

**New Jersey Department of Banking and Insurance
Office for Electronic Health Information Technology**

**Hope for New Jersey's City Hospitals:
The Camden Initiative**

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Introduction

A tiny fraction of patients that consumes a disproportionately large share of medical resources in cities like Camden threatens to overwhelm New Jersey's healthcare delivery system. Pursuant to federal law, hospitals and emergency departments (EDs) are required to provide life-sustaining medical care to anyone seeking treatment, regardless of their ability to pay. This situation is untenable in every respect.

Local coalitions of hospitals, clinics, medical practices, payers, housing advocates, mental health providers, State agencies, and other entities offer the best opportunity to address the issue of excess utilization. None of these actors, individually, is equipped to respond to the demands of a highly mobile group of patients with incredibly diverse medical and social needs. Many of these actors are focused on the episodic needs of a single patient for a discrete complaint, rather than addressing needs at a higher, public health or systems, level.

The building of local coalitions of providers and advocates creates the relationships that permit the entire system to respond in flexible ways to the complex and changing needs of the patients placing the greatest demands on the system. These health/social needs can be defined in tangible ways, and clear metrics can be used to measure and quantify program outcomes. Furthermore, the building of local coalitions facilitates the development of additional and expanding partnerships to address issues beyond the local setting.

The Citywide Care Management System, a novel approach implemented by the Camden Coalition of Healthcare Providers (Camden Coalition), an incorporated non-profit entity, has demonstrated significant results in improving the quality of services provided to so-called "super users," while meaningfully reducing the cost of providing that care. The early findings suggest that expanding the project to provide this new model for the delivery of care to super users in other areas of the state has the potential to save millions of dollars of medical care resources, while improving health outcomes for the patients the project would serve. The Camden Coalition has effectively taken a serious problem, identified a group of patients that was making a disproportionately large contribution to that problem, and designed an effective intervention to address the problem.

Using readily available electronic claims data (Uniform Billing 92 or “UB” data), the Camden Coalition identified a small group of people, designed a case management intervention to address their needs outside of the ED setting, and realized significant cost savings, while providing higher quality care. Fortunately, statewide UB data, which are currently being collected by the New Jersey Department of Health and Senior Services (NJDHSS)¹, could be used to identify similar cohorts of super users in other New Jersey cities. If programs similar to the one implemented in Camden can be designed and implemented for these cities, they offer bold solutions to address these potentially devastating problems.

Background

Camden is among the poorest cities in the United States, with roughly 95% of the population eligible for Medicaid assistance. It was in this underprivileged setting that a small group of dedicated primary care physicians established an organization to address the healthcare needs of the city. The Camden Coalition of Healthcare Providers began by collecting and analyzing medical claims data for the hospitals and emergency departments (EDs) in Camden from 2002 to 2007, examining 387,000 records for 98,000 patients. The data came from three Camden hospitals: Our Lady of Lourdes Medical Center, Virtua Health Camden, and Cooper University Hospital.

The results of the Camden Coalition’s analysis were shocking, informative and instructional:

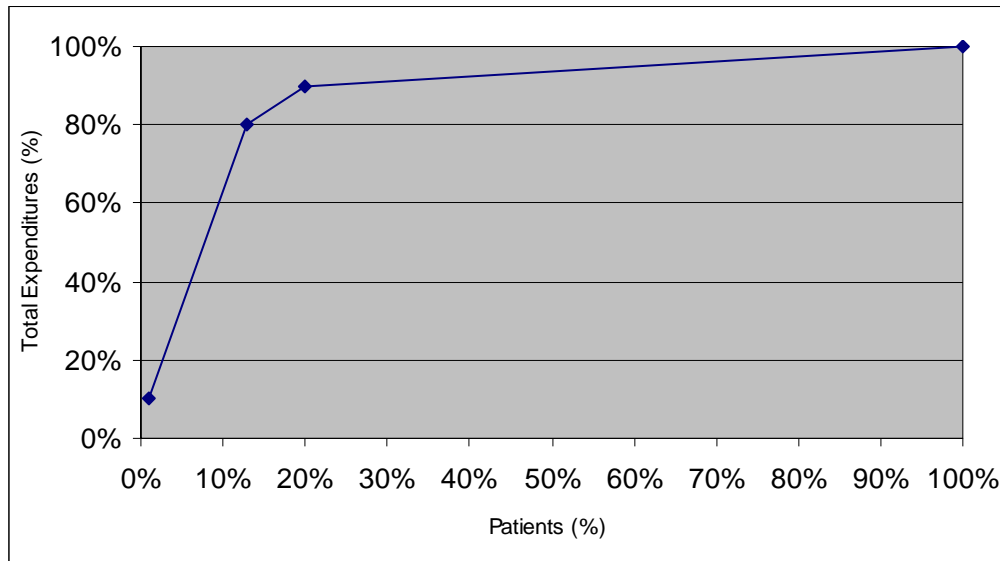
- 80% of the total costs for treating 98,000 patients were generated by only 13% of those patients (see Table 1 or Figure 1);
- 90% of the costs were incurred by only 20% of the patients;
- The top 1% of patient-utilizers represented a cohort of 1,035 patients that made 39,056 hospital visits in this period. Each of these patients made between 24 and 324 visits between 2002 and 2007, and, most alarming, this small group accounted for approximately 10% of all admissions and generated total charges of \$375 million in medical care delivered; and
- The patient with the greatest number of visits to the Camden hospitals and emergency departments made 324 visits over five years. Another patient was admitted 113 times in a single year. The most expensive patient incurred \$3.5 million in medical services over five years.

Table 1: Percentage of Patients Utilizing Percentage of Hospital Expenditures, Claims Data from Three Camden City Hospitals, 2002-2007

Percentage of Patients	Percentage of Total Hospital Expenditures
1%	10%
13%	80%
20%	90%

¹ New Jersey hospitals are required to submit these UB 92 data to the NJDHSS’ Office of Health Care Quality Assessment pursuant to N.J.A.C. 8:31B-2.

Figure 1: Percentage of Patients Utilizing Percentage of Hospital Expenditures, Claims Data from Three Camden City Hospitals, 2002-2007



These Camden data compare with a similar analysis of data from 2003 to 2008 obtained in Austin, Texas, and collected by the Integrated Care Collaboration (ICC). ICC is a nonprofit, regional collaborative of 24 providers (including a hospital system, a nonprofit clinic, a federally qualified health center, and the local health department) who arrange for or provide care for uninsured or underinsured individuals. ICC conducts research, program analysis, and treatment support at the point of care. In its analysis, ICC found that just 9 patients made 2,678 visits to Austin-area EDs in that 6 year period, incurring costs of more than \$3 million. One patient made 145 visits to Austin EDs within the last year alone.

A national study, furthermore, reported that 3.6% of Medicaid enrollees with annual per beneficiary costs greater than \$25,000 consumed nearly 50% of total Medicaid spending. A study of California’s Medicaid beneficiaries found that state had more than 1000 super users who each incurred costs of more than \$100,000 in 2007.

The Camden Coalition, using readily-available claims data, identified a tiny group of patients who were consuming a disproportionately large quantity of medical resources and limited assets. Using these findings, the Coalition designed and implemented a new and innovative case management intervention to address directly the specific and chronic maladies suffered by the identified super users. Thus, the Citywide Care Management System (CCMS) was launched in 2007 to address the special needs of this small group.

Using a 3-year, \$300,000 grant from the Robert Wood Johnson Foundation and additional funding from other organizations, the CCMS built a “medical home without walls,” to reach out to the super users and provide care to them in their homes, homeless shelters, or even on the street. The New Jersey Department of Health and Senior Services provided financial assistance to help build an electronic health information exchange to facilitate the movement of patient data between participating entities. The

Camden Health Information Exchange will permit hospital emergency departments, community health centers, and private physicians to access recent laboratory results, imaging reports, and discharge summaries of the patients served by the Camden Coalition.

