Improving Care, Reducing Costs:
Evaluating Emergency Department Use Under Hennepin Health

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Introduction

Over the past 50 years, changes in the U.S. health care system have dramatically increased the ability of vulnerable Americans to access health care services. These changes – most notably, the creation of Medicare and Medicaid in the 1960s – have primarily sought to address the health care needs of vulnerable populations, namely, seniors, low-income women and children, and people with disabilities. Much less attention, however, has been paid to the needs of so-called "childless adults" – people between the ages of 18 and 64 who do not have dependent children in the home. Low-income childless adults typically lack health insurance because they cannot afford the cost of private insurance and do not meet eligibility guidelines for enrollment in Medicaid or Medicare. Some childless adults are homeless and have complex health care needs that include mental health issues and substance abuse. In Minnesota, a program called General Assistance Medical Care (GAMC) provided health care coverage to poor childless adults for nearly 40 years, with the state reimbursing doctors and hospitals for the care provided to this population. By 2009, however, the cost of the program overwhelmed the state's budget, and a line item veto the following year reduced GAMC to virtual nonexistence.

Years later, a new Minnesota initiative spurred by the Patient Protection and Affordable Care Act of 2010 is designed to provide health care coverage to low-income, childless adults while containing costs for the government and health care providers. In early 2012, Hennepin County enrolled approximately 5,000 childless adults in a new program called Hennepin Health. Based on a health care financing and service delivery model called an accountable care organization (ACO), Hennepin Health aims to coordinate health care and social services for low-income childless adults in order to improve this

population's quality of life and reduce costs to the county. The ACO model is a relatively new concept, and while the Affordable Care Act establishes ACOs for Medicare enrollees, much less is known about how this model may work for other populations, including low-income adults. Policymakers are still determining how best to measure whether ACOs meet their intended outcomes, and much more research is needed in order to assess the effectiveness of the ACO model.

This paper will propose a logic model and two data collection strategies for measuring one of the objectives of Hennepin Health: reduced emergency department visits among enrollees. This work will draw from methods employed by the Urban Institute and the University of California San Francisco, which evaluated a county-level ACO in California over a three-year period (Howell et al, 2011). Approaches used by evaluators in California provide guidance for measuring Hennepin Health outcomes because of similarities between the two ACO projects – most notably, similar target populations, shared program goals, and reliance on county-based systems for delivering care and measuring outcomes. After developing and explaining a logic model for the outcome of reduced emergency department visits, I will use the model to identify and discuss two data collection strategies that may be used to measure and explain any changes in emergency department use under Hennepin Health. A discussion of limitations and recommended next steps will follow.

Historical Context

Low-income childless adults make up a large percentage of the country's uninsured population, in part because of their historic exclusion from the Medicaid program (Dorn et al, 2004; Klein and Schwartz, 2008). Established in 1965, Medicaid is the nation's major health care safety net program, providing insurance coverage to families with dependent

children, people with disabilities, pregnant women, and some seniors – nearly 60 million Americans in all (Kaiser Family Foundation, 2010a). Funding for Medicaid comes from states and the federal government, and each state administers its own Medicaid program under general federal standards. Medicaid covers a broad range of health and long-term care services, including physicians' services, hospital services and home health care. Individual states have the option of covering additional services, such as prescription drugs, dental services and hospice services (Ibid). Up until recently, an adult wanting to enroll in Medicaid had to meet two types of criteria: financial and categorical (Ibid). The financial criteria require enrollees to have annual incomes below a certain poverty threshold, and some states also impose asset tests. In addition to meeting the financial criteria, a Medicaid-eligible adult must also be disabled, pregnant or a parent. Childless adults who do not meet this categorical requirement have historically been ineligible for Medicaid, no matter how low their incomes (Dorn et al, 2004; Kaiser Family Foundation, 2010a).

