WORKING WITH THE SUPER-UTILIZER POPULATION:
THE EXPERIENCE AND RECOMMENDATIONS OF FIVE PENNSYLVANIA PROGRAMS

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FORWARD

The U.S. health care system is in a dizzying state of change. Those of us who work in the system can become discouraged about our ability to achieve better health for our individual patients and our communities. In this report, the members of the South-Central Pennsylvania High-Utilizer Learning Collaborative share our experience working to achieve this goal. We hope you’ll find our experiences encouraging, even though we have not found all the answers. We have learned that if health care providers have the courage to be creative and open to change, a dedicated inter-disciplinary team that focuses on meeting all of their patients’ needs—not just their medical needs—can improve quality of care while reducing health care spending. The lessons learned working with this population can bolster the transformation of the entire health care delivery system.

We have shared details about the structure, processes, and outcomes of the programs in the Collaborative. You will learn that there is no single model for working with super-utilizers, but we hope our experiences will be helpful to those interested in the policy implications of focusing on the highest needs, highest cost patients. We also hope to provide a framework for those who decide to start a super-utilizer program. Drawing on our diverse experiences, we have proposed a set of Potential Program Benefits and Core Program Elements that may be useful to providers and policy makers interested in this work. For public and private payers, as well as potential program sponsors, we have outlined a set of Policy Recommendations that will support super-utilizer programs and this transformational work.

ACKNOWLEDGEMENTS

Our super-utilizer teams are successful because they are inter-disciplinary, collaborative, creative, and visionary. We aim to always put patients at the center of what we do. Our work has been made possible by many others we wish to acknowledge here. Without them, this report, and the programs it highlights, would not have been possible.

- The Highmark Foundation for funding our South Central Pennsylvania High-Utilizer Learning Collaborative and this report. The Highmark Foundation provided funding to support learnings and sharing of best practices, patient data, and cost savings among Super Utilizer programs in Pennsylvania. Funding for direct care to patients was not provided by the Highmark Foundation.
- Aligning Forces for Quality and particularly Samantha Obeck, DNP, RN and Chris Amy, who provided the infrastructure for the Collaborative and funding.
- The Family Medicine Educational Consortium for being the birthplace of this movement and for originally bringing us together.
- Ellen Smith, M.D. (FMEC), Uchenna Emeche, M.D. (Super-Utilizer Fellow), Wendell Kellum, M.D. (Super-Utilizer Fellow), Barry Jacobs, Psy.D (Crozer-Keystone), Kimberly Bahata, MBA, RN, CPHQ (Lancaster General).
- Jeff Brenner, M.D. and the many dedicated members of the Camden Coalition of Healthcare Providers who have been our mentors in this work.
- Our sponsoring health systems and federally qualified health centers that took the risk to support our programs.
- Our dedicated staffs for throwing themselves into this effort to serve our patients.
- Our growing group of partners—social service providers, community members, government officials—who see, with us, a new way forward and are willing to take the risk to seize this opportunity.
6/25/2014

The United States is approaching a critical time of change for healthcare. The rising cost and unacceptably poor outcomes of our healthcare system are unsustainable. We must change to produce high-value care – better outcomes at lower cost.

One strategic way to approach the needed system change is to give priority attention to the highest utilizing patients. These “Super-utilizer” patients not only account for a disproportionate amount of medical cost, but also provide high-yield case studies for understanding the weakness of our current system, particularly when faced with complex medical and psychosocial needs.

Innovative, data-driven clinical redesign that helps this segment of our patient population will give a rapid return of investment in terms of cost savings and will produce the learning about system change and reorganization that will benefit all patients. Our healthcare system desperately needs centers of innovation to design, test and validate new models to address our highest needs, highest costs patients. We also need a firm commitment to collaboration and shared learning so that successful innovations can be disseminated as rapidly and broadly as possible.

The work of the Aligning Forces for Quality South Central Pennsylvania High-Utilizer Learning Collaborative, presented in the pages that follow, embody these essential elements of innovation and shared learning. In addition to presenting the work of the collaborative members, this paper demonstrates clearly the need for institutions, insurance payers and government to create environments that foster this discipline of data-driven attention to the outliers with effective engagement and redesign of our clinical processes to improve care and reduce cost.

Pennsylvania’s state government is currently in a key position to support this work and become a national leader on the front lines of healthcare reform for our most costly and vulnerable patients. I urge the State of Pennsylvania to embrace and expand the ‘super-utilizer’ model and utilize the recommendations contained in this white paper.

Sincerely,

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A super-utilizer (SU) program is a data-driven, high-intensity, community-based, patient-centered, inter-disciplinary team that engages SU patients to deliver high-quality, comprehensive care, while simultaneously encouraging self-advocacy and personal accountability.

EXECUTIVE SUMMARY

In October of 2012, the South Central Pennsylvania High-Utilizer Learning Collaborative was established. The five members of the Collaborative are Pennsylvania programs in York/Adams/Lancaster (WellSpan Health), Lancaster (Lancaster General Health), Harrisburg (PinnacleHealth System), Delaware County (Crozer-Keystone Health System), and Allentown (Neighborhood Health Centers of the Lehigh Valley) that work with patients who are frequent users of hospital services, both emergency department and inpatient. These programs were inspired by the work of Dr. Jeffrey Brenner and the Camden Coalition of Healthcare Providers in Camden, NJ, who have provided invaluable advice and support for the Collaborative’s efforts.

A super-utilizer (SU) program is a data-driven, high-intensity, community-based, patient-centered, inter-disciplinary team that engages SU patients to deliver, high-quality, comprehensive care, while simultaneously encouraging self-advocacy and personal accountability.

This report documents the experience of these five programs and presents recommendations based on that experience. It is intended to be useful for organizations that want to develop a SU program, as well as policy makers.

Driving Diagnosis: A small percent of patients consume a significant share of health resources nationally. This same skewed distribution of health care spending has been documented in the communities served by the SU programs in the Collaborative.

Who Are the Super-Utilizers?: The SU programs use different criteria to define a super-utilizer. In general, they are patients who have frequent and preventable hospital admissions and/or emergency department (ED) visits. Typically, these patients have multiple, chronic conditions such as diabetes, emphysema, and heart failure. Almost all have behavioral health co-morbidities.

Some are homeless; many experience social isolation in sub-standard housing. Some patients live in an environment of family and/or community violence. Some are uninsured. However, most are patients on Medicaid. Most lack the disposable income to pay for medications or the co-pays required by some payers, including Medicare.

(See Exhibits 3, 4, and 5.)

System Failures: Although many SU patients make uninformed decisions about how and where to access the health care system, most encounter a fragmented non-system with poor coordination across providers – medical, behavioral and social service providers.

(See the patient stories throughout that document how system failures contribute to patients’ health problems.)

Program Structure:
There is no single model for a SU program. The five programs in the Collaborative vary in terms of their structures and processes, but they share the common goal of working with SU patients to
improve the quality of care they receive and their quality of life, and to reduce preventable utilization of expensive inpatient and ED services. Four of the programs in the Collaborative are based in health systems; one is based in a neighborhood health center.

(See Appendix 1 for a detailed program comparison of team composition, community partnerships, and role in patient care.)

**Program Processes:** The programs have different target populations and different methods of identifying and engaging their target populations, depending on what data sources they can access. Patients may be engaged during a hospital admission, in the ED, or in a primary care practice. All of the programs consider home visits to be an essential component of SU work. Home visits provide insights to the patient’s living environment, family and other social relationships, nutrition, and medication management. The programs consider in-person contact critical to establishing strong relationships with patients that can lead to improvement in their health and well-being.

(See Appendix 1 for a comparison of processes used by the SU programs.)

**Program Outcomes:**
The SU programs in the Collaborative typically started small and gradually expanded.

Four of the programs – Crozer, LG Health, Lehigh Valley and WellSpan – have been able to merge and analyze their data. These four programs served a total of 446 patients as of December 31, 2014, with continued growth in the programs since that time. For these four programs collectively, when comparing rates of utilization after leaving a program to utilization during the 18 months prior to enrollment, inpatient admissions dropped by 52 percent and ED visits decreased by 21 percent.

(See Exhibits 12 and 13 to see the change in utilization after enrollment in the SU programs.)

Assuming an average insurance payer expenditure (based on Medicaid rates) per hospital admission of $7500,$ and $1097$ per ED visit, the programs demonstrated a potential 46% decrease in expenditures for inpatient and ED care comparing the time before enrollment to the time after leaving our programs.

(See Exhibit 15 for estimated pre and post enrollment expenditures).

Of the 446 patients presented in these exhibits, 258 are no longer enrolled in the programs. The vast majority (65 percent) successfully “graduated” from the programs and returned to a primary care provider for on-going care. Some patients died (10 percent); a small percent dropped out of the program or were lost to follow-up. A very small number (5 percent) were asked to leave by the program for failure to actively engage.

(See Exhibit 16 – reasons for leaving program.)
Home visits provide insights to the patient’s living environment, family and other social relationships, nutrition, and medication management.

**Common Challenges:**
Although the programs in the Collaborative use a variety of models for providing services to SU patients, the programs face similar challenges, specifically with data, patient engagement, care coordination, and funding. Of these, access to data is one of the most important. A robust healthcare data stream is critical to SU programs. Timely, comprehensive and accurate utilization, claims and cost-related data allow programs to 1) identify potential SU patients and map their location geographically, 2) design programs that meet the needs of the identified population, including team composition, care processes, and community partnerships, 3) develop program evaluation measures, and 4) plan for the impact of SU work on the health system sponsors such as workforce redeployment.

*(See Exhibit 17 for a case example from Lancaster General Health.)*

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**RECOMMENDATIONS:**

**Commonwealth of Pennsylvania:** Provide state support for the development of health information exchanges that deliver real-time, all-payer data to programs on a daily basis, including utilization data from all hospitals. (A crucial interim step would be to facilitate access for super-utilizer programs to Medicaid data including medical, behavioral and substance abuse data from all sources at the state level.)

**Public and Private Payers:** Use alternative payment mechanisms such as case management fees, per episode of care payments, and shared savings contracts for SU programs.

**Sponsoring or Partnering Health Systems:** Provide access to 1) real-time utilization data for super-utilizer patients, and 2) current and historical charge, payment and cost data for super-utilizer patients.
INTRODUCTION

In October of 2012, the South Central Pennsylvania High-Utilizer Learning Collaborative was established. The five members of the Collaborative are Pennsylvania programs in York/Adams/Lancaster (WellSpan Health), Lancaster (Lancaster General Health), Harrisburg (PinnacleHealth System), Delaware County (Crozer-Keystone Health System), and Allentown (Neighborhood Health Centers of the Lehigh Valley). These programs work with patients who are frequent users of hospital services, both emergency department and inpatient. These programs were inspired by the work of Dr. Jeffrey Brenner and the Camden Coalition of Healthcare Providers in Camden, NJ, who have provided invaluable advice and support for the Collaborative’s efforts.

The Collaborative is called the High-Utilizer Learning Collaborative. However, the programs in the Collaborative typically refer to their work as “super-utilizer” work. This term is used throughout the country. As Dr. Brenner has frequently noted, either term - “super-utilizer” or “high-utilizer” - is inherently misleading, as it suggests the problem of over-utilization lies entirely with patients. As the Camden Coalition and the five programs in Pennsylvania have learned, over-utilization often reflects failures within the health care delivery system.

The Collaborative was created so that these super-utilizer (SU) programs could share best practices, patient data, and cost-saving strategies. Lessons learned from the SU programs could help to transform the health care delivery systems in their communities. The Highmark Foundation funded the Collaborative beginning in April, 2013, with the following objectives: 1) to provide each regional health care provider with the tools to provide high quality, efficient care for high-utilizing patients; 2) to realize cost savings through the SU programs; and 3) to serve as pilots for new payment mechanisms to support new care delivery models. Super-utilizer programs provide intensive outpatient care coordination services to patient populations with complex medical, behavioral, and social needs. This report examines the experience of the five super-utilizer programs in the Collaborative and recommends policies that could facilitate and extend the work with the SU population to other locations in Pennsylvania and around the country.

THE DRIVING DIAGNOSIS

The U.S. leads the world in health care expenditures per capita, roughly $8,995 in 2012; health care in the U.S. consumes the largest share of GDP of all nations in the world. Researchers have known for some time that the distribution of health care expenditures is skewed, with a small percent of the population consuming a disproportionately high share of resources. In 2010, the top 1 percent (ranked by their health expenses) accounted for 21.4 percent of the $1.3 trillion spent on health care in the U.S. that year. Most were people with multiple chronic conditions whose annual expenses are roughly $88,000 per person.

