDL-C less than 100 mg/dL or less than 130 mg/dL
18. Eye Exam	Percentage of patients who received a retinal or dilated eye exam by an eye care professional (optometrist or ophthalmologist) during the reporting year or during the prior year if patient is at low risk for retinopathy. A patient is considered low risk if all three of the following criteria are met: (1) the patient is not taking insulin; (2) has an A1C less than 8.0%; and (3) has no evidence of retinopathy in the prior year.
Asthma	
19. Use of Appropriate Medications for People w/ Asthma	Percentage of individuals who were identified as having persistent asthma during the year prior to the measurement year and who were appropriately prescribed asthma medications (e.g. inhaled corticosteroids) during the measurement year.
20. Asthma: Pharmacologic Therapy	Percentage of all individuals with mild, moderate, or severe persistent asthma who were prescribed either the preferred long-term control medication (inhaled corticosteroid) or an acceptable alternative treatment
Depression	
21. Antidepressant Medication Management	Acute Phase: Percentage of adults who were diagnosed with a new episode of depression and treated with an antidepressant medication and remained on an antidepressant drug during the entire 84-day (12-week) Acute Treatment Phase.
22. Antidepressant Medication Management	Continuation Phase: Percentage of adults who were diagnosed with new episode of depression and treated with an antidepressant medication and remained on an antidepressant drug for at least 180 days (6 months).
Prenatal Care	
23. Screening for Human Immunodeficiency Virus	Percentage of patients who were screened for HIB infection during the first or second prenatal visit.
24. Anti-D Immune Globulin	Percentage of D (Rh) negative, unsensitized patients who received anti-D immune globulin at 26-30 weeks gestation.
Quality Measures Addressing Overuse or Misuse	
25. Appropriate Treatment for Children with Upper Respiratory Infection (URI)	Percentage of patients who were given a diagnosis of URI and were not dispensed an antibiotic prescription on or 3 days after the episode date.
26. Appropriate Testing for Children with Pharyngitis	Percentage of patients who were diagnosed with pharyngitis, prescribed an antibiotic and who received a group A streptococcus test for this episode.

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