Nearly half of all states, including Minnesota, have attempted to address this coverage gap through modifications to their Medicaid programs or the creation of state-funded health care programs specifically for low-income childless adults. As of 2008, 18 states provided free or subsidized coverage to this population through a Section 1115 waiver, which allows states to use federal Medicaid dollars in ways not allowed under current law (Dorn et al, 2004; Klein and Schwartz, 2008). Because waivers must be budget neutral, a state that uses a waiver to expand health care coverage must find ways to reduce costs in other areas of its Medicaid program (Dorn et al, 2004). Other states have used their own dollars to fund health care programs for poor childless adults. For more than 40

years, General Assistance Medical Care (GAMC) covered basic health care services for childless Minnesotans between the ages of 21 and 64 with incomes below 75 percent of federal poverty guidelines – less than $677 a month (Chun, 2010). States' programs, whether financed through a waiver or state dollars, vary according to eligibility rules, enrollee cost-sharing, benefit design, and enrollment and funding caps (Klein and Schwartz, 2008). State-funded programs are particularly vulnerable to budget constraints, and in Minnesota, fiscal pressure and the cost of GAMC contributed to lawmakers' decision to dramatically reduce the scope of the program.

Despite state efforts to provide health care coverage to poor childless adults, many members of this population remain uninsured. According to Dorn and colleagues (2004), low-income childless adults are more likely to be uninsured than are any other Americans. Of the 46 million non-elderly Americans who lacked health insurance in 2008, more than one-third were childless adults (Kaiser Family Foundation, 2010a). This is a problem because lack of health insurance is a significant risk factor for poor health outcomes (Kaiser Family Foundation, 2011; Klein and Schwartz, 2008). Uninsured adults are far more likely than their insured counterparts to postpone or forgo health care altogether, setting the stage for more serious health problems down the road (Kaiser Family Foundation, 2011). Because the uninsured are less likely to seek preventive care, such as routine check-ups and screenings, "silent" health problems often go undetected and diseases are diagnosed in later stages (Kaiser Family Foundation, 2011; Klein and Schwartz, 2008). The uninsured are also less likely to follow through with recommended health care services and more likely to be hospitalized for avoidable health problems (Kaiser Family Foundation, 2011).

It is not surprising, then, that uninsured adults are more than twice as likely to report being in fair or poor health as those with private insurance (Ibid).

Reducing the number of uninsured Americans is a major goal of the Patient Protection and Affordable Care Act, and a key provision in the law is intended to provide uniform health care coverage for poor childless adults across the country. Beginning in 2014, the U.S. Department of Health and Human Services will eliminate Medicaid's categorical eligibility criteria and expand the program to cover nearly all adults under age 65 with incomes below 133 percent of the federal poverty level – just under $14,500 for an individual (Kaiser Family Foundation, 2010a; Iglehart, 2012). As a result of this change, many low-income childless adults who were previously excluded from Medicaid will be able to enroll. As of 2010, an estimated 17.1 million uninsured adults were at or below the new Medicaid coverage floor, and the majority of them did not have children (Kaiser Family Foundation, 2010b). The Affordable Care Act gives states the option to cover the newly eligible population as early as April 2010, rather than wait until 2014. Minnesota is one of the states that has decided to pursue the early Medicaid expansion, and former GAMC enrollees were automatically enrolled into the state's Medicaid program in March 2011 (Gibson, 2011). Average monthly enrollment for fiscal year 2012 is projected to be 98,000, with the vast majority of enrollees previously covered by GAMC and another state health care program, MinnesotaCare (Ibid).

While the Medicaid expansion stands to improve the lives of millions of uninsured adults, it comes with its own set of challenges for policymakers, particularly those who work in state government. After the Medicaid expansion takes effect nationwide in 2014, the federal government will fully fund the cost of newly eligible enrollees through 2016

(Iglehart, 2012). Federal funding will then be phased down so that by 2020, the federal government will pay for 90 percent of new beneficiaries' costs and states will be responsible for 10 percent (King, 2010). This 10 percent match is just one of several new state expenses created by the Medicaid expansion. Others include administrative costs for enrolling new people; computer systems needed to integrate Medicaid with the new health insurance exchanges; and higher reimbursement rates for primary care providers (Ibid). While some experts contend that states will benefit financially from the Medicaid expansion in the long-term, most states currently operate under tight budget constraints that have been heightened by the recession (Ibid). Thus, a major question facing policymakers is how best to provide high quality health care services for a growing number of Medicaid enrollees, all while keeping costs down and sustaining programs over time.