There are many factors that explain the rapid growth in total health care expenditures. Economists estimate that about 63 percent of spending growth is due to increases in utilization; the remaining 37 percent is due to increases in prices. The increase in utilization, in turn, is due to 1) the aging of the U.S. population, 2) the growing prevalence of chronic diseases, 3) the development of new technologies and treatments, and 4) unnecessary or preventable use of expensive services including inpatient hospital admissions and emergency department (ED) visits.
The U.S. leads the world in health care expenditures per capita, roughly $8,995 in 2012; health care in the U.S. consumes the largest share of GDP of all nations in the world.3

Inappropriate use of hospital services can be physician-and/or consumer-driven. Consumer-driven utilization of hospital services can result from poor consumer decision-making about their health needs and/or system failures that make it difficult to utilize out-of-hospital services. The SU programs focus on the consumer-driven overuse of hospital care and the system failures that contribute to that overuse.

In their initial work with super-utilizing patients, the Camden Coalition of Healthcare Providers found that 5 percent of hospital patients in Camden accounted for more than 50 percent of all receipts for hospital services.6 The programs in the Collaborative have identified similar patterns in their communities. In Lancaster, for example, only 3 percent of all Medicaid patients in the county account for 51 percent of Medicaid spending. At WellSpan in York, 4 percent of patients represent about half of all expenditures. The patient stories included throughout this report vividly illustrate how a small number of patients can consume a large share of health spending in their communities.

(See Exhibit 1, the story of Bill at PinnacleHealth, whose very high hospital utilization was reduced by 80 percent after enrolling in the SU program.)

The Camden Coalition demonstrated that through intensive outpatient care coordination, it was possible to reduce expenditures while improving quality of care. “By helping manage the physical, behavioral and social needs of these individuals, the Coalition has been successful in breaking the harmful and costly cycle of inappropriate emergency department (ED) or inpatient admissions.”7 This work inspired a number of communities to develop SU programs of their own, including the communities that are part of the Collaborative.
WHO ARE THE SUPER-UTILIZERS?

The answer to this question varies by community. In general, SU patients are those who have frequent and preventable hospital admissions and/or ED visits.

Each program has its own metric for defining a “super-utilizer”, e.g. at Pinnacle a super-utilizer is defined as an adult with 2 or more inpatient admissions OR 6 or more ED visits in a 6-month period; whereas the program at Crozer has focused primarily on patients with 2 or more inpatient admissions in 6 months.

In Camden, most of the patients who make high use of inpatient services are insured, often by Medicare and/or Medicaid; whereas those who utilize the ED frequently are more likely to be uninsured. The same is true for the patients served by the Collaborative’s programs. Most SU patients have multiple, chronic conditions, including one or more mental health or substance abuse diagnoses. Some are homeless; many experience social isolation in sub-standard housing. Some patients live in an environment of family and/or community violence. Others lack the disposable income to pay for medications or the co-pays that are required by payers, including Medicare.

(See Exhibit 2, the story of Carole at WellSpan, as an example of a patient with significant emotional problems that went unattended by her doctor before enrollment in Bridges to Health and resulted in preventable hospital admissions.)

As of December 31, 2014 four programs (Crozer, LGHealth, Lehigh Valley and WellSpan) had seen 446 patients, with an average age of 56 years. Exhibit 3 presents the payer distribution for these patients. Some are uninsured; a large group are on Medicaid; and many are dual eligibles, i.e. those with both Medicare and Medicaid.
The patients cared for by the Collaborative’s programs experience a fragmented health care system with poor coordination across providers – medical, behavioral health, and social service providers.

Additional data were collected for 138 patients as of December 31, 2013 from three of the programs (Crozer, LG Health and WellSpan). These included diagnoses and social determinants of utilization. **Exhibit 4** lists the percent of the 138 SU patients with various diagnoses. Ninety percent have a documented behavioral health diagnosis, along with chronic conditions such as diabetes and emphysema. **Exhibit 5** presents the social determinants of utilization for these patients. Even though most of these SU patients have insurance, 90 percent of them list financial issues as a major life stressor. Financial limitations result in problems with housing, transportation and food, all of which affect their health, and use of services.

**See Exhibit 6, the story of Robert at LG Health, whose frequent hospital admissions and ED visits were the result of problems with housing, transportation and food insecurity.**

**System Failures**

The patients cared for by the Collaborative’s programs experience a fragmented health care system with poor coordination across providers – medical, behavioral health, and social service providers. **Exhibit 10** is a graphical representation of the health and social service “systems” in Lancaster County – the systems that SU patients find so difficult to navigate.

Preventable use of the hospital can be triggered by many breakdowns in this delivery system. For example, in the Lehigh Valley program, a patient on dialysis had a costly inpatient stay because the community transportation service never picked him up for his regular outpatient dialysis appointment. A patient in Lancaster had inpatient stays due to a history of uncontrolled diabetes and childhood trauma that led to post-traumatic stress disorder, which was never appropriately addressed by the delivery system outside the hospital. A patient at Crozer with complex medical problems was discharged from a skilled nursing facility to home with no record of the medications prescribed at discharge, making it difficult to manage her care as an outpatient.

Many SU patients lack access to a primary care provider (PCP), particularly in cities like Camden and Chester (Crozer). Patients without insurance or with Medicaid may have difficulty finding a PCP. Federally-qualified health centers (FQHC) provide an important safety-net but may lack the capacity to meet all of the need for primary care services. Cultural and language differences between patients and providers also serve as barriers to receiving the right care in the right place at the right time.

**Consumer Decisions**

Super-utilizer patients often make uninformed decisions about their use of services because they lack an understanding of 1) their illnesses, 2) the appropriate ways to manage their health, 3) the “language” the system uses, and 4) how to navigate the system to get the services they need. Often they have received little or no explanation about their disease(s) or how to manage their health outside of the hospital. Those with multiple prescription drugs can be confused about which medication treats which illness or how their prescriptions should be taken.

Even those who have a PCP may bypass the PCP office and go to the ED because they aren’t able to schedule a timely appointment, are unable to reach office staff, or believe they will receive “better” and timelier care in the ED. Staff in the SU programs spend time teaching patients how to make and keep appointments with both specialists and primary care providers. Often staff accompany patients to appointments to teach patients what questions to ask and how to advocate for themselves, or to assure the patient understands the provider’s treatment plan.
THE CAMDEN COALITION

Starting in 2003, Dr. Jeffrey Brenner, a family physician practicing in Camden began to look at patterns of hospital use by Camden residents, using a process dubbed “hotspotting.” The coalition he founded built a citywide database of claims data from the three local hospitals. These data showed that 50 percent of Camden residents visited a local ED or hospital in a single year, twice the rate for the U.S. overall. The majority of the inpatient or ED visits were for conditions that could be treated by a PCP outside the hospital. Dr. Brenner further segmented the super-utilizer population to develop different strategies for different sub-sets of this population.

Dr. Brenner found that patients who were frequent users of inpatient and ED services clustered in certain geographic locations. Two of the original hotspots were a high-rise residential complex for seniors and people with disabilities, and a nursing home with both skilled and long-term beds.

The Camden Coalition of Health Care Providers is a not-for-profit collaborative of practitioners, health centers, and hospitals. The Coalition created a citywide care
Dr. Brenner found that patients who were frequent users of inpatient and ED services clustered in certain geographic locations.

management system with the mission to improve the quality, capacity, and accessibility of the health care system for vulnerable populations in Camden. The Coalition now includes active participation from all three Camden hospitals, two Federally Qualified Health Centers, private medical practices, and social service agencies serving Camden residents. The goal of the Coalition is for Camden to be one of the first cities in the U.S. to dramatically bend the cost curve while improving healthcare quality and access.

It is the work of Dr. Jeffrey Brenner and the Camden Coalition that inspired the development of SU programs in the five health care organizations that make up the South Central Pennsylvania High-Utilizer Learning Collaborative.

THE COLLABORATIVE - STRUCTURE

Program Location
A super-utilizer (SU) program is a data-driven, high-intensity, community-based, patient-centered, inter-disciplinary team that engages SU patients to deliver high-quality, comprehensive care while simultaneously encouraging self-advocacy and personal accountability. The team assists patients to navigate the health care delivery system but also fosters the development of personal autonomy in the healthcare arena. As with the Camden Coalition, the five SU programs of the Collaborative have demonstrated the potential of this approach to offer outstanding care, meaningful patient engagement, and significant cost reduction.

Appendix 1 is a chart that compares the five programs on a number of dimensions of structure, process and outcomes. As this comparison clearly demonstrates, there is no single model for an SU program. The five programs in the Collaborative vary in terms of their structures and processes, but they share the common goal of working with SU patients to improve the quality of care they receive and their quality of life, and to reduce preventable utilization of expensive inpatient and ED services.

Unlike many other SU programs around the country, four of the Collaborative programs are part of multi-hospital health systems (Crozer-Keystone Health System, LG Health, PinnacleHealth System, and WellSpan). These programs have the advantage of access to hospital utilization and cost data that would not be readily available to programs operating outside a health system. Hospital databases are used to identify potential participants in the SU program. The health system-based SU programs also are advocates within their own organizations for the delivery system transformations needed to meet the needs of the SU population.

One disadvantage of health system ownership of an SU program is that the program lacks access to utilization data from other providers in the region. SU patients often move around, visiting multiple hospitals for both inpatient and ED services. A health system SU program may have difficulty developing a comprehensive picture of a patient’s utilization patterns that includes providers outside their system.

The fifth program, Lehigh Valley, is based in a neighborhood health center. The Lehigh Valley program is funded by a Center for Medicare and Medicaid Innovation (CMMI) grant administered by Rutgers University in New Jersey. The grantees in this program are more community-based than the other programs in the Collaborative. For example, all of the CMMI-funded programs employ a community organizer to help community members advocate for pragmatic solutions to the gaps in health and social service systems.
The Lehigh Valley program has the most extensive community partnerships, both formal and informal, including partnerships with the faith-based community in their area. The advantage of a community base is that coordination with community agencies may be easier. In addition, operating out of a neighborhood health center gives the program a site to provide primary care for those who do not have a PCP. The program has a formal partnership with the Community Exchange, a volunteer Time Bank. They are able to involve volunteers in the care coordination process. They encourage SU patients to become volunteers themselves. Participation in volunteer activities has been shown to improve physical and mental health by reducing social isolation. Exhibit 7 presents two spaghetti maps, a tool used by the Lehigh Valley program to help patients visualize a snapshot of their lives medically, mentally, and spiritually. The pre-intervention map shows the tangled “spaghetti” that is the life of an SU patient. The patient has several medical issues and lacks “mind” and “spirit” support. The post-intervention map demonstrates an increase in the “mind” and “spirit” parts of the patient’s life, and a complete elimination of hospitalizations.

The primary disadvantage of the Lehigh Valley program’s location is their lack of access to hospital data. Although the program has informal affiliations with the hospitals in the area, they have only begun receiving data from the hospitals about admissions and ED visits. Therefore, they have not yet begun mining the data to identify potential program participants based on their utilization patterns. Until recently, the program relied entirely on referrals to identify potential patients. The program has now completed an agreement with a large health system in the area to
All SU programs provide care coordination; some also provide primary care services and are termed “transitional PCP super-utilizer programs”.

provide data about inpatient and ED utilization that will allow the program to start data-driven patient selection. They hope to develop similar agreements with two other local health systems.

The strong community base of the Lehigh Valley program may produce a wider range of referrals than those in the health system-based programs, but it is harder to apply the program’s inclusion and exclusion criteria to patients referred by other providers and community groups. As a result, the program often works with the extreme outliers in terms of medical and psychosocial complexities and challenges. Given limited resources, all SU programs need to prioritize cases to work with those patients who are most likely to benefit from intensive, outpatient care coordination. This has not always been an option for the Lehigh Valley program but should improve with the new data agreement.

The other programs in the Collaborative would like to emulate the community connections features of the Lehigh Valley program but lack the time and resources to do so. As these programs expand, they hope to develop some of these features. One of the many benefits of the Collaborative is the shared learning from different program models.