This demonstration project is particularly timely, because demand for ED services has been growing rapidly; a 2004 study, for instance, reported that ED use had increased 20% between 1992 and 2001, while a Texas study found that the number of ED visits rose 28% between 1999 and 2005. While demand for ED and hospital care has been rising, New Jersey's allocation to its Charity Care program has been falling, dropping nearly 10%, from \$718 million to \$649 million, in 2008. It is crucial, therefore, to examine the success of innovative projects such as the CCMS that are designed to reduce demands on EDs and hospitals and lower spending for services provided in those settings.

Project Description

The Camden Coalition's Citywide Care Management System seeks to accomplish a number of tasks, in order to reduce burdens and costs for Camden EDs and hospitals. Among these tasks are to use their database -- constructed using data from the three hospital systems operating in Camden -- to identify super users, to locate the super users whereabouts in the city and get their consent to join the program, and to extend the necessary services to the super users in their home settings, so that they have a reduced need or no need to use Camden's EDs for their non-emergent medical care.

CCMS started enrolling clients in September 2007; 115 have been enrolled so far. All of the clients are low- or no-income, many are homeless, and some are uninsured. Many of them have complex medical needs, including chronic conditions (e.g., diabetes, congestive heart failure, emphysema, and cancer), mental health issues, and histories of substance abuse. Few have the ability to get to a pharmacist, monitor their own blood sugar, or arrange transportation to a follow up visit with a specialist.

This patient profile is similar to that of the Austin, Texas study cited above, in which of the 9 super users described, 3 were homeless, 8 had been diagnosed with drug abuse problems, and 7 had mental health diagnoses. A California study of super users, conducted by the Frequent Users of Health Services Initiative ("California Initiative") -- a joint undertaking of The California Endowment and California HealthCare Foundation, based at the Corporation for Supportive Housing -- reported that two-thirds of the patients enrolled in the study had untreated chronic medical conditions, more than half suffered from substance abuse disorders, roughly one-third were diagnosed with mental health disorders, and almost half of these super users were homeless. More than one-third of these California patients had three or more of these risk factors.

The core service activities of the Citywide Care Management System are vested in an assigned Local Care Management Team. Each "team" consists of a nurse practitioner, a social work case manager, and a community health worker. The community health worker is responsible for patient education, care coordination (e.g., making appointments, arranging transportation, etc.), providing emotional support, and making sure clients are

adhering to prescribed treatment regimens. The social worker focuses on guiding the client through the labyrinth of state and federal benefits systems and helps qualified clients become eligible for public health insurance and other programs, such as drug abuse counseling and housing assistance. The nurse practitioner is qualified to perform patient examinations, write prescriptions, identify additional medical treatment required by clients, and provide follow up care. The California Initiative model also utilized this multidisciplinary team approach.

The Local Care Management Team members actively seek out the clients, wherever they are located, rather than waiting for the clients to present at a Camden hospital or emergency department. Client visits generally involve two or all three team members, fostering bonding with the client and facilitating multi-disciplinary problem solving. The team member who creates the best bond with the client becomes the lead staff member for that client. Clients have described the motivation they feel to adhere to treatment regimens when they know there are healthcare providers taking an active role in caring for them. The clients engage with the “team” and become active partners in their own healthcare.

Findings from Other Studies

Okin *et al.*, report positive results in their study of a case management intervention on 53 patients who used the ED 5 times or more in 12 months in the San Francisco area. Among this group of super users, active case management led to a 40% reduction in ED visits, median ED costs were reduced roughly 47%, and the program resulted in statistically significant improvements in enrollment in the Medicaid program, as well as a significant decrease in homelessness and the use of drugs and alcohol. The authors concluded that there was a net savings of \$1.44 in hospital costs for each dollar invested in the program.