Literature Review

The question posed by the Medicaid expansion isn't new. In fact, U.S. policymakers are continuously experimenting with how to deliver and finance health care services in a way that aligns cost and quality objectives. One of the most recent models proposed for meeting this goal is called an accountable care organization (ACO). In essence, an ACO consists of a network of health care providers that agrees to provide services to a defined population of patients in exchange for set payments from an insurer. Under this model, health care providers take on the financial risk of caring for their patients, creating an incentive to keep costs down (Silversmith, 2011). At the same time, the ACO must meet certain standards to show that it is providing recommended services and high-quality care (Berenson and Burton, 2011). The ACO model represents a dramatic shift from the way health care has been financed and delivered in the past. A brief review of the literature on

the two traditional models of health care financing – known as fee-for-service and managed care – sets the stage for considering how ACOs attempt to balance the competing values of high quality and cost reduction in the U.S. health care system.

Health policy literature is flush with critiques of fee-for-service financing, the dominant model of health care financing until the 1980s. Shi and Singh (2012) provide a succinct overview of the central features of this model. Under fee-for-service, physicians and other health care providers set prices for their services and bill health insurance companies according to the types of services delivered to patients. Insurance companies have little control over how much providers charge or what kinds of services they deliver; in essence, insurers function as a "passive payer of claims" (341). Thus a significant characteristic of fee-for-service financing is the incentive for physicians and other health care providers to deliver more services than medically necessary in order to increase their revenues (Cangialose et al, 1997; Eddy, 1997; Shi and Singh, 2012). For their part, insurance companies have little incentive to control costs because they can simply raise the premiums paid by their subscribers (Shi and Singh, 2012). Additionally, because the focus under fee-for-service is on treating sick patients, insurers provide better reimbursement for hospital services than preventive care, making the hospitalization of patients more lucrative for physicians (Eddy, 1997; Shi and Singh, 2012). The net effect of these flaws in fee-for-service financing was a rapid escalation of health care costs that came to a head in the 1980s.

Managed care, an alternative to fee-for-service financing, was rapidly adopted in the 1980s and 1990s as policymakers attempted to control health care costs. Yet a recurring theme in the literature is the question of whether managed care's restrictions on health

care providers have compromised the quality of care patients receive. Managed care plans may take several different forms but share a set of basic characteristics. Under managed care, financial incentives from insurers are used to encourage health care providers to hold patients' service utilization within a fixed budget (Eddy, 1997). In keeping with this objective, insurers play an active role in managing physicians' practices and take a proactive approach to meeting the health care needs of subscribers (Ibid). The belief that managed care can control costs through the more efficient delivery of more appropriate care has led to the widespread use of managed care models in both the public and private sectors (Davis et al, 1995). Critics, however, point to lower quality, less freedom to choose physicians, interference with physicians' clinical autonomy, and reduced access to specialty care as among the undesirable consequences of managed care (Ibid). As Cangialose and colleagues (1997) observe, the trade-offs between fee-for-service financing and managed care illustrate how, at some level, maintaining quality care conflicts with controlling or reducing health care costs.

Concerned with the question of how best to reconcile cost and quality objectives, Fisher et al (2006) proposed the idea of an accountable care organization (ACO) that could be implemented with Medicare patients. Looking at Medicare claims data, Fisher observed that many Medicare beneficiaries receive care from local delivery systems in which physicians are tightly affiliated with a hospital. Fisher proposed using these local networks of hospitals and physicians as the entities held responsible for the cost and quality of patient care, instead of individual providers. The networks, Fisher argued, had the potential to achieve the dual aims of cost-reduction and quality enhancement by coordinating the care patients received from different medical professionals and ensuring

that people who required many types of services didn't fall through the cracks. Subsequent research has defined ACOs as "networks of providers that are rewarded financially if they can slow the growth in their patients' health care spending while maintaining or improving the quality of care they deliver" (Berenson and Burton, 2011). Policymakers are continuing to study how ACOs may work in practice, and the Affordable Care Act advances this work by establishing ACOs as a new payment model under Medicare and fostering ACO pilot programs for private payers and Medicaid (Fisher and Shortell, 2010).