Role of the SU Program

All SU programs provide care coordination; some also provide primary care services and are termed “transitional PCP super-utilizer programs”. The WellSpan and LG Health programs assume the role of PCP on a temporary basis in the Bridges to Health program and Care Connections clinic, respectively. In addition, they provide intensive care management services, coordinating specialty, mental health, and social services. The programs’ goals are to stabilize patients’ health, coordinate other needed services, equip them to navigate the system, and then return them to their previous PCP. The Crozer program is located in the outpatient practice of the health system’s family medicine residency program, the Center for Family Health in Springfield. Their target population is SU patients in that practice, so all patients have a resident or attending physician. The SU team does not take over the primary care role but does provide intensive care coordination services, with the goal of patient self-sufficiency, teaching them how to navigate the system, and “graduating” them back to the practice’s Patient-Centered Medical Home (PCMH).

Exhibit 8 presents a side-by-side comparison of PCMH and SU programs. Although the two concepts share some features, there are important distinctions. Care coordination is the focus of SU programs, rather than the direct provision of medical care, even though some programs do provide primary care services. SU programs are more proactive in engaging patients and have more resources directed at patient engagement.

Pinnacle has three projects where patients can receive care coordination with or without primary care services. One is an internal medicine residency clinic; another is in the hospital emergency department; and the third focuses on providing medical services and navigation for patients in an independent living facility that was identified through hot-spotting.

The program in the Lehigh Valley is the most community-based program of the five. Primary care is provided at the Neighborhood Health Centers of the Lehigh Valley clinic. Care coordination is provided by a team, working with an extensive network of community partners.
The SU Team

All the SU programs in the Collaborative use inter-disciplinary teams. The composition of the SU team depends on the characteristics of the target population and the role of the SU program. The comparison chart in Appendix 1 outlines the staff composition of each program in the Collaborative. The SU team may include:

**Physician or Advanced Practice Nurse:** Some programs have a physician or nurse practitioner working full-time to provide primary care services to SU patients; others have residents (usually family medicine) in the direct-care role. All of the programs have physician leaders who oversee enrollee care and medical management issues.

**Nursing:** Some of the Collaborative programs employ nurse (RN) case managers on a full or part-time basis to do medical needs assessment and, in some cases, oversee care coordination.

**Pharmacy:** All programs have clinical pharmacists in a consulting role. Medication reconciliation is
The composition of the SU team depends on the characteristics of the target population and the role of the SU program.

A key function in SU programs. Medication reconciliation involves comparing the medications listed in the patient’s medical record or discharge summary with the medications the patient actually has and uses at home. The difference can be striking at times. Some programs also use clinical pharmacists and drug management programs to allow pharmacists to titrate medications.

**Behavioral Health:** Most SU patients have at least one behavioral health diagnosis that requires either direct care or consultation from a behavioral health specialist, such as a psychologist or social worker. These professionals do behavioral health needs assessments and, in some cases, provide counseling services to SU patients.

**Social Work:** Several programs have a full or part-time social worker to assist patients with their social service needs, including housing, insurance and other benefit enrollment.

**Community Health Worker:** Programs employ a variety of personnel to work with patients in their homes and in the community. These include licensed practical nurses (LPNs), care navigators (this term encompasses many workers including, but not limited to, nurses and emergency medical technicians), community health workers (a lay person trained to provide basic health education and care), or health coaches (usually lay persons trained in motivational interviewing and goal setting techniques).

Finally, programs have consultation relationships with dieticians, diabetic educators, legal service attorneys, clergy, and others.

**Partnerships**

No SU program has the resources to meet all of their patients’ needs, therefore all SU programs collaborate with a variety of community organizations through formal or informal partnerships. Formal partnerships in the **Lehigh Valley** program include the Parish Nursing Coalition, Community Exchange (volunteer Time Bank), and Congregations United for Neighborhood Action (CUNA). The **LG Health** program has a formal agreement with the Lancaster County Human Services Office, and has a full-time, county-supported social service liaison working in their Care Connections Clinic. They have two partnerships with community pharmacies for enhanced services, as well as a link with the Lancaster Emergency Management Service Agency which staffs two of their navigator positions. **WellSpan** partners include Healthy York Network (a charity care program) and Healthy York Pharmacy (a not-for-profit pharmacy).

All programs have developed informal arrangements with a variety of health and social service resources within their own organizations (specialty services within the health systems) and in the community. Typically, these include area agencies on Aging, community mental health organizations, county social service agencies, and homeless shelters. The **WellSpan and LG Health** programs have periodic community care coordination meetings, similar to the community-wide case management conferences started in **Camden**. Other **Collaborative** programs lack the staff to organize and manage this kind of arrangement, but all would like to develop a stronger community base for their programs in the future.
The Role of SU Programs in Health Professions Education

All of the Collaborative’s programs have affiliations with graduate medical education programs. In two programs (Crozer and Pinnacle), the residents may serve as the PCP for SU patients. All programs are committed to educating current and future physicians, as well as health system administrators, about the SU population and their needs through case conferences, formal presentations, rotations, and lectures. Some programs have affiliations with other professional education programs, e.g. the York College of Nursing and the WellSpan program. Most programs have other health professions students on the SU team. The Crozer program, for example, has Master of Social Work and Doctor of Psychology students as active team members.

The residency-based Crozer program partnered with the Camden Coalition to form a Super-Utilizer Fellowship funded by the Aetna Foundation. The first two family medicine fellows started in the summer of 2012. A principal goal of the fellowship is to train physicians in the development and management of SU programs. Fellows spend half their time in Camden, learning from the Coalition, and half their time at Crozer developing their SU program and working with SU patients. Fellows are actively involved in educating medical students, residents, and the hospital system’s administrative and medical staff. Building on the Crozer experience, LG Health started a Population Health Fellowship in July, 2014 that will train family medicine residents in leadership, change management, population health, as well as complex medical management.

The advantage of residency affiliations is that physicians-in-training (residents) may be available to assume the PCP role for some SU patients. In addition, students from social work, psychology, or pharmacy are available to serve as active members of the SU team. Programs can make a significant contribution to health profession programs by exposing future physicians, nurses, psychologists, pharmacists, and social workers to the SU population and the system failures that are barriers to effective patient care.

The disadvantage of residency affiliations is that resident physicians and other health professions students graduate, making continuity of relationships with
Programs can make a significant contribution to health profession programs by exposing future physicians, nurses, psychologists, pharmacists, and social workers to the SU population and the system failures that are barriers to effective patient care.

Patients more difficult. Programs that utilize residents and students must plan to help patients make the transition to a new provider.

This is not an easy process for many patients who already feel abandoned by the health care system.

THE COLLABORATIVE - PROCESSES

Target Population

The structure and processes of a SU program can be tailored to fit the specific sub-set of the SU population that a given team or organization chooses as the target group for their intervention. The choice of target population is often linked to the likely sources of funding as well as the needs of the community. For long-term sustainability, a SU program must save money while improving quality of care. Programs must eventually demonstrate a return on investment (ROI) to their funders, whether the funder is a payer like Medicaid, a foundation or other grant-funding agency, or a program’s parent health system.

SU work at the Crozer-Keystone Health System is a good example of how the choice of target population can depend on the program’s source of financial support. Based in Crozer’s family medicine residency, the initial target population was high-utilizing patients from the residency practice in Springfield. A grant from the Aetna Foundation to support two Super-Utilizer Fellows facilitated this work with the primary purpose of educating future physician leaders about the development and management of SU programs.

In January of 2014, a major health insurance company in the Philadelphia market funded a full-time nurse case manager position to work with the Crozer SU program, targeting patients in the Crozer-Keystone system who have a Medicare Advantage policy with this payer and have significant claims for their care. The funding supports a proof of concept that the SU team can significantly reduce claims for these patients, while maintaining or improving quality of care.

The Crozer-Keystone Health System is considering an expansion of the SU program at a later date, but will need to find funding for a full-time social worker. The target population in this case would be the patients that represent the greatest losses to the health system, patients whose costs of care are significantly higher than the payments received. Typically, these patients either are uninsured or have Medicaid as their payer. Ideally the program would demonstrate savings to the Crozer-Keystone system at least equal to the cost of the social worker’s salary and benefits.

In contrast, the program at LG Health decided to start with the Medicaid population but rapidly expanded to other target populations. The program at WellSpan targets charity care patients and those with Medicaid, plus employees in the health system’s health plan.

PinnacleHealth targets high users of inpatient and ED services, regardless of payer, but focuses primarily on Medicaid and self-pay patients. The program in the Lehigh Valley targets patients with complex conditions with a behavioral health component. They are currently negotiating agreements with area hospitals to receive data about patients with frequent and preventable inpatient admissions and/or ED visits.

Most of the programs have exclusion criteria. All of them target adults, 18 and over. Most exclude patients who are pregnant, have an active cancer diagnosis, have high expenses due to a single catastrophic event, or have only a serious mental health diagnosis without chronic medical problems.
Patient Identification and Selection

All of the programs, except Lehigh Valley, identify SU patients through various hospital inpatient databases (admissions, observation stays, and ED visits) and outpatient records of health system-owned practices. Some have access to high-risk lists from payers, including Blue Cross or Medicaid, and hospital-owned health plans. The program’s selection criteria (definition of a super-utilizer, target population, and exclusions) are applied to the patients in the databases to identify potential candidates for the SU program. Programs also accept patients by referral, typically from the patient’s primary care team or inpatient service. The patient selection process is essential to program success. Programs must prioritize patients to assure the most efficient use of limited resources.

Patient Enrollment – First Contact

The time and place of initial contact with the potential SU patient are critical determinants of program success. The Camden program receives real-time admission data from the local hospitals which enables a staff person from the Coalition to make first contact in the hospital and arrange for a home visit after discharge. The staff in Camden report there is an advantage to meeting patients in the hospital when they may be most receptive to making positive changes to manage their health. Programs that lack access to real-time hospital data typically make the first contact in a clinic or by phone. WellSpan and LG Health prefer to meet patients in their PCP’s office, with a “warm hand-off” from the PCP. Crozer patients are often introduced to the team while they are visiting their PCP in the residency practice.

All of the programs consider home visits to be an essential component of SU work. Home visits provide insights to the patient’s living environment, family and other social relationships, nutrition, and medication management, insights that do not occur in the hospital or office. There is good evidence demonstrating that telephonic case
The program’s selection criteria (definition of a super-utilizer, target population, and exclusions) are applied to the patients in the databases to identify potential candidates for the SU program.

Management is less effective than in-person case management with the SU population.7 The SU programs consider in-person contact – at home, in the community, or the physician’s practice – is critical to establishing strong relationships with patients that can lead to improvement in their health and well-being.10

**Patient Enrollment – Engagement**

The initial contact is the time to begin exploring the patient’s assessment of their health and utilization patterns. The programs offer to help patients with complex health problems and frequent hospital use to achieve goals for better health and wellness. Team members must gauge the patient’s willingness to change their use of hospital services and their self-assessment of health. Patients may be asked to identify barriers to care or discuss why they make frequent use of the hospital. The team offers to work with the patient to navigate the system and coordinate services to achieve their goals for well-being.

(See Exhibit 9, the story about Victor at Crozer. The language barrier was overcome when a Spanish-speaking physician joined the team. Victor then learned to schedule and keep appointments, secure better housing, and manage his COPD outside of the hospital.)

All of the programs train their team members in motivational interviewing techniques. This helps team members establish relationships that respect the patient’s autonomy and ultimately lead to patient engagement for the duration of their enrollment in the SU program. The first contact is also the time to begin an assessment of the patient’s “readiness for change” which is key to patient engagement. To-date team members have used clinical judgment and subjective measures of readiness for change. Some programs have tried formal instruments, such as the PAM 13 (See Exhibit 11), but have not found them useful. Although helpful for a general population, these instruments have been untested with high risk populations. There is a need to develop readiness for change instruments that are appropriate for an SU population.

**Patient Assessments**

Programs use a variety of instruments to gather vital information to develop a detailed medical, psychological, and social history for each patient. Unlike histories taken in the typical medical setting, the SU histories include the patient’s social supports, food needs, employment and housing situations, and substance abuse habits. One program uses PAM 13 for assessing patient engagement at enrollment, and every 3 months thereafter. Programs use a number of behavioral health instruments including Montreal Cognitive Assessment Tool (MoCa), Patient Health Questionnaire (PHQ-9) and Self-Sufficiency Matrix, to name a few. After assessing patients’ needs and goals, a shared care plan or care agreement is developed and signed by the patient and program. Patients are also asked to sign a HIPAA release form so that information from other providers can be integrated into the patient’s record and two-way care coordination can occur. Exhibit 11 contains a list of the assessment instruments used by the Collaborative’s programs.
THE COLLABORATIVE – OUTCOMES

The programs encounter patients where they are – in the hospital, the clinic, the office or the community. Some patients had crucial social service needs met, such as housing and transportation, that made it easier to manage their health as an outpatient.