A study of Scottish ED frequent users also found that a dedicated program of case management for frequent ED users resulted in strongly statistically significant reductions in ED use. For this study by Skinner *et al.*, frequent users were defined as patients who visited EDs 10 times or more over a 6 month period; 57 such patients were identified. The median number of ED visits over a 6 month period was 12. In the subsequent 6 month period after the case management intervention began, median ED visits fell to 6, or half the baseline number. The overall number of ED visits among the group fell from 720 before the intervention to 499 after, for a significant reduction of nearly 31%.

The “California Initiative,” described above, reported results after one year and two years of intervention on ED use and hospital utilization and charges. Their results are also described in measures of insurance coverage, finding housing for enrollees, and linking patients with primary care providers and behavioral health services. The California Initiative reported that after one year of program intervention, ED visits declined by 30%, ED charges decreased by 17%, hospital inpatient admissions fell by 14%, while inpatient days and inpatient charges fell more modestly.

While these improvements after one year were impressive, much more dramatic improvements occurred over two years of program intervention, compared to the pre-intervention baseline. Average ED visits decreased by 61%, average ED charges fell by 59%, average inpatient admissions declined by 64%, average inpatient days fell by 62%, and average inpatient charges decreased by 69%. What was the explanation for the substantial gains in the second year of the intervention, compared to the first year?

An evaluation of the California Initiative's data indicated that the first year's results were tempered, to a degree, by the impact of many extremely sick patients receiving the primary and hospital care required to "stabilize" the group of super users. In the first year, many patients required surgery or other expensive and hospital-intensive medical attention. This explained the somewhat less impressive results for the first year in terms of hospital inpatient days and charges. But, the data demonstrated that after many of the super users were connected with insurance, mental health and substance abuse treatment, housing assistance, and income benefits, their overall health conditions tended to stabilize, leading to dramatic reductions in ED visits and charges, as well as reduced hospital admissions, inpatient days, and charges.

Results of Camden's Citywide Care Management System

CCMS matched 36 of its enrolled clients to the original Camden Coalition hospital claims dataset. Before the intervention, these 36 super users were incurring an average of \$1.2 million in hospital charges each month. Initial data on these 36 clients indicate marked reductions in the utilization of ED and hospital services, as well as improvements in patient outcomes.

Since hospitals lose money on the services they provide to uninsured patients, it helps their bottom line if they reduce the number of such visits they receive. Hospitals can also improve their bottom line if they receive a greater rate of reimbursement for the services they provide to super users. The findings of the CCMS indicate that Camden hospitals are benefiting from both improvements. An additional benefit to hospitals occurs when the EDs are less burdened by uninsured patients seeking non-emergent care. These EDs are then in a better position to treat insured patients with emergency care needs, resulting in greater overall receipts for the hospitals.

The findings from the Camden Coalition indicate that charges incurred per month for the 36 super users fell by slightly more than 56% (see Figure 2) as a result of the program (an absolute reduction of nearly \$687,000 per month for these 36 patients). The number of monthly visits to hospitals and emergency departments for this group of patients declined by roughly 40% per month (see Figure 3), and reimbursement rates to care providers increased by approximately 52% (see Figure 4), as a result of more of the super user clients becoming insured. In summary, the intervention led to less utilization of services by super users, lower incurred charges, and a higher reimbursement rate for the group of 36 super users enrolled in the program. If the experience of the California Initiative holds true for the Camden Coalition, it is conceivable that the second year's results could be even more impressive than the first year's improvements, as the Camden super users' overall health condition stabilizes after the first year of intensive and costly intervention.