A growing body of research explores the benefits and challenges of establishing ACOs for safety net patients, particularly in light of the Medicaid expansion planned for 2014. As Brenner and Highsmith (2011) observe, this expansion will bring an additional 16 to 20 million people into the Medicaid program, many of them childless adults with multiple chronic illnesses, physical disabilities, mental health conditions, and an array of social services needs. With this in mind, policymakers are increasingly looking to the ACO model as a way to improve quality and control costs within the Medicaid program. Yet characteristics of high-cost, high-need Medicaid patients and the providers that care for them create unique challenges in implementing successful ACOs. In many communities, for example, a fragmented collection of hospitals, clinics and doctors serves those individuals requiring care due to lack of prevention or uncontrolled illness (Conway and Terrell, 2010). These safety net institutions, whose patients are typically sick, disadvantaged and socially complex, are characterized by poor data generation, little tradition of collaboration and meager financial reserves (Ibid). Most do not have the funding, information technology infrastructure, staff and economies of scale required to launch the kind of ACOs proposed for Medicare patients and their health care providers (Ibid). However, experiments with

safety net ACOs in communities like Camden, New Jersey, where providers and community organizations partnered to reduce emergency department visits among high-risk patients, have spurred calls for further research on how the ACO model may benefit current and future Medicaid enrollees (Brenner and Highsmith, 2011; McGinnis and Highsmith, 2011).

Hennepin County is among the communities assessing the value of ACOs for high-risk Medicaid enrollees. Launched in early 2012, Hennepin Health is an ACO pilot program for low-income childless adults who may have previously received health care coverage through General Assistance Medical Care (GAMC) and who now qualify for Medicaid under the Affordable Care Act. Hennepin Health is available to county residents ages 18 to 64 with no dependent children in the home who have incomes at or below 75 percent of the federal poverty guidelines (DeCubellis, 2011). Upon enrollment, each enrollee undergoes an assessment of basic needs, which informs the development of the individual's care plan and treatment team (Ibid). This team of medical, behavioral health and human services professionals is tailored to the enrollee's specific needs and is intended to ensure coordination among all the different types of services a person may receive. Other key components of Hennepin Health include: the use of electronic health records, which track each enrollee's goals, care plan and outcomes data, among other information; a tiering system that identifies those enrollees with the greatest need for services; the use of feedback groups, patient advisory committees and other tools for gathering feedback from enrollees and family members; and flexibility in the hours enrollees may receive care (Ibid). Hennepin Health enrollees typically receive care at Hennepin County Medical Center (HCMC), where a Coordinated Care Clinic (CCC) offering a range of primary care services has been established to treat the most expensive patients. Hennepin Health

enrollees may also interact with local jails and detox facilities, and efforts are underway to track these visits (Berglin, 2012). Metropolitan Health Plan, which is the health maintenance organization for Hennepin Health, plays an important role in analyzing total costs, collecting population quality measures, and providing a wide range of customer services to enrollees (DeCubellis, 2011).

A defining characteristic of Hennepin Health is its financing model, which is very different from the payment system previously used to cover services for poor childless adults. Under General Assistance Medical Care (GAMC), health care providers who treated enrollees billed the state for their services and the state provided compensation. Like an insurer under fee-for-service financing, the state's primary role was to pay the bills, and it did little to manage the kinds of care enrollees received. For their part, health care providers could deliver any number of services to enrollees, confident that they would be compensated. This payment system, combined with enrollees' complex health care needs, contributed to the ballooning costs of GAMC and the program's eventual demise. Hennepin Health aims to avoid these problems by creating financial incentives for health care providers to keep their patients healthy and their costs down. Under an agreement between the county and the state's Medicaid program, the county receives a set payment per enrollee per month, known as a capitated monthly payment (DeCubellis, 2011). Metropolitan Health Plan (MHP) contracts with health care providers, who submit their bills and are paid by MHP at the contracted rate (Ibid). An agreed upon amount is withheld from payments to providers and is redirected to a financial risk pool, which also collects any savings Hennepin County incurs from using a more efficient care model (Ibid). After three years, the county proposes to evaluate the financial savings and distribute those

savings to partners according to an internally agreed upon formula (Ibid). The assumption is that health care providers will have an incentive to focus on prevention and be strategic with the delivery of services because they will share in any resulting cost-savings.

Part of this work involves reducing enrollees' use of the HCMC emergency department, a goal that reflects concern about emergency department (ED) use nationwide. Estimates of recent growth in ED visits differ, though by most accounts, the increase is substantial. Researchers with the National Center for Health Statistics, for example, found patient volume in hospital emergency departments increased by 36 percent between 1996 and 2006 (Pitts et al, 2008). This growth, combined with the lack of available inpatient beds, is blamed for overcrowding, which in turn is associated with long wait times, reduced quality and patient safety, and financial strain on hospitals (Goodell et al, 2009; Paradise and Dark, 2009). In looking at individuals with four or more ED visits per year, LaCalle and Rabin (2010) find that most of these "frequent users" are insured, though people carrying public insurance are overrepresented. The percentage of publicly insured and uninsured ED patients is higher at safety net facilities like HCMC, corresponding to higher levels of uncompensated care and greater financial burden. Experts disagree on the extent to which hospitals shift the costs of uncompensated care onto private payers (Hadley et al, 2008; Stoll, 2005).