Some patients were connected to a primary care provider. Most learned how to overcome barriers, advocate for themselves, and manage their health problems outside the hospital.

The SU programs in the Collaborative typically started small and gradually expanded.

Three of the programs – Crozer, LG Health, and WellSpan – started with small pilot projects.

To prepare for this report, the programs planned to consolidate data all five programs. However, problems with data access and collection limited the data for this report to Crozer, LG Health, Lehigh Valley and WellSpan.

As of December 31, 2014, these four programs had served 446 patients. Exhibit 12 shows the change in hospital utilizations (ED visits and admissions) before, during and after enrollment in these four programs. The pre-enrollment data represent hospital utilization rates in the 18 months prior to enrolling in an SU program for each patient. The during period is from the date of enrollment to the date the patient left the program. The post-enrollment data includes utilization from the date a patient leaves the program until eighteen months later unless the patient expired or moved away sooner. The time during and post-enrollment may be different for each patient therefore, a per patient per month rate was calculated and then annualized. All utilization is counted, including utilization related to pregnancy, trauma, or surgery. Data streams are limited to parent institutions or institutions from whom comprehensive
On average, patients had 3.4 inpatient admissions per patient per year prior to enrollment and 1.6 admissions per patient per year after enrollment.

Patient days in the hospital decreased 63 percent when comparing the time after leaving a program to the 18 months prior to enrollment in an SU program.

On average, patients had 3.4 inpatient admissions per patient per year pre-enrollment in a program. While enrolled in a program, inpatient admissions were 2.8 per patient per year. After leaving the program, admissions decreased to 1.6 per patient per year. Prior to enrollment, patients had 3.5 ED visits per patient per year. While enrolled, this dropped to 3.4 visits per patient per year. After leaving the program, ED visits decreased to 2.8 per patient per year.

Prior to enrollment patients had on average 0.7 observation visits per patient per year. While enrolled and after leaving a program, observation visits both dropped to 0.6 per patient per year.

The number of days spent in the hospital decreased. Prior to enrolling in a program, patients had 23.9 days in the hospital per patient per year. During enrollment, hospital days per patient per year dropped to 16. This decreased even further to 8.8 hospital days per patient per year after leaving the program.

**COMMON CHALLENGES**

Although the programs in the Collaborative use a variety of models for providing services to SU patients, the programs face similar challenges, specifically with data, patient engagement, care coordination and funding.

**Challenges with Data**

A robust healthcare data stream is critical to SU programs. Timely, comprehensive and accurate utilization data was available. For these four programs collectively, inpatient admission rates dropped 52 percent and ED and observation rates dropped 21 percent when comparing the time after leaving a program to the 18 months prior to enrollment in an SU program.

(Exhibit 13 and 14 illustrates this point)

Assuming an average insurance payer expenditure (based on Medicaid rates) per hospital admission of $7500\(^1\), and per ED visit of $1097\(^2\), the programs demonstrated a potential 46% decrease in expenditures for inpatient and ED care comparing the time before enrollment to the time after leaving our programs.

(See Exhibit 15 for pre and post enrollment estimated expenditures.)

Of the 446 patients presented in these exhibits, 258 are no longer enrolled in the programs. The vast majority (65 percent) successfully “graduated” from the programs and returned to a primary care provider for on-going care. Some patients died (10 percent); a small percent dropped out of the program or were lost to follow-up. A very small number (5 percent) were asked to leave by the program for failure to actively engage.

(See Exhibit 16)
Data can be used to exclude these groups and focus program resources on those with the most potential for benefit. Many times, SU patients are aggregated in particular census tracks or other segments.

Knowledge about patient location can be translated into team and provider co-location for timely delivery of care. For example, some providers and counties might determine that a typical brick-and-mortar delivery system will not produce the desired outcomes.

By analyzing “hot-spots,” community-based interventions such as home visits may become more attractive and less resource-intensive.

Claims data also allow for analysis of sub-populations or segments to determine program staffing and community partnerships. For example, if many SU patients have diabetes, high blood pressure and heart disease, lay health coaching on healthy lifestyles might be an important service to offer.

Data also allows for modeling and strategic decisions regarding removal of duplicative spending on care management resources. For example, a diabetic patient does not need care managers from a hospitalization, a managed care organization (MCO), and a PCMH program. A unified care management structure can fulfill the same goals at lower cost, with greater consistency, and with better outcomes.

Claims and cost-related data are also very useful for the health systems that sponsor SU programs. Successful SU programs ultimately will reduce demand for inpatient hospital services. At the same time,
No SU program in the Collaborative has access to all of these data sources and yet a seamless, transparent sharing of all data among all parties involved is the key to successful program design, care transformation, and reduction of waste.

Payers are moving from fee-for-service to value-based reimbursement systems that also will reduce the need for inpatient beds. Health systems need to make strategic, informed decisions about levels of investment in SU programs vs. current brick-and-mortar structures to plan for this transition. This includes retraining and redeployment of staff in the community. Traditionally the data that SU programs need are located in multiple, uncoordinated repositories including the Commonwealth of Pennsylvania, Medicaid MCOs, private health insurance companies, health systems, and community agencies. No SU program in the Collaborative has access to all of these data sources and yet a seamless, transparent sharing of all data among all parties involved is the key to successful program design, care transformation, and reduction of waste. Ideally, the Commonwealth would support an all-payers claims database.

From a patient perspective, merged clinical, quality and utilization data allow for reduction of unnecessary testing, faster exchange of clinical information, and customization of the SU intervention to their specific needs. In the future, merged data could even be pushed to patients via electronic portals.

(See Exhibit 17, a case example from LG Health about the importance of data for SU programs.)

Challenges with Patient Engagement

The SU programs in the Collaborative have been successful in engaging most patients to enroll in their programs through their first several encounters. The challenge is to keep patients engaged, to move patients from simply enrolled to truly engaged, to empower patients to advocate for themselves and be accountable for managing their health and their use of services.

SU patients often appear to be ready to make significant changes in their lives when they voluntarily enroll in a SU program, although none of the Collaborative’s programs have found a “readiness for change” instrument that accurately identifies patients who are ready to fully engage in changing their lives. Over time that interest may wane.

Team members need to be skilled at coaching patients to manage their health and their interactions with the health and social service communities. And they need to work with patients to remain focused on their goals.

(See Exhibit 18, the story about Michael at Lehigh Valley, who benefited from extensive counseling and coaching to change his dysfunctional relationships with healthcare providers and get the dialysis services he needed.)

There are a number of different types of personnel who can play these roles with patients – LPNs, social workers, care navigators, health coaches, and community health workers. Regardless of the background these workers have, they all need additional training. Most programs provide this training on-the-job. In New Jersey, the Area Health Education Center (AHEC) has a training program for community health workers that equips them to be effective in these coaching roles. The University of Pennsylvania and Temple University also have programs to train community health workers. SU Programs need to plan for training all members of their teams in the techniques that are most effective for engaging and coaching patients.

Engaging older patients is different from engaging younger patients. Older patients typically are more complicated because of multiple chronic conditions and social isolation. Elderly super-utilizers may be taking care of their dysfunctional families, in addition to managing their own health. There is also a component of caregiver fatigue for those elderly SU patients unable to independently manage their health. There may be multiple organizations involved in their
care such as area agencies on aging, home care, and transportation. Something as simple as a hearing problem may affect their ability to comprehend a care plan.

The Pinnacle program is a good example. The program hot-spotted the Harrisburg area and found hot spots at independent living complexes and a nursing home. Then Pinnacle developed an on-site clinic for one of the independent facilities to give patients easy access to primary care services, but the super-utilizers were not necessarily the patients who used the clinic. (The same thing happened in Camden when the Coalition and their community partners opened a clinic in a senior high-rise.) The lesson learned here is that older patients require different engagement strategies. Program planners cannot assume that if they build it, they will come.

**Care Coordination Challenges**

A SU program provides intensive care coordination that integrates medical, behavioral, and social services. Establishing relationships with other providers for the benefit of patients is an important component of any SU program.

However, the SU team often is not the only group working with these patients. Most hospitals have discharge planners or case managers who focus on transitioning patients from the hospital to skilled nursing facilities or to home, motivated primarily by Medicare policy that penalizes hospitals for readmissions within thirty days. Some SU patients will have an intensive case manager (ICM) for their behavioral health needs. SU teams need to coordinate with these professionals to avoid duplicating efforts and confusing the patient. Care coordination for older patients can be especially challenging because they often have multiple sub-specialists involved in their care who prescribe multiple medications that may have adverse interactions.

**Challenges with Funding**

Regardless of funding source, all SU programs must demonstrate that they can change patients’ use of hospital services and provide the funder with a return on investment.
Home visits provide insights to the patient’s living environment, family and other social relationships, nutrition, and medication management.

Payers want to reduce claims paid for their subscribers and beneficiaries. They may be willing to enter into shared savings arrangements with an SU program, or support a staff position, if the program can demonstrate savings to the payer. Health systems want to reduce losses, typically from uninsured and Medicaid patients. They may be willing to support a staff position if the program can reduce losses equivalent to the staff person’s salary and benefits. To save money for a payer or health system, the programs need ready access to timely data, as discussed above. Data and savings go together. Since payers and health systems control repositories of patient data, SU programs often need data resources as well as funding to achieve the desired results.

The programs in the Collaborative have received funding or other forms of support from a variety of sources, including but not limited to, a Federal CMMI grant, the Aetna Foundation, the parent health systems of the four hospital-based programs, and individual private payers.

**SUMMARY**

This report presents detailed background about the five programs that are the members of the South Central Pennsylvania High-Utilizer Learning Collaborative. **Crozer-Keystone Health System, Lancaster General Health, Neighborhood Health Centers of the Lehigh Valley, PinnacleHealth System, and WellSpan.**

There is no single model for a super-utilizer program. These five programs vary in their structures and processes, which reflect differences in the communities they serve. However, each program focuses on serving the small percent of the population that represents a disproportionate share of health spending in their communities. They share common goals to reduce preventable utilization of expensive hospital services while improving the quality of care for their patients.

Working with the SU population reveals the many weaknesses in our health and social service systems that result in preventable hospital admissions and ED visits, poor quality of care, uncoordinated services, and a poor quality of life for this very vulnerable population and others. All of these programs are committed to sharing what they have learned from their SU work with each other, their sponsoring institutions, and community partners. This report presents the opportunity to share their experiences with others who are interested in working with the SU population to ultimately transform the health care delivery system for all patients. The combined outcome data of three programs from the Collaborative demonstrate the potential for significant cost savings that can result from better coordination of care, closing care gaps, and more effectively engaging patients in their own health. These are cost savings that would be of direct benefit to payers, especially Medicaid and Medicare, that are urgently looking to bend the health care cost curve.

**Appendix 2** is a statement of potential program benefits and core program elements developed by the members of the Collaborative. The first section discusses the potential benefits of SU work; it is the members’ vision of the long-term outcomes they aspire to achieve. The second section lists what the members consider to be the core elements of an effective super-utilizer program. No program has all of these elements, yet. However, the programs aspire to develop these elements as they learn from experience and re-design their work.
To the Commonwealth Of Pennsylvania

- Develop a **streamlined global consent form** from the state to facilitate shared information between super-utilizer programs and various agencies and payers.

- Provide state support for the development of **health information exchanges** that deliver real-time, all-payer data to programs on a daily basis, including utilization data from all hospitals.¹¹

  *(A crucial interim step would be to facilitate access for super-utilizer programs to Medicaid data including medical, behavioral and substance abuse data from all sources at the state level.)*

To Public and Private Payers

- Utilize alternative payment mechanisms for super-utilizer programs:

  1) **Case management payments** for super-utilizer programs to perform face-to-face and inter-disciplinary global case management, including medical, behavioral and social services to support community collaboration. (Examples of similar efforts include the Community Care of North Carolina and Vermont Chronic Care Initiative programs).¹¹
2) **Per Episode of Care Payment** for super-utilizer program services so that the super-utilizer program would receive payer payments for each episode of care coordination for the covered individual. This payment would cover program costs for a pre-defined period of time and be adjusted based on risk. (An example of such a program is Spectrum Health Center for Integrative Medicine in Grand Rapids MI).\(^{11}\)

3) **Shared savings contracts** for total cost of care with the sponsoring institutions of super-utilizer programs. (An example is Minnesota’s Integrated Care Model).\(^{11}\)

- Provide real-time utilization data to support the work of contracted super-utilizer programs.