Figure 2: Impact of Camden Coalition Intervention on Average Charges per Month Incurred by a Cohort of 36 Super Users, Claims Data for 3 Camden City Hospitals, 2002-2007

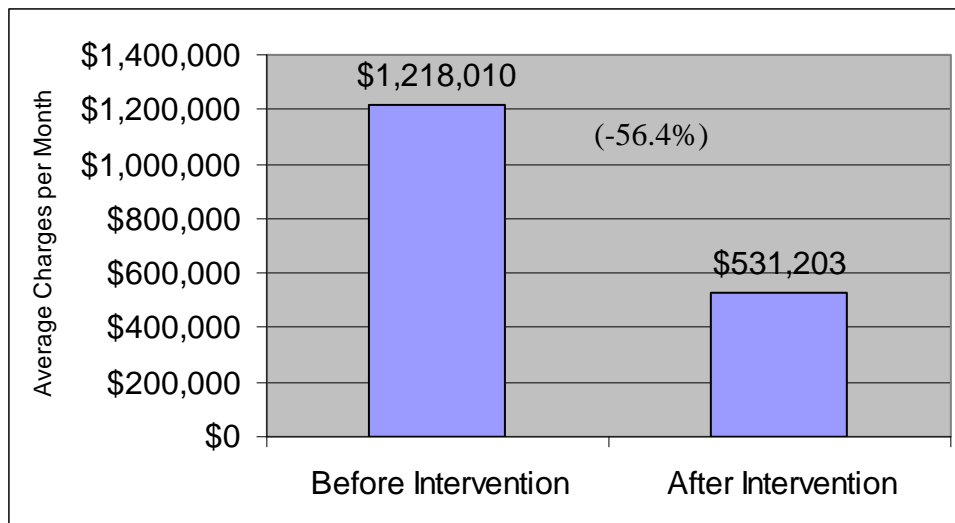


Figure 3: Impact of Camden Coalition Intervention on Average Number of ED/Hospital Visits per Month Made by a Cohort of 36 Super Users, Claims Data for 3 Camden City Hospitals, 2002-2007

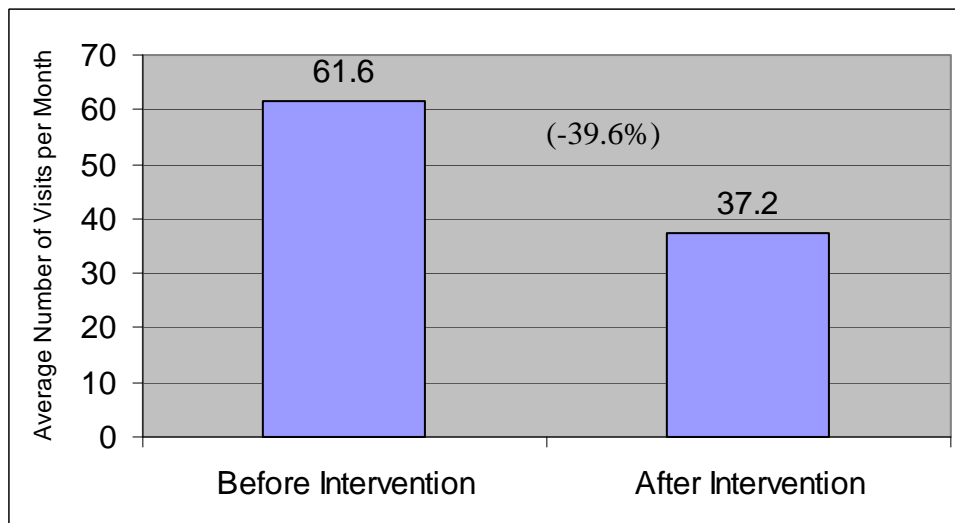
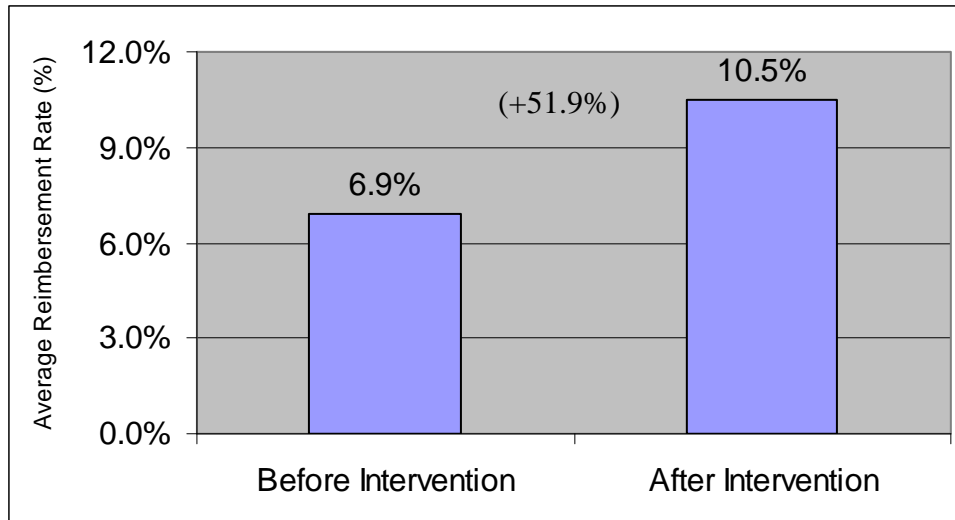