Recommended Approach for Evaluating Emergency Department Utilization

This paper proposes methods for evaluating whether the county's activities under Hennepin Health reduce emergency department use among enrollees. It is informed by the work of the Urban Institute and the University of California San Francisco, which evaluated a Medicaid ACO in California over three years beginning in 2008. In this section, I will first

describe the ACO project in California, explaining why it is an appropriate comparison to Hennepin Health. I will then develop and discuss a logic model that shows what interventions are being used to reduce emergency department visits among Hennepin Health enrollees. The logic model will also help illuminate two opportunities for collecting and assessing data on the use of the emergency department and other health care services under the new program.

Evaluating Safety Net ACOs: Lessons From San Mateo County

Around the time that Hennepin County officials were discussing a possible Medicaid ACO pilot project, a similar program was already underway in San Mateo County, California. In fall 2007, California received a Medicaid waiver from the federal government, which provided the state with $180 million per year for three years to expand coverage for uninsured low-income adults (Benatar et al, 2010). As one of 10 counties selected to participate in the coverage expansion, San Mateo County launched a new program called Access to Care for Everyone (ACE), which targeted documented adults ages 19 to 64 with incomes below 200 percent of the federal poverty guidelines who were ineligible for other public health care programs (Ibid). In addition, the county redesigned how indigent patients received care at its safety net health care facilities, which included a public hospital, San Mateo Medical Center, and a network of clinics. Organizers relied on four key tools in attempting to improve care and reduce costs associated with ACE enrollees in the San Mateo Medical Center system: team-based care; disease management, primarily focusing on diabetes management; electronic medical records; and advanced access scheduling (Ibid). Many of these changes were carried out at an Innovative Care Clinic (ICC), which offered primary care services for adults at the San Mateo Medical Center main

campus. When the initiative began in 2008, the county contracted with the Urban Institute and the University of California San Francisco for a three-year evaluation that would assess the implementation and impact of the ACE coverage initiative and the safety net systems redesign (Howell et al, 2011). Part of this work included measurement of emergency department use.

The San Mateo County coverage expansion and systems redesign share many similarities with Hennepin Health, suggesting that methods used to evaluate the California program may provide a good model for Hennepin County. First, the programs target the same population: low-income county residents ranging in age from late teens to age 64 who are uninsured and receive health care services primarily in county facilities. While ACE is open to slightly less poor individuals (those with incomes up to 200 percent of federal poverty guidelines), data from mid-way through the study period shows that approximately two-thirds of ACE enrollees had incomes below 100 percent of the federal poverty level (Howell et al, 2011). This puts ACE enrollees at a more comparable income range to Hennepin Health enrollees, who must have incomes below 75 percent of the federal poverty guidelines. Unlike Hennepin Health, ACE is not limited to adults without dependent children in the home. However, I make the assumption that most ACE enrollees do not have dependent children, as people with incomes at the ACE level who had dependent children likely would have been enrolled in Medicaid instead.

Another important similarity between the San Mateo County system redesign and Hennepin Health is the use of a patient-centered care model. According to Silow-Carroll and colleagues (2006), a key component of patient-centered care for underserved populations is the coordination and integration of health care services. An increasingly

common practice, for example, is for a team of health care professionals to take responsibility for managing a patient's care, ensuring that the person transitions smoothly between different health care providers and different phases of care (Ibid). The patient-centered model also emphasizes flexible hours and short wait times as ways to promote accessibility to services, and encourages patients to be more involved in decisions about their own care (Ibid). Several of the changes initiated by San Mateo County draw on the patient-centered model, such as the use of team-based care, electronic medical records, and a patient scheduling system that allows same-day scheduling and reduces appointment wait times (Benatar et al, 2010). Hennepin Health also utilizes care teams, electronic health records and flexible scheduling practices, and seeks to involve enrollees and their families in improving the program (DeCubllis, 2011). In this way, San Mateo County and Hennepin County use similar types of interventions in addressing the health care needs of similarly defined populations.