**To Sponsoring or Partnering Health Systems**

- Provide real-time utilization data for super-utilizer patients to your super-utilizer program to facilitate appropriate management of these patients.
- Provide charge, payment and cost data for super-utilizer patients.
- Provide historical utilization, charge, payment and cost data for super-utilizer patients for comparison to post-enrollment data.

**ENDNOTES**

4. Ibid.
9. S. Kim et al. “Telephone Care Management’s Effectiveness in Coordinating Care for Medicaid Beneficiaries in Managed Care: A Randomized Controlled Study.” *Health Services Research* (October 2013);48:1730-1749.
Exhibit 1

Patient Story – PinnacleHealth – Community Health Navigation Network

Patient Profile: Bill is a man in his 50s with several chronic illnesses including cardiomyopathy, secondary to ongoing alcohol abuse, CHF, hypertension, atrial flutter, and a history of stroke. Bill has a federally subsidized income and was covered by Medicaid at the time of enrollment. Bill was homeless.

What was his hospital utilization before enrollment? Before he joined the Community Health Navigation Network, Bill had 25 ED visits in the prior six month period and 6 inpatient hospital stays in the same period.

What were the patient’s goals? Bill’s goals were to 1) obtain a stable home situation, 2) feel better, specifically less tired due to his heart problems, and 3) prevent another stroke.

What were the barriers to appropriate use of service? Homelessness affected Bill’s ability to identify and access services, including having a primary care doctor. When problems arose, the ED was his first choice for care. Alcoholism also affected his ability to engage and take proper care of his health.

What were the keys to successful engagement? Close follow up from 1) the SU program, 2) CHF clinic staff, 3) the Paramedic Program (home safety evaluation and medication reconciliation), and 4) specialty physicians. Bill was also helped to find a reasonable place to live.

What changes were made by the patient? When Bill has a problem now, he calls either the community paramedicine team or his PCP’s office, often before there is a life-threatening crisis requiring an ED visit. He has started a stable relationship with his PCP/PCMH, and understands how to use his medications to improve his health.

Outcomes: During his enrollment in the PinnacleHealth SU program, Bill has had 3 ED visits in 5 months, an 86 percent decrease from his prior ED use. He was hospitalized only once in 5 months, an 80 percent decrease from his prior hospitalizations. Bill keeps his medical appointments, and is doing a much better job of obtaining and taking his medications. Bill still has a problem with alcohol abuse.

System failures illustrated by this case: 1) homelessness impacts the patient’s ability to find a PCP, obtain meds; 2) inadequate availability of care for substance abuse, which, in turn, impacts the patient’s use of other services, and 3) a health system that doesn’t show patients how to navigate it to get what they need.
Exhibit 2

Patient Story – WellSpan – Bridges to Health

Patient Profile: Carole is a 51 year old, divorced, Caucasian female. She’s a smoker; her medical problems include diabetes, heart disease, obstructive sleep apnea, and depression. Carole lived with a female friend, staying in her basement and paying rent. Carole had maintained her decades-old sobriety from drug addiction and had a history of lifelong depression, with 3 suicide attempts between ages 15 and 44. She was working two part-time jobs that were hard on her physically.

What was her hospital utilization before enrollment? Carole was referred to Bridges to Health by her PCP after 2 hospital visits for chest pain in the same month. She had open heart surgery 2 months prior and had many missed doctor appointments and poor medication adherence. At Carole’s first visit, she expressed suicidal ideation, reeling from a series of medically complex and emotionally traumatic events: open heart surgery; the death of her closest support - her mother, a legal charge, and the loss of her job/income/health insurance, all within a span of 3 months.

What were the patient’s goals: Carole’s goals were to 1) find full-time employment, 2) have health insurance and be able to afford medicines and doctor visits, 3) improve chronic ankle/foot pain, and 4) be less depressed.

What were the barriers to appropriate use of services? The unfortunate timing and magnitude of losses (mother, job, income, health insurance, sense of identity) in a matter of 3 months, coupled with a lack of effective coping mechanisms and severe life-long depression led to a complete “shut down” for Carole. The providers she had seen before enrollment failed to recognize the significant impact of these losses on Carole’s health.

Keys to successful engagement: 1) Rearranged the usual flow of a first appointment and had the social worker respond immediately to the emotional crisis with a suicide risk assessment, a “No Suicide” contract and safety plan; 2) regular counseling sessions with the social worker and behavioral health intern; 3) quick connection to our charity care program and short-term funding of her medications; 4) coordinated connection to specialists, Medicaid enrollment, Office of Vocational Rehabilitation, and Social Security Administration.

Changes made by patient: Carole kept appointments with her PCP, specialists and mental health providers with the help of the charity care program coverage and quit smoking with the help of a nicotine patch. She enacted her safety plan when stressors caused her depression to flare to suicidality. Carole paid her legal fines, found a well-paying full-time job with health insurance in her field of expertise, and engaged in a fulfilling relationship with a partner.

Outcomes: During her stay with Bridges to Health, Carole had only one 2-day hospital admission for chest pain. Carole graduated from the program in December of 2013 and is engaged with a new PCP. She has had no ED or hospital visits since graduating. Carole was interviewed for a television program focusing on the value of super-utilizer programs and her perspective on healthcare reform. http://www.transforminghealth.org/stories/2013/07/super-utilizer-success-stories.php

System failures illustrated by this case: 1) providers unaware of charity care option to offer to the patient and 2) medical providers who were unaware of and did not attend to her emotional health and the life events that affected her health.
Exhibit 3

EXHIBIT 3 – SU Patient – Payer Mix

- Medicare: 31%
- Medicaid: 41%
- Dual Eligibility: 15%
- Private: 6%
- Uninsured: 7%

Based on 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014, average age of 56 years.
### Exhibit 4

**Percent of SU Patients with each Diagnosis**

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Health (Axis 1/11)</td>
<td>89%</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>52%</td>
</tr>
<tr>
<td>COPD</td>
<td>40%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>54%</td>
</tr>
<tr>
<td>Substance Use</td>
<td>57%</td>
</tr>
<tr>
<td>ERSD w Dialysis</td>
<td>9%</td>
</tr>
<tr>
<td>Frail Elderly</td>
<td>2%</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>52%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>0.80%</td>
</tr>
<tr>
<td>Hospice</td>
<td>3%</td>
</tr>
<tr>
<td>Intellectual Disabilities/ Cognitive Impairment</td>
<td>25%</td>
</tr>
<tr>
<td>Renal Disease</td>
<td>37%</td>
</tr>
</tbody>
</table>

*Based on 138 patients from Crozer-Keystone, Lancaster General Health, and WellSpan as of December 31, 2013*
### Exhibit 5

Percent of SU Patients with each social determinant of utilization

<table>
<thead>
<tr>
<th>Social Determinant</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Childhood Trauma</td>
<td>58%</td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>40%</td>
</tr>
<tr>
<td>Financial Issues</td>
<td>90%</td>
</tr>
<tr>
<td>Food Insecurity</td>
<td>61%</td>
</tr>
<tr>
<td>Functional Illiteracy</td>
<td>40%</td>
</tr>
<tr>
<td>Housing</td>
<td>48%</td>
</tr>
<tr>
<td>Language</td>
<td>26%</td>
</tr>
<tr>
<td>Transportation</td>
<td>62%</td>
</tr>
</tbody>
</table>

Based on 138 patients from Crozer-Keystone, Lancaster General Health, and WellSpan as of December 31, 2013
Exhibit 6

Patient Story – Lancaster General Health – Care Connections

Patient Profile: Robert is a 29 year old, single, African American male who was living as a boarder in a home in Lancaster City. Robert has been diagnosed with major depressive disorder, uncontrolled Type I diabetes, asthma, diabetic ketoacidosis, acute kidney injury, anemia, and gastroparesis. Robert had food insecurity and no reliable form of transportation. Robert’s living situation put a roof over his head but he had to remain alert and aware because his belongings could be stolen by other boarders in the home. Robert was unemployed, with a history of drug and alcohol abuse resulting in legal issues and probation. Robert also has a 5 year old daughter whom he sees on occasion.

What was his hospital utilization before enrollment? Before Robert joined Care Connections, he experienced 12 inpatient hospitalizations for a total of 48 days. Robert also visited the ED 15 times.

What were the patient’s goals? Robert’s goals were to 1) see his daughter more often, 2) manage his diabetes, 3) secure safe housing, 4) get help with his mental health concerns, 5) secure transportation, 6) improve and increase medication adherence, and 7) receive DPW food benefits.

What were the barriers to appropriate use of service? Robert’s barriers included his mental health concerns which were triggered by his diagnosis of diabetes as a child. Robert experiences denial and guilt over his health situation; when this occurs he shuts down and stops caring for himself. Robert also relied on self-medicating behaviors when feeling anxious, which then exacerbated his medical conditions and perpetuated his use of hospital services.

Keys to successful engagement: 1) Connected with Robert as a father and then as a grieving child over the loss of his health, 2) provided consistent structure for care, 3) patient care navigators modeled healthy behaviors and held Robert accountable for his behaviors, 4) provided Robert with education about his illness coupled with the opportunity to practice his newly learned skills, 5) social services connections helped secure basic life needs (housing, food, and medications) so that he could pay attention to his health needs.

Changes made by the patient: Robert changed what he eats and how often. Robert also changed his medication administration based on his personal day versus presumed 8:00 am start of day. Robert prefers to go to sleep early in the morning and wake in the afternoon. Robert’s new morning meds are now taken when he rises vs. by clock time. Robert has also begun the process of obtaining safe housing, he has transportation, and he is tracking his blood sugars.

Outcomes: After enrollment in Care Connections, Robert’s hospitalizations decreased 50%, and his days in the hospital were reduced to 9 days total. Robert has had no ED visits. Robert’s medications are now correctly dosed. He is aware of what medications he needs to take, when he needs to take them, and how to obtain needed refills.

System failures illustrated by this case: 1) insufficient services available for patients with co-existing drug and alcohol concerns, 2) public transportation, even when free and available, has scheduling limitations which can be off-putting to patients. (They include inconvenient pick up and drop off times as well as strict rules for scheduling and no-shows.), 3) no positive male role models outside of the team.
Exhibit 7

Spaghetti Map of Super-Utilizer Ecosystems and Community Relationships

Pre-Intervention
Exhibit 7
CONTINUED

Spaghetti Map of Super-Utilizer Ecosystems and Community Relationships

Post-Intervention
### Exhibit 8

**Comparing Super-Utilizer Programs to Patient Centered Medical Homes (PCMH)**

<table>
<thead>
<tr>
<th>PCMH</th>
<th>Super-utilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Care Program</td>
<td>Primary Care Program</td>
</tr>
<tr>
<td>Includes all primary care practice patients</td>
<td>Includes only SU patients that meet program-specific inclusion and exclusion criteria - perhaps 1-3 % of the population</td>
</tr>
<tr>
<td>Team is primarily physician and office staff</td>
<td>Team includes physician, office staff, care coordinators/navigators and others</td>
</tr>
<tr>
<td>Visits primarily in office (maybe inpatient hospital)</td>
<td>Visits patients in home/community as well as office and hospital</td>
</tr>
<tr>
<td>Transfer of care important</td>
<td>Transfer of care is extremely important</td>
</tr>
<tr>
<td>Office time rather limited by insurance payments and productivity issues</td>
<td>Visit times are more flexible (but not always reimbursed). Frequency and intensity of patient visits much greater</td>
</tr>
<tr>
<td>Primarily medically oriented visits</td>
<td>Visits oriented to medical issues as well as social, vocational, personal-management issues. Often the non-medical issues must be addressed first.</td>
</tr>
<tr>
<td>When patients don’t engage, office tries to engage them, but limited resources.</td>
<td>Team works hard to encourage patients to engage.</td>
</tr>
<tr>
<td>Often have care manager/RN but with much larger case loads, limiting time per patient encounter</td>
<td>Care managers/navigators can help teach patients to navigate health care system and go with patient to specialty and other visits.</td>
</tr>
<tr>
<td>Scaling implemented fairly readily</td>
<td>Scaling may be more challenging and has not yet been done nationally</td>
</tr>
<tr>
<td>Several national accrediting organizations (NCQA, AAAHC, TJC, URAC)</td>
<td>No SU accrediting organization (to our knowledge)</td>
</tr>
<tr>
<td>Moderate evidence that it improves care and saves money.</td>
<td>Evidence building that it improves care and saves overall healthcare dollars</td>
</tr>
<tr>
<td>Mostly financed within the routine revenue of the primary care office</td>
<td>Mostly financed by grants and foundations</td>
</tr>
</tbody>
</table>
### Exhibit 8
CONTINUED