Figure 4: Impact of Camden Coalition Intervention on Average Reimbursement Rates to Hospitals for Services Provided to a Cohort of 36 Super Users, Claims Data for 3 Camden City Hospitals, 2002-2007



These results were achieved at a cost of roughly \$150,000 for the first year. At \$1.2 million of incurred charges per month, each super user on average was consuming \$33,333 of ED/hospital services per month. At \$150,000 for the costs of the program for the first year, CCMS was spending roughly \$12,500 per month on case management for these 36 clients, or \$347 per client per month. As a result of the intervention, each super user’s average consumption of medical services fell to \$14,250 per month (\$513,000/36). On average, therefore, total monthly consumption of medical services (both ED/hospital charges and CCMS charges) per client fell from \$33,333 to \$14,597 (\$14,250 + \$347) per month, or approximately 56%. Another way to state the same findings is for every dollar spent on case management efforts through the CCMS program, monthly ED/hospital charges in Camden were reduced by \$55.²

Interpretation of this impressive number should be tempered by the realization that hospital charges incurred and realized receipts are not the same thing. Incurred charges are converted into hospital receipts at a rate of approximately 11 cents on the dollar. Even with this caveat, it is clear that the CCMS intervention is resulting in dramatic reductions in ED/hospital utilization, in a cost-effective manner, for this group of super users.

The Camden Coalition believes a project “team” can manage 150 clients. This expansion requires additional personnel, including a half-time Medical Director, a project administrator, and a half-time data analyst, as well as larger expenditures on equipment and supplies. The projected Camden Coalition budget to expand the CCMS to 150 clients is \$457,100 per year. This works out to roughly \$3,047 per client per year, or approximately \$254 per client per month (i.e., \$457,100/150 clients/12 months).

² The average monthly cost of the case management intervention was \$347 per patient (\$12,500/36). The average monthly savings in ED/hospital charges per patient was \$19,083 (\$687,000/36). Therefore, for each dollar spent on the case management intervention, there was a reduction of \$55 in monthly ED/hospital charges (\$19,083/\$347).

To put this project expansion into perspective, we must make some assumptions. First, we assume that the ED/hospital utilization characteristics of the group of 150 super users will be comparable to those of the group of 36 super users. Second, we assume that the efficiencies realized by the CCMS in its management of 36 patients can be realized when the team's responsibilities are expanded to 150 patients. From the initial analysis of the super users, it was established that 1% of users was responsible for \$375 million in medical care charges over five years, or an average of \$75 million per year. This 1% cohort of super users represented 1,035 patients. On average, then, each super user utilized \$72,464 in hospital charges each year, or \$6,039 in charges per month.

If we assume that incurred ED/hospital charges will be reduced by 56.4% (as was demonstrated for the cohort of 36 super users) for the group of 150, each super user's average monthly charges will be reduced from \$6,039 to \$2,633 per patient per month, a reduction in charges of \$3,406 per month. That would represent a reduction of overall incurred ED/hospital charges of \$510,900 per month for the 150 super users, or an annual reduction in incurred charges of \$6,130,800.