Opportunities for Evaluation: Developing a Logic Model

The California and the Minnesota programs share the goal of reducing emergency department visits among enrollees, and a logic model helps illustrate how Hennepin County is hoping to achieve this objective. Wholey and colleagues (2010) define a logic model as a graphic representation of the essential elements of a program and how they fit together (72). A logic model is useful for evaluation work because it shows how a program aims to solve a problem under certain conditions. By mapping a program's resources, activities, outputs and outcomes, evaluators can highlight underlying assumptions about how a program works; identify what evaluation questions should be asked and why; and determine what performance measures are key (Ibid). A logic model can also aid in the

collection and interpretation of evaluation information and in the reporting of evaluation results (Ibid). The model is typically developed in consultation with key stakeholders and is revised as a program changes or new information becomes available.

The logic model shown in Appendix A illustrates how Hennepin Health is attempting to reduce enrollees' use of the emergency department at Hennepin County Medical Center (HCMC), a safety net hospital treating high numbers of uninsured adults. In this model, the program being evaluated includes all activities intended to reduce emergency department use by Hennepin Health enrollees. Some of these activities occur at the HCMC emergency department, though most take place outside of the hospital. Both sets of activities are included in the logic model and will be discussed in further detail below. The logic model draws on interviews with two county staff members, information from a November 2011 report describing Hennepin Health, and status reports from January and February 2012, the first two months of the program's operation. The model attempts to provide a simplified, yet accurate picture of what is in fact a complex set of activities, and serves the primary purpose of informing evaluation efforts.

The "Activities" section of the logic model highlights the two strategies the county is using to reduce emergency department visits among Hennepin Health enrollees. The primary strategy is preventative: When a person enrolls in Hennepin Health, the individual undergoes an intake assessment, which informs the development of a personalized care plan. This plan includes recommendations and a course of action to address the individual's specific medical, behavioral and/or social needs, which may include the management of a chronic condition, such as diabetes, or the need for stable housing (DeCubellis, 2011). Each enrollee is also assigned a care team, which includes various

medical, behavioral health and social services professionals who work with the enrollee to meet the goals in the care plan. A lead care coordinator serves as the primary contact for the enrollee and also assists in crisis prevention and planning (Ibid). A crisis plan included in an enrollee's care plan gives the individual concrete steps to take in the event of a medical, behavioral or social service crisis, such as the exacerbation of symptoms or social issues (Ibid). If the enrollee presents the plan in an emergency setting, staff will be able to review the plan, know which team member to contact, and deliver the best treatment recommendations (Ibid).

As the logic model shows, several activities tie into the central work of enrolling qualified individuals in Hennepin Health and providing them with a care plan and care team. For example, many of the people currently enrolled in Hennepin Health had previous contact with county systems and programs, such as General Assistance Medical Care (GAMC), the former health care program for poor childless adults. Thus one of the activities of county staff is to transition into Hennepin Health those people who are already known to be eligible. Other activities, such as homelessness prevention and jail outreach, aim to enroll people who qualify for Hennepin Health but who may not have been enrolled in GAMC or other county programs. This work extends to the HCMC emergency room, where eligible individuals who show up for care may also be enrolled.

Interventions occurring at HCMC comprise the second strategy being used to reduce emergency department use among Hennepin Health enrollees. After the Minnesota Legislature approved a dramatically scaled-down version of GAMC in 2010, HCMC created an on-site clinic for program enrollees with the highest utilization of health care services. Known as the Coordinated Care Center (CCC), this facility provides easy walk-in access to a

range of primary care services, as well as case management, chemical dependency counseling, and pharmacist support for medication (DeCubellis, 2011). It is also a source of care for enrollees who require follow-up services after being hospitalized. In addition, the emergency department established processes for re-directing GAMC enrollees to on-site clinics like the CCC if initial medical screening showed that patients did not require emergency department services (Ibid). Results to date show the CCC to be very successful in reducing repeat hospitalizations and emergency department visits, while increasing the number of primary care outpatient visits (Ibid). The CCC will continue to be used as part of Hennepin Health, and county staff expects the number of people treated at the center to double as a result of the new program (Berglin, 2012).