Comparing Super-Utilizer Programs to Patient Centered Medical Homes (PCMH)

<table>
<thead>
<tr>
<th>PCMH</th>
<th>Super-utilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient-centered, physician directed limited by patient reaching out to practice</td>
<td>Very patient-centered. Team reaches out to patients</td>
</tr>
<tr>
<td>Personal relationship with one physician</td>
<td>Personal relationship with care manager/navigator with intact PCP relationship</td>
</tr>
<tr>
<td>Focus on whole person along with his/her family/social situation. Less time to interact.</td>
<td>Focus on the whole person in the context of family/social situation.</td>
</tr>
<tr>
<td>Some care coordination occurs</td>
<td>Care coordination is major focus of the work</td>
</tr>
<tr>
<td>Quality and safety important</td>
<td>Quality and safety important</td>
</tr>
<tr>
<td>Good patient access to practice</td>
<td>Broader patient access to team</td>
</tr>
<tr>
<td>Patient education important</td>
<td>Patient education and activation extremely important</td>
</tr>
<tr>
<td>Preventive care prioritized</td>
<td>Preventive care lower priority until more pressing issues addressed.</td>
</tr>
<tr>
<td>PCMH appears to benefit from SU program management of most complex patients</td>
<td>SU appears to benefit from transitioning patients back to PCMH once patient goals are met</td>
</tr>
<tr>
<td>Many programs assist in development of PCMH (e.g. AAFP, PAFP)</td>
<td>Less formalized programs to assist in development, as many are new to SU work.</td>
</tr>
<tr>
<td>Practices may or may not have daily “huddles” to address needs of patients being seen that day</td>
<td>Daily “huddles” typical and will often include team well-being as well as patient issues.</td>
</tr>
</tbody>
</table>
Exhibit 9

Patient Story – Crozer-Keystone Health System – Crozer Connections to Health Team

Patient Profile: Victor is a primarily Spanish-speaking, Hispanic male in his early 60s. His primary medical problems are COPD, obstructive sleep apnea, Type II diabetes, atrial fibrillation, obesity, hypertension, hyperlipidemia, and coronary artery disease. Victor lived with his daughter-in-law in a basement apartment; his son was in prison. Victor had frequent conflicts with his daughter-in-law. He was reluctant to trust people based on his family history.

What was his hospital utilization before enrollment? Victor was referred to the Crozer Connections to Health Team by his primary care physician after two hospital visits for COPD in the same month. In the 18 months before the referral, he had had 4 hospital admissions and 2 observation stays.

After an initial meeting with Victor, he returned to the hospital two days later with chest pain and COPD. He continued to return to the ED frequently and had 4 hospital observation stays in the first 3.5 months after enrollment.

What were the patient’s goals? Victor’s goals were to 1) find alternative housing, 2) get a cane to help with mobility, and 3) get bariatric surgery.

What were the barriers to appropriate use of services? Barriers for Victor were his limited English, the lack of Spanish-speaking providers in the health system he used, and the difficulty of finding affordable housing.

Keys to successful engagement: 1) Built rapport slowly, 2) helped to meet immediate need of a cane, 3) provided assistance with paperwork and care coordination phone calls. Adding a Spanish-speaking physician on the SU team significantly changed the patient’s level of trust and engagement.

Changes made by patient: Victor completed the many steps required for bariatric surgery, including visits to specialists, without assistance. He began losing weight through lifestyle modification and learned to manage his COPD flare-ups at home. Victor pursued a housing opportunity on his own, found a new apartment, and moved out of his daughter-in-law’s apartment.

Outcomes: Victor had no hospital admissions or observation stays for six months while enrolled in the Crozer SU program, until his scheduled bariatric surgery. He did very well with surgery and is enthusiastic about his weight loss and increased physical well-being (decreased shortness of breath, blood sugar and blood pressures, controlled with fewer medications). He is enjoying his new home and developing social support in the community. He is considering looking for a part-time job or volunteer position.

System failures illustrated by this case: 1) significance of language barriers, 2) impact of housing on patient’s physical and mental health.
<table>
<thead>
<tr>
<th>ASSESSMENT INSTRUMENTS</th>
<th>USED TO MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Risk Screening (Internal) \textbf{LGH}</td>
<td>Appropriateness for Care Connections enrollment</td>
</tr>
<tr>
<td>Brief Pain Inventory (Short Form)-Charles S. Cleeland/Pain Research Group \textbf{LGH}</td>
<td>Chronic pain assessment</td>
</tr>
<tr>
<td>Medication Knowledge Assessment Form (Internal) \textbf{LGH}</td>
<td>Client knowledge of current medication regimen</td>
</tr>
<tr>
<td>Morisky Medication Adherence Scale (MMAS-8-Item) \textbf{LGH}</td>
<td>Client adherence to current medication regimen</td>
</tr>
<tr>
<td>Home Environment Safety Assessment (Internal) \textbf{LGH}</td>
<td>Overall safety of the environment (ie. adequate food/water supply, sanitation, infestation, fall safety, fire detector, etc.)</td>
</tr>
<tr>
<td>Self Sufficiency Matrix (Internal) \textbf{LGH}</td>
<td>Client’s ability/level toward self sufficiency (identifies potential barriers impacting self-sufficiency)</td>
</tr>
<tr>
<td>Montreal Cognitive Assessment (MOCA) \textbf{LGH, CK for Medicare Advantage (Med Adv) only}</td>
<td>Mild cognitive impairment</td>
</tr>
<tr>
<td>Rapid Estimate of Adult Literacy in Medicine (REALM) \textbf{LGH}</td>
<td>Adult patient’s ability to read</td>
</tr>
<tr>
<td>Patient Activation Measure (PAM-13) \textbf{WS, LV}</td>
<td>Patient activation</td>
</tr>
<tr>
<td>Satisfaction survey (4-question, homegrown) \textbf{WS}</td>
<td>Patient satisfaction</td>
</tr>
<tr>
<td>PHQ 9 \textbf{WS, LGH}</td>
<td>Depression</td>
</tr>
<tr>
<td>NVS (Newet Vital Sign) \textbf{WS}</td>
<td>Health literacy</td>
</tr>
</tbody>
</table>
### Assessment Instruments

<table>
<thead>
<tr>
<th>ASSESSMENT INSTRUMENTS</th>
<th>USED TO MEASURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAD-7 <strong>LGH</strong></td>
<td>Anxiety</td>
</tr>
<tr>
<td>CPCQ (Client perception of Coordination Questionnaire)  <strong>CK, LV</strong></td>
<td>Care coordination from patient’s perspective</td>
</tr>
<tr>
<td>URICA (U of RI Change Assessment Scale) <strong>CK</strong></td>
<td>Patient readiness to change</td>
</tr>
<tr>
<td>CCHP Risk Stratification Score <strong>CK</strong></td>
<td>Patient risk ranking using multiple measures</td>
</tr>
<tr>
<td>Geriatric Depression Scale  <strong>CK for Med Adv only</strong></td>
<td>Self-report of depression in elderly</td>
</tr>
<tr>
<td>Falls Risk Scale  <strong>CK for Med Adv only</strong></td>
<td>Risk of falling using multiple measures</td>
</tr>
<tr>
<td>Activities of Daily Living/ Instrumental ADL  <strong>CK for Med Adv only</strong></td>
<td>Ability to safely live independently</td>
</tr>
<tr>
<td>Healthy Days  <strong>CK for Med Adv only, LV</strong></td>
<td>Patient’s perception of health</td>
</tr>
<tr>
<td>Care Transition Measure (CTM-3) <strong>LV</strong></td>
<td>Care transitions</td>
</tr>
<tr>
<td>Chronic Condition Checklist (CMS Chronic Condition Warehouse) <strong>LV</strong></td>
<td>Health status</td>
</tr>
<tr>
<td>Social Co-morbidity Checklist <strong>LV</strong></td>
<td>Social service needs</td>
</tr>
<tr>
<td>Beck Depression Inventory <strong>P</strong></td>
<td>Depression</td>
</tr>
</tbody>
</table>

**CK** = Crozer-Keystone  
**LV** = Lehigh Valley  
**LGH** = Lancaster General Health,  
**P** = PinnacleHealth  
**W** = WellSpan
Exhibit 12

Super-Utilizer Patients’ Utilization

<table>
<thead>
<tr>
<th></th>
<th>Before</th>
<th>During</th>
<th>After*</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED Visits</td>
<td>3.5</td>
<td>3.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Observation</td>
<td>0.7</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Inpatient</td>
<td>3.4</td>
<td>2.8</td>
<td>1.6</td>
</tr>
</tbody>
</table>

* After data includes only those patients who are no longer active in program.

Based on 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014
Exhibit 13

Super-Utilizer Patient Days in the Hospital

<table>
<thead>
<tr>
<th></th>
<th>Patient Days in the Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>23.9</td>
</tr>
<tr>
<td>During</td>
<td>16</td>
</tr>
<tr>
<td>After*</td>
<td>8.8</td>
</tr>
</tbody>
</table>

* After data includes only those patients who are no longer active in program.

Based on 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014
Exhibit 14

Super-Utilizer Programs Create Value for Systems and Patients

Based on average rates of decreased hospitalization, a hypothetical patient spending six months in a super-utilizer program and six months as alumni would be expected to spend 11.5 fewer days in the hospital during that year compared to the year before enrollment.

Assuming a cost to an insurance payer of $7500 per inpatient admission and $1.097 per ED visit, 100 patients who spend 6 months in a SU program and 6 months as alumni would be expected to have a cumulative decrease in insurance payer expenditures of approximately $850,000 during that year compared to the year prior.

Super-utilizer programs create value for society by avoiding costly hospital utilization and value for patients and family members by reducing time spent in the hospital.

Based on outcomes reported for 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014
Exhibit 15

Estimated Expenditures for Inpatient and ED Care based on Medicaid Reimbursement Rates

Per patient per year

$35,000
$30,000
$25,000
$20,000
$15,000
$10,000
$5,000
$0

<table>
<thead>
<tr>
<th>Estimated Medicaid Expenditures</th>
<th>Before</th>
<th>During</th>
<th>After*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$29,018</td>
<td>$25,286</td>
<td>$15,628</td>
</tr>
</tbody>
</table>

* After data includes only those patients who have left the program.

Based on 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014
Exhibit 16

Super-Utilizer Patients-Reason for Leaving Program

- Graduation: 65%
- Expired: 13%
- Patient Choice: 10%
- Program Choice: 7%
- Lost to Follow-up: 5%

Based on 446 patients from Crozer-Keystone, Lancaster General Health, Lehigh Valley, and WellSpan as of December 31, 2014.
Exhibit 17

Lancaster General Health – Data Case Example

In 2011, Medicaid data from DPW allowed Lancaster General Health (LG Health) to determine that in any given year, approximately 2,000 super-utilizers reside in Lancaster County. The data allowed LG Health to strategically plan for a large SU infrastructure investment, timing of program start, acute care hospital demand destruction modeling (i.e. the impact of the SU program on the demand for inpatient beds), and novel payment methodologies.

The health system used these data to plan team composition. LG Health was able to build a team comprised of physicians, care managers, navigators, pharmacists, social workers and behavioral health providers based on the estimated target population of 2000 Medicaid patients. LG Health also determined through data analysis that a county-level partnership with the Office of Behavioral Health and Developmental Services (including Office of Aging) would be critical to the SU program’s success.

However, one year’s worth of data from a single payer left many questions unanswered. How many in the target population are “regional” SU members, i.e. patients who cross counties and health systems to use services? Do SU patients move in and out of various managed care plans? Do they use services in multiple health systems? Are SU patients transitory for managed care plans, health systems, DPW? Is there a stable SU population in the program catchment area? What other care providers do SU patients seek care from?

LG Health was also unable to model the amount of behavioral health spending reduction because the physical and behavioral data from Medicaid are not merged. Only physical health data were available. Finally, the Medicaid data could not be used to estimate other target populations that the program might want to serve eventually. In sum, LG Health still lacks critical access to real-time, patient-specific data that is integral to accurately identifying individuals in need, enrolling them in a program, and tracking cost/quality outcomes.
**Exhibit 18**

**Patient Story – Neighborhood Health Centers of the Lehigh Valley – Lehigh Valley Super-Utilizer Partnership**

**Patient Profile:** Michael is a 25 year old African-American male. He is on dialysis for ESRD from hypertension and cardiomyopathy. Prior to moving to Allentown, Michael was living in New Jersey with his grandparents, where he received dialysis. When he moved to Allentown to be closer to his brothers and mother, he initially tried to commute to NJ for dialysis days.