To reiterate, a reduction of \$6 million per year in incurred charges does not translate directly into an additional \$6 million in hospital receipts. It does, however, represent a substantial reduction in the utilization of ED/hospital services that are reimbursed at a very low level and represent a loss to the hospitals. These efficiencies can be realized at a cost of \$254 per client per month.

Conclusion

Overcrowding at Camden EDs is an on-going problem. Cooper University Hospital's ED, for example, was designed to accommodate 22,000 visits per year, yet had to handle 56,000 visits in 2008, up from 51,000 in 2007. The costs to New Jersey hospitals and taxpayers (in Medicaid and Charity Care expenses) make the current system unsustainable. A major strength of the Camden project design is that its scope encompasses the whole city and all of its emergency departments and hospitals, so that the project's efforts are not fragmented and the three hospital systems have strong incentives to cooperate with each other and to support the collaboration.

The earliest impression of the impact of the program was that it dramatically reduced the ED use of roughly one-half of the enrolled clients, while another one-quarter of the enrolled clients had moderated their ED use to some extent. A more detailed analysis of the project after one year's time confirms that clients enrolled in the CCMS program made significantly fewer visits to Camden EDs and spent less time in the hospital, and hospitals received more reimbursement for the care they provided.

As a result of the program intervention, the state has fewer Charity Care receipts to pay for this group of super users. This is because one of the responsibilities of the social worker is to identify insurance programs for which clients qualify. Many of these clients have who fallen between the cracks qualify for Medicaid/SSI, Medicare, or veteran's insurance coverage. Because they have been unable to coordinate their own care – and because there has been no one specifically tasked with the responsibility for guiding these

super users to appropriate insurance programs – these clients present without insurance coverage, leaving the EDs and hospitals to recover whatever they can from the Charity Care program. Once the CCMS team succeeds in enrolling clients in the insurance programs for which they are eligible, however, hospitals are able to recover more of their incurred charges. As a result of the CCMS intervention, the hospitals are receiving a greater reimbursement rate for the services they render and demands on the Charity Care program has been reduced.

The three Camden hospitals included in this project have clearly benefited. The case management intervention outside of the hospital setting, for example, has permitted Cooper's ED to concentrate more on emergency care and reduced the number of hours that ambulance crews were advised to divert emergencies elsewhere, because Cooper's ED couldn't handle any more volume. This has helped Cooper's ED to see more patients who have insurance coverage and reduce the number of patients who leave the ED before being seen. It is not unreasonable to expect that this program design merits replication in other New Jersey cities with characteristics similar to Camden's, such as Atlantic City, Trenton, and Newark. It is expected that these interventions would have similarly beneficial impacts on the bottom lines of hospitals in those cities.

While the Camden hospitals have been clear beneficiaries of the Camden Coalition's Citywide Care Management System, the super user clients also appear to be major beneficiaries of the program. The evidence shows that these clients, by definition, are overwhelmed by the challenges of negotiating the medical care system and the societal safety net in general. Their complex mix of chronic health and mental health problems, substance abuse issues, and limited resources have rendered them incapable of successfully addressing their own medical and other needs, hence their high use of EDs. By getting consistent attention from a trusted group of care providers -- who are addressing both their medical and social needs -- these super users are receiving care in a setting that fosters success. This success is demonstrated in fewer ED visits, reduced costs, and improved health outcomes.

Finally, the benefits of this intervention to the citizens and taxpayers of New Jersey should not be understated. By relocating the care of the super users from the EDs to outreach settings, the EDs are better-positioned to offer true emergency care to their patients. Lower incurred costs and higher reimbursement rates ease the burden on shrinking state Medicaid and Charity Care programs. As a result of the CCMS intervention, taxpayers are getting better health outcomes for the patients being treated with public funding. The CCMS program provides demonstrated benefits for taxpayers, healthcare consumers, hospitals, and patients. The feasibility of expanding the Camden Coalition's model of constructing a "medical home without walls" to other New Jersey cities should be seriously considered.

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