The outputs and outcomes sections of the logic model show how the two key strategies discussed above aim to reduce emergency department use. The outputs included in the model focus on what the activities produce for Hennepin Health enrollees. For example, outputs for enrollees that occur as a result of enrollment activities include appointments with health and social services professionals and resources such as prescription drugs and housing. The resulting short-term outcome is that the enrollee has a plan of action and a group of people to work with in addressing health care and social services needs. Outputs that occur as a result of interventions at HCMC include treatment delivered at the CCC instead of at the emergency department. The short-term outcome is that the enrollee's immediate health care need is addressed, ideally, in line with the crisis-related recommendations included in the enrollee's care plan.

The short-term outcomes produced by the two strains of activities come together at an expected intermediate outcome: changed enrollee attitudes about their place in the

health care system. Most people enrolled in Hennepin Health are accustomed to using the emergency department because they have not had an ongoing source of paid health care services (Berglin, 2012). When they come to the emergency department, it may be because a medical condition that could have been addressed in a doctor's office went untreated and later worsened. Other times, people dealing with substance abuse treat the emergency department as a default detox facility, coming to the hospital when the actual detox facility is full (Ibid). Members of the Hennepin Health population typically have not had ongoing relationships with specific health care providers and have rarely engaged in activities to promote their own health. Hennepin Health aims to change this paradigm by connecting enrollees with regular sources of primary care, where health conditions can be addressed before they become emergency situations. When an emergency does occur, the enrollee has a plan of action and a team of professionals to fall back on. In addition, by helping to design the care plan, the enrollee is playing a much greater role in his or her health maintenance than was the case previously. Thus, the intermediate outcome depicted in the logic model is this shift in attitudes: Hennepin Health enrollees are expected to replace reliance on the emergency department with use of primary care services, build relationships with members of their care team, and gain a greater sense of responsibility for maintaining their own health.

The long-term outcome of reduced emergency department visits is closely related to three other long-term outcomes, so all are included in the logic model. While the outcome of reduced emergency department visits is the primary focus of this paper, the outcome of increased access to primary care services is included because the two objectives go hand in hand: the assumption is that increased access to primary care will reduce emergency

department utilization. A third long-term outcome, reduced costs to the county, stems from the assumption that fewer patients in the emergency room will result in cost savings, even though more enrollees will be using primary care services. Finally, the outcome of improved health among enrollees is expected to result from individuals receiving timely, appropriate health care and social services after previously going without.

Proposed Data Collection Strategies

In mapping the county's efforts to reduce emergency department visits among Hennepin Health enrollees, the logic model in Appendix A also sheds light on opportunities for evaluation. In this section, I will use the model to identify two potential data collection strategies that may be used to assess the effectiveness of the county's activities. In doing so, I will draw on methods employed by the Urban Institute and the University of California San Francisco in evaluating the San Mateo County coverage initiative and systems redesign, an effort with many similarities to Hennepin Health. This section will be followed by a discussion of the limitations of the logic model and the proposed data collection strategies, as well as recommended next steps.

The logic model highlights the importance of interventions at HCMC and its Coordinated Care Clinic (CCC) in attempting to reduce emergency department visits among Hennepin Health enrollees. In order to assess any changes in emergency department use under Hennepin Health, county officials could compare individual-level data from HCMC before and after the implementation of the new program. For example, in San Mateo County, the San Mateo Medical Center provided a year of post-enrollment claims data for two groups of enrollees: those newly enrolled in ACE over a six-month period in 2009, and those newly enrolled in the program that preceded ACE over a six-month period in 2006

(Howell et al, 2011). The data was limited to individuals who had a least one visit to the hospital's Innovative Care Clinic (ICC) in the year following enrollment (Ibid). This work allowed evaluators to compare how members of the same population used hospital and ICC services before and after the redesign of the county's safety net systems. Similarly, in Hennepin County, evaluators could collect a year's worth of post-enrollment claims data for a group of Hennepin Health enrollees and a group of GAMC enrollees. Evaluators could use the data to assess whether poor childless adults used HCMC services – particularly the emergency department – differently under the new program. This comparison may also shed some additional light on the effectiveness of the CCC, which was not established until after the old GAMC program was dismantled. It should be noted that data collection on Hennepin Health enrollees is in its early stages, and further work is needed to determine how this information may be aligned with data collected during the period of GAMC.