**What was his hospital utilization before enrollment?** Before enrolling in the Lehigh Valley Super-Utilizer Partnership, Michael frequently missed dialysis days, trying to go between Allentown and New Jersey. Consequently, he frequently came to the ED for dialysis due to fluid overload. In one month alone, he was admitted three times. Michael was referred to the team by the hospital discharge planning team during one such admission after six weeks without any stable plan for discharge.

Discharge planners could not secure a dialysis chair because Michael had been denied access to a chair at the primary dialysis center affiliated with the hospital. At first, his denial was explained as a response to his “threatening behavior.” However it was later determined that he was refused access to this dialysis center because the medical director was upset by Michael’s behavior and frequent use of the ED.

**What were the patient’s goals?** Michael’s goals were to 1) have a discharge plan that included living in Allentown and finding his own apartment, 2) complete his GED, and 3) reconnect with his mother who had been debilitated at the age of 39 by a stroke and was living in a nursing home in Allentown.

**What were the barriers to appropriate use of services?** Underlying housing, transportation and financial barriers played a role, however the primary barrier was Michael’s dysfunctional relationship with healthcare providers, through which his behavior and reactions, alongside racial and institutional biases, negatively impacted his medical care.
Patient Story – Neighborhood Health Centers of the Lehigh Valley – Lehigh Valley Super-Utilizer Partnership

**Keys to Successful Engagement:** 1) Spent many hours gaining an understanding of Michael and developing mutual trust with him. (He was motivated to become involved with our team to help meet his goals.), 2) health coach had daily contact for a month, providing rigorous training to increase Michael’s awareness of how his actions influenced others, 3) changed the dialysis center’s decision that allowed Michael access to a dialysis chair on a “trial” basis, and 4) connected Michael with a PCP medical home that would continue to engage him and participate in his medical care.

**Changes made by Patient:** Michael made some very difficult behavior changes with regards to how he reacted to people, how open he was to what people would suggest to him, and how he monitored his own responses so that others would be willing to work with him. By graduation, Michael went to dialysis regularly. He eventually used his Disability Income to get his own apartment.

**Outcomes:** Michael was able to successfully engage and stay in his outpatient dialysis program. Unfortunately, after discharge, Michael fell down the steps and broke both of his knees, necessitating a readmission and lengthy rehab stay. Ironically, Michael was placed in the same rehab as his mother and was able to reconnect with her while there. Upon discharge from his rehab program, he was able to recommit to the outpatient dialysis plan, follow up with his PCP, take his medications, and get outpatient dialysis.

**System Failure illustrated by this case:** 1) racial bias that affected how the healthcare system responded to Michael, a young African-American male, and Michael’s patterned response back to the medical establishment, 2) homelessness and poverty complicating care for those, like Michael, who have life-long chronic conditions like ESRD and dialysis.
### Appendix 1 – SU Program Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Crozer</th>
<th>Lehigh Valley</th>
<th>Lancaster General</th>
<th>Pinnacle</th>
<th>WellSpan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Are you affiliated with a hospital system?</td>
<td>Crozer-Keystone Health System, Delaware County, PA</td>
<td>Lead is FQHC. Pursuing formal agreements with all three major area health networks.</td>
<td>Lancaster General Health, Lancaster PA</td>
<td>PinnacleHealth System, Harrisburg, PA – Have three sites: clinic in an independent senior living complex with 195 residents (Complex ID through hot-spotting), an internal medicine residency clinic, hospital ED.</td>
</tr>
<tr>
<td>3</td>
<td>Are you affiliated with a FQHC?</td>
<td>Not as part of the SU Program. The residency program staffs a FQHC. One fellow sees patients there as part of the fellowship, but no SU patients there.</td>
<td>Neighborhood Health Centers of the Lehigh Valley.</td>
<td>Informally with Southeast Lancaster Health Services.</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>What are the types of providers and other staff on your team? FTEs?</td>
<td>2 physician fellows (33 each); .12 psychologist; .12 nurse case manager, .25 MSW student, .08 PsyD student, .10 clinical pharmacist; .05 supervising physician. (Full-time RN case manager with IBC grant.)</td>
<td>1 Parish Nurse, 1 MSW, 1 LPN and hiring a second, 2 community health workers, contracted time of a community organizer, Timebank liaison, 2 physicians, part-time project manager.</td>
<td>1.5 MD, 1 NP, 4 care navigators, 2 front staff, 2 patient support reps (MA), 1 RN case manager, SW, .5 pharmacist, .2 psychologist, county social service liaison (funded by County Social Services), All co-located in hospital.</td>
<td>0.5 FTE RN, 0.5 SW, 0.5 MD = STAFF AT SITES - social service liaison in living facilities is full time.</td>
</tr>
<tr>
<td>Question</td>
<td>Crozer</td>
<td>Lehigh Valley</td>
<td>Lancaster General</td>
<td>Pinnacle</td>
<td>WellSpan</td>
</tr>
<tr>
<td>----------</td>
<td>--------</td>
<td>---------------</td>
<td>-------------------</td>
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<td>---------</td>
</tr>
<tr>
<td>Dietician – yes. Pharmacist and psychologist on team. Access to home health, PT, OT, senior services coordinators, pulmonary rehab through CKHS.</td>
<td>No dietician. Team working informally with locally owned pharmacy that provides support, free delivery and free specialty packaging. Partnership with Haven House, community mental health center, with access to consulting psychiatrist and developing Behavioral Health Response Team. Informal arrangement with North Penn Legal Services. Also have access to local clergy and chaplains.</td>
<td>Legal consultation, nutrition, diabetic education, community pharmacies, dialysis, physical therapy, counseling services, interpreter services, VNA.</td>
<td>Dietician and a dental program. Other types no.</td>
<td>Located in community health center with access to dietician, pharmacist, and interpreters. Dedicated time from psychology intern and occupational and physical therapists.</td>
<td></td>
</tr>
<tr>
<td>Weekly</td>
<td>Daily when possible. At least twice a week.</td>
<td>Daily huddle</td>
<td>Each site, meets at least weekly, and as needed for more pressing cases. Review high use report from the ER.</td>
<td>Daily huddles (1 hr) for those seen that day, day before and next day, review inpatients and overnight calls.</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>Partners include Parish Nursing Coalition, the Community Exchange (Time Bank), Congregations United for Neighborhood Action, Haven House, PICO National Network.</td>
<td>Lancaster Co. Social Services Office, Mental Health, Disability, Area Agency on Aging, Lancaster EMS.</td>
<td>No</td>
<td>Healthy York Network (medical charity care network), Healthy Community Pharmacy (non-profit). Piloting embedded York County Human Services Case Manager.</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 1 – SU Program Comparisons

<table>
<thead>
<tr>
<th>Question</th>
<th>Crozer</th>
<th>Lehigh Valley</th>
<th>Lancaster General</th>
<th>Pinnacle</th>
<th>WellSpan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Do you have informal engagements with community groups? Which ones?</strong></td>
<td>Area Agency on Aging, community mental health resources; Hispanic Resource Center</td>
<td>OACIS (LVHN palliative care), Manor Care, Treatment Trends (Substance Abuse Program), Magellan Behavioral Health, local dialysis center. Lehigh Drug Store, Lehigh County Mental Health, Lehigh County Drug and Alcohol, Area Agency on Aging, Morning Call Newspaper, Lehigh Valley Family Health Center.</td>
<td>PALCO (Charity care), FQHC, homeless shelter, Spanish-American Civic Association, Philhaven (mental health agency), Philhaven ACT.</td>
<td>FQHC, pharmacy, home health, area agency on aging, Presbyterian Senior Living staff, other senior living sites.</td>
<td>Hospice and Community Care, York College of PA Nursing, Drug and Alcohol and other parts of York County Human Services (Area Aging on Aging and Mental Health) mass transit authority.</td>
</tr>
<tr>
<td><strong>How often do you meet with community groups?</strong></td>
<td>We don’t yet.</td>
<td>Still informal. Invite various groups for “extended huddle” at NHCLV.</td>
<td>Monthly</td>
<td>Do not meet with community groups for SU patients.</td>
<td>Community Care Coordination meetings with community agencies held on a monthly basis. Also on an as-needed basis; may bring many together with patient and family for more complicated cases.</td>
</tr>
<tr>
<td><strong>What are the sources of funding for your program? Health systems? Grants? Payers?</strong></td>
<td>Crozer-Keystone Health System, Aetna Foundation Grant. Independence Blue Cross has provided a grant for a proof of concept study to manage 10 SU patients with Medicare Advantage plans.</td>
<td>CMMI grant through Rutgers.</td>
<td>Lancaster General designated operating budget. Grant: Commonwealth of PA 2013-2014.</td>
<td>Small grant for senior living clinic – underwritten by Pinnacle.</td>
<td>WellSpan - our home system - provides designated operating budget.</td>
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<td>Question</td>
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<tr>
<td>Is your program a PCMH or do you plan to become PCMH recognized?</td>
<td>Yes, the Family Medicine Residency Program is a Level III NCQA-recognized PCMH.</td>
<td>In process of becoming recognized. Submitted 1/17/14.</td>
<td>Yes, going for NCQA recognition 2015.</td>
<td>No</td>
<td>Follow PCMH principles – transitional nature and small # patients have precluded actively seeking recognition.</td>
</tr>
<tr>
<td>If not a PCMH, are you affiliated with a PCMH?</td>
<td>N/A</td>
<td>No</td>
<td>Yes, LGH physicians (PCPs).</td>
<td>For a small number of SU patients.</td>
<td>We share resources and space with Level 3 PCMH.</td>
</tr>
<tr>
<td>Is your program affiliated with a family medicine residency program?</td>
<td>Yes</td>
<td>Yes, work with Lehigh Valley Health Network Dept of Family Medicine. Also involved with University of South Florida Morsani School of Medicine. Students, with two students longitudinal curriculum at NHCLV involves following/coaching SU patient.</td>
<td>Yes, The Lancaster General Family Medicine Residency Program.</td>
<td>No</td>
<td>No, though we hope to have ability for our FM and IM residents to rotate into program this coming year.</td>
</tr>
<tr>
<td>Do residents see patients in your program?</td>
<td>Residents serve as SU patients’ PCP.</td>
<td>Yes.</td>
<td>Yes. Residents will rotate through Care Connections Clinic. One fellow involved too.</td>
<td>No</td>
<td>No, though may observe this coming year.</td>
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## Appendix 1 – SU Program Comparisons

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<tr>
<th>Who are your target populations? Age, payer, conditions, utilization?</th>
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<tr>
<td>For our residency-based SU program, patients with highest use of inpatient and ER services within the Family Medicine Residency practice. For our IBC Medicare Advantage program, patients with highest spend for insur.</td>
<td>Most by referrals from three area hospitals. Also from FM Residency inpatient service, health center, OACIS, Dr. Letcher’s practice. More than 2 admissions in last six months. Complex chronic conditions with behavioral health component.</td>
<td>All payer high use patients, then dual eligible with 2 or more chronic conditions, 2 or more inpatient stays in 6 months, greater than $10,000 cost. LGH attributed patients. Age 18+.</td>
<td>Adults with 2+ inpatient stays in 6 months OR 6+ ED visits in 6 months. Criteria may vary by site. Currently, providers are blind to utilization data and payer, although we anticipate change in the near future.</td>
<td>Age: 18+, Payer: charity care, Medical Assistance, WellSpan+ (our self-insured system for employees and dependents), or self-pay. Charges: $50,000+ in hospital charges in 12 months prior to enrollment plus utilization pattern: 3 or more events (ED, inpatient or observation). Affiliation: PCP must be in practice owned by WellSpan or our affiliated providers or non PCP.</td>
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</table>

| What, if any, group of patients do you exclude? | Under 18, oncology, pregnancy, mental health only, elective surgery and surgical complications. | Patients with acute conditions or pregnancy. Hospice candidates. Try to exclude cancer and mental health only, but many referrals have these conditions. | Active Cancer diagnosis, trauma, HIV and under 18. | Currently take all payers. Considering becoming Medicare/Medicaid only OR Medicaid only. | Under 18, pregnancy, and charges related to only: catastrophic event, trauma, cancer, or strictly mental health. |