As the logic model shows, one of the assumptions underlying Hennepin Health is that enrollees will change how they access health care services after they begin meeting with a care team and working toward goals in an individualized care plan. Whether enrollees will, in fact, change their behavior is another question. As mentioned earlier, members of this population typically face a complex set of challenges that may include unemployment, homelessness, mental illness and substance abuse. While the comparisons of HCMC data described above could identify any changes in emergency department use over time, these comparisons will provide little insight into why the number of visits did or did not change. For this reason, a survey of enrollees may be a helpful tool in understanding the barriers individuals face upon enrollment, how enrollees respond to different components of Hennepin Health, and why. The survey could also be used to

assess whether enrollees' attitudes about their own care have changed and explain why or why not.

A survey administered in San Mateo County as part of its coverage initiative and systems redesign provides a good framework for considering how a similar survey may be used in Hennepin County. In San Mateo County, a 15-question survey was administered to people enrolling or re-enrolling in ACE in March through September 2009 and again in April through October 2010 (Howell et al, 2011). The staff handling enrollments asked the questions and entered an individual's answers into an online application, from which the data was later extracted for analysis (Ibid). A handful of survey questions addressed the individual's current health status, while the rest concerned use of health care services over the past 12 months. For example, questions asked about an individual's financial difficulty in meeting health care needs; whether an individual had delayed seeking care from a doctor or other health care professional; and how many times per month the person had received care in an emergency department (Ibid). Data from this survey allowed evaluators to compare enrollees' use of health care services in the year prior to initial enrollment (while uninsured) to the year following enrollment (Ibid).

In Hennepin County, a similar survey could be administered by Metropolitan Health Plan (MHP), the health maintenance organization that oversees services for Hennepin Health enrollees. It is staff from MHP that conduct welcome calls with enrollees, educating them about benefits and responsibilities (DeCubellis, 2011). This staff also completes a brief triage to assess an enrollee's service history, determines needs and preferences, and helps connect the individual with a primary care provider (Ibid). Considering this scope of work, it seems feasible that MHP enrollment staff could also administer a brief survey like

the one used in San Mateo County at the time of enrollment and re-enrollment. MHP is already engaged in a number of data collection activities related to Hennepin Health enrollees, so while it is unknown exactly what system MHP would use to collect and analyze survey data, it is possible that an existing system could be used for this purpose.

Discussion

The logic model and data collection strategies proposed in this paper should be considered in light of their limitations. The logic model, for example, is a helpful tool because it reflects an outsider's objective perspective on how Hennepin Health is expected to work. It is informed by interviews with key staff and early publications about the program's purpose and operations, devoid of any personal stake in the outcomes. However, it is also possible that this outside perspective misses important information that could steer evaluation efforts in a different direction. With this in mind, an important next step would be to share the model with Hennepin Health stakeholders, who could review it for accuracy, clarify any faulty assumptions, and provide recommendations for the next iteration. In addition, it is important to note that while the strategies proposed here are informed by the evaluation of a similar program in California, Hennepin County's evaluation will ultimately be based on the specifics of its own program. I draw on work by the Urban Institute and University of California San Francisco as a helpful guide, recognizing that the methods used in San Mateo County will not provide an exact blueprint for Hennepin County.

With the launch of Hennepin Health, Hennepin County aims to better coordinate health and social services for an ill, expensive and historically underserved population. In adopting an ACO model that stresses prevention, coordination and team-based care, the

county hopes to improve individuals' quality of life while also reducing costs. Key to this work is the dual effort to connect Hennepin Health enrollees with primary care providers, while intervening to reduce emergency department use at Hennepin County Medical Center. A logic model is a useful tool for identifying Hennepin Health activities and highlighting underlying assumptions about how these activities will translate into desired outcomes. The logic model developed for this paper shows how two strains of activities – determination of a care plan and care team, and interventions at the hospital – are expected to reduce emergency department use by Hennepin Health enrollees. The model also helps identify data collection strategies that may be used in evaluating the program's outcomes. Two strategies, analysis of CCC data and administration of a survey, are particularly valuable because they draw on resources already available to the county and reflect approaches successfully used in evaluating a similar program in California. Used as part of a broader evaluation approach, these strategies may be helpful in assessing how well Hennepin Health has met its intended outcomes, and most importantly, how the program may be improved in the future.

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Appendix A: Logic Model – Reducing ED Visits Under Hennepin Health