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<tr>
<td><strong>What data sources do you use to ID patients?</strong></td>
<td>Inpatient census data for residency practice, insurance patient cost and utilization data.</td>
<td>None currently. Goal is to have direct data feed from hospitals.</td>
<td>Data mining through EPIC (EMR) reports. Match to manual chart review.</td>
<td>Hospital databases.</td>
<td>Enterprise Data Warehouse – e-mail notification to team when patient comes to hospital/ED.</td>
</tr>
<tr>
<td><strong>What data do you collect about your patients on a routine basis?</strong></td>
<td>Inpatient admissions, length of stay, ER visits, admitting diagnoses, inpatient charges, costs and payments, plus anticipated losses to CKHS</td>
<td>Collect same data as Camden. Use Camden’s packet of materials for enrollment.</td>
<td>Use risk assessment metric before enrollment. Target high psychosocial risk. Lower risks referred to PCMH. Metrics the same as PCMH. Track psychosocial assessment monthly.</td>
<td>Ability to pay for meds, availability of transport, social network structure, language, PCP, psychosocial issues.</td>
<td>We document quality impact as well as utilization impact: charges, hospital visit frequency and length of stay, clinical outcomes (LDL, A1C, BP, BMI), PAM-13 and patient satisfaction survey are completed at enrollment (as baseline) and repeated every 3 months throughout enrollment, then at graduation.</td>
</tr>
<tr>
<td><strong>Where do you make first contact with a patient?</strong></td>
<td>By phone or during PCP visit. Soon hope to engage some patients during hospital admission.</td>
<td>Ideally in the hospital, but if referral is outside hospital, visit patient at home.</td>
<td>Hospital or home, depending on when identified.</td>
<td>Varies by program – at home or clinic.</td>
<td>Prefer recruitment at PCP office with warm hand off; sometimes recruit patient while in hospital.</td>
</tr>
<tr>
<td><strong>What type of provider makes that first contact?</strong></td>
<td>Physician fellow or, with IBC program, nurse case manager.</td>
<td>Transitioning to RN-led model. RN makes first contact with patient and referral source.</td>
<td>Care navigator, case manager- Then provider to provider.</td>
<td>Physician or nurse.</td>
<td>Staff reach out to health coach at PCMH then SW attends PCMH visit to recruit.</td>
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## Appendix 1 – SU Program Comparisons

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<tr>
<td><strong>How do you “sell” your program to patients? What’s in it for them?</strong></td>
<td>Acknowledge frequent hospital use, gauge level of patient frustration with hospital use, offer to help them reduce hospital use and achieve patient goals.</td>
<td>Ask how’s life going, what is working, what would patient like to change? Offer coaching to overcome barriers to care, build a network of support and ways to participate in community for improved wellbeing.</td>
<td>Have a program that can help patients with complex problems and frequent hospital use achieve goals. Participation is voluntary. Will work with patients to achieve better health and wellness.</td>
<td>Ask patients to ID barriers to care. Ask why they use the ER/hospital. Patients ID things to work on. Community-based patients: Pinnacle can coordinate services' navigate. Senior living patients: Pinnacle offers doctor availability in clinic; nurse availability during the week.</td>
<td>Added services to help them meet their goals, better accessibility and connection to many resources. Services that PCP cannot provide (home visits, navigation to specialists, have time to spend PCP does not have).</td>
</tr>
<tr>
<td><strong>How do you assess “readiness for change”?</strong></td>
<td>Currently rely on clinical judgment of team members, especially psychologists. Discuss in team huddles. Looking for a more formal instrument to use for this.</td>
<td>Based on first conversations. Start establishing goals as a way to address readiness for change. Enrollment process/Assessment consists of 4 visits with RN, research assistant and MSW to complete screenings, set goals, establish collaborative care plan.</td>
<td>Subjective measurement based on Prochaska model of change.</td>
<td>No formal instrument; use referrals, too.</td>
<td>Still looking for reliable assessment tool. Currently try to determine through review of chart and conversation with patient.</td>
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<td><strong>Do you have patients sign a care agreement (contract)?</strong></td>
<td>Yes</td>
<td>No but developing a care plan to be shared with other providers and the care team.</td>
<td>Yes, to define mutual expectations.</td>
<td>Review care plan with patient; not required to sign. Patients do sign a HIPAA release form in senior living facilities.</td>
<td>Not routinely – PCP from whom pt is recruited signs agreement to take the patient back when ready for return.</td>
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<td><strong>How soon after a hospital discharge do you plan to see a patient?</strong></td>
<td>Within 48 hours.</td>
<td>If not before discharge, visit in home within 1-2 days.</td>
<td>Real time notification of hospitalization, follow-up in Care Connections Clinic within 24 hours by provider. Can be same day home visit by navigator.</td>
<td>Senior living: Tuesday after discharge or those at high risk for readmission will be seen sooner. Plan to hire NP to do home visits for everyone within 48 hours.</td>
<td>Call or home visit by staff within 48 work hours. Office or home visit with PCP within 7 calendar days.</td>
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<tr>
<td><strong>What are different methods you use to communicate with patients? Phone, home visits, office visits, patient portal, secure video?</strong></td>
<td>Phone, home visits, office visits, patient portal.</td>
<td>Office visits, home visits, phone (including texting). Use mobile devices to communicate/enter data from field.</td>
<td>All of these. Have ability for navigators to connect with various resources by computer. Require all patients to have at least one home visit.</td>
<td>Phone, home visits, office visits, other places away from patient’s home, hospital visits.</td>
<td>Phone, home, office, patient portal.</td>
</tr>
<tr>
<td><strong>Does your program serve as the patient’s PCP?</strong></td>
<td>No, but work closely with each patient’s PCP.</td>
<td>For some but not others. Some referrals have no PCP, so the FQHC becomes the PCP. If referral has PCP, we work with existing PCP.</td>
<td>Yes, while enrolled in Care Connections Clinic.</td>
<td>Only for residency clinic patients.</td>
<td>Yes, we become temporary/transitional PCP after pt’s first appointment at our program.</td>
</tr>
<tr>
<td><strong>How do you interact with the patient’s PCP if other than in your practice?</strong></td>
<td>Consult regularly, invite to team meetings, through EMR. For IBC program, nurse case manager accompanies patients to many of their medical appointments and also meets with their physicians.</td>
<td>Work collaboratively. Primary Care Report faxed to office or reviewed face to face monthly.</td>
<td>For attributed patients, care management plan will be in EMR. Will send summary to PCP when patient graduated. Navigator will accompany patient to first PCP visit post graduation.</td>
<td>By phone or by sending electronic record.</td>
<td>Periodic letter to PCP then summary at d/c. Former PCP sees their patient in hospital if admitted while in our program if they provide inpatient care – care coordination triad from former practice (inpatient SW/RN case manager, outpatient health coach) huddles with Bridges team when patient is in the hospital.</td>
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### Appendix 1 - SU Program Comparisons

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<th>Does a member of your team accompany patients to PCP visits if you are not the PCP? Which team members accompany patients to PCP?</th>
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<tr>
<td>Yes. For residency-based SU program, the fellow occasionally accompanies the patient. For IBC program, nurse case manager usually accompanies patients to medical visits.</td>
<td>Community health worker goes to selected PCP visits. Early on RN or LPN may go to PCP appointments.</td>
<td>N/A</td>
<td>No</td>
<td>N/A – we become the transitional PCP.</td>
<td></td>
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<tr>
<td>How do you interact with patients’ specialist physicians?</td>
<td>For residency-based program, by phone, through the EMR. For IBC program, by phone, through EMR and when nurse case manager accompanies patients to their medical visits.</td>
<td>Meet with specialists while accompanying patients on visits. Best way to establish relationships with other providers is face to face. Create “Spaghetti Map” with patient to identify all specialists involved in pt care and coach re strengthening relationships.</td>
<td>Have clinic in hospital so specialists can see patients in Care Connections Clinic. Also asynchronously use phone/EMR.</td>
<td>By phone</td>
<td>Phone/EHR/ attend (“navigate”) some visits with patient.</td>
</tr>
<tr>
<td>Does a member of your team accompany patients to specialty appointments? Which team members accompany patients to specialist visits?</td>
<td>Yes, occasionally for both SU programs. In the residency-based program, the fellow will accompany to specialist visits. For IBC program, nurse case manager will accompany to specialist visits.</td>
<td>Yes to specialists and agencies. Opportunity to observe how patients communicate with providers. Can serve as patient advocate.</td>
<td>Yes, care navigator can accompany patients.</td>
<td>Yes, some times by a nurse. We want to hire an NP who could do this.</td>
<td>Yes, select specialty appts. Usually nurse/health coach or sometimes SW or provider accompany the patient to select specialty visits.</td>
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<td><strong>18. Do you do home visits routinely or just as needed? What types of staff do the home visits?</strong></td>
<td>Regularly, if the patient agrees. All members of the team have done home visits at one time or another.</td>
<td>Routine home visits a necessity. Each patient has an assigned community health worker and LPN for health coaching. Community Connector and Community Exchange liaison also make home visits or meet pt at location of their preference.</td>
<td>Routine home visits by care navigator. Other team members (SW, RN, Pharm, MD/NP) as needed.</td>
<td>As needed by RN, SW or MD. Will make routine with the addition of an NP.</td>
<td>Routinely soon after enrollment - SW and RN case manager visit pt at home. Provider tries to do at least one home visit on all patients. Follow-up home visits as needed, but less frequently as time approaches to transition back to former PCP.</td>
</tr>
<tr>
<td><strong>19. Is there a single contact person from your team for each patient? What type of provider?</strong></td>
<td>For residency-based program, usually fellow. For IBC program, nurse case manager.</td>
<td>Yes, RN</td>
<td>Yes, the care navigator.</td>
<td>A team nurse</td>
<td>No. Patients get to know all members of the team (packet with team pictures, ID to use at all visits).</td>
</tr>
<tr>
<td><strong>20. Is a member of your team available to your patients by phone 24/7?</strong></td>
<td>No. Only available during office hours.</td>
<td>No</td>
<td>Yes: Navigator/RN first call, then provider on-call backup.</td>
<td>No</td>
<td>Nurse call center is first contact, and calls Bridges physicians if patient being considered or asking to go to ED.</td>
</tr>
<tr>
<td><strong>21. Can specialists, other caregivers reach a team member 24/7?</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>22. What are your current hours that patients can see you in your program’s office?</strong></td>
<td>9-5, M-F. Some team members are available within these hours. Complete team available one day a week.</td>
<td>Patients can access team from 8-6. Service is community-based, no office hours.</td>
<td>9-6 M-F</td>
<td>8:5 M-F</td>
<td>8-4:30 M-F</td>
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## Appendix 1 - SU Program Comparisons

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<tr>
<td>Does your team provide inpatient care for your patients?</td>
<td>No</td>
<td>No</td>
<td>Physicians will not be admitting patients, but will interact with admitted patients in hospital and consult with inpatient team.</td>
<td>No</td>
<td>No</td>
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<tr>
<td>How do you assure continuity of care?</td>
<td>For residency-based program, through coordination with resident PCPs. We work with receptionists to have only assigned PCP see patient. We also try to have the team member with whom a patient has developed the strongest relationship see the patient consistently. For IBC program, nurse case manager is point person for all patients.</td>
<td>Goal is to coach patient how to work with their providers to accomplish their goals. Do coaching in the context of visits team members attend. Strengthen relationships with all key clinicians and support organizations.</td>
<td>By being patient’s PCP, working with inpatient services and long-term care.</td>
<td>This is one of our struggles. Nurse navigator’s role is to coordinate with various providers and the team members. SW coordinates with agencies.</td>
<td>By becoming patient’s PCP. We monitor inpatient notes and call inpatient medical and care management team to coordinate care. Goal is to visit patient and inpatient team at least once during each admission.</td>
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<tr>
<td>Do you have a shared care plan that you establish with your patients?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes, developed at first visit – with special template in health record – specialists and other PCP can access in hospital and outpatient electronic record (weekly care plan review can result in update).</td>
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<tr>
<td>Is the care plan available to other providers?</td>
<td>Yes through EMR.</td>
<td>Yes</td>
<td>Yes through EMR.</td>
<td>No</td>
<td>Yes through EMR.</td>
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<tr>
<td>How do you interact with social service agencies for your patients?</td>
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<tr>
<td>By phone. Invite to come to team meetings.</td>
<td>MSW may reach out to the agencies a patient is using or needs to use. Then community health workers go with patients to agencies.</td>
<td>Through County Social Service liaison in clinic. Also developing regular meetings with various county and non-profit agencies to address super-utilizer phenomenon and possible community-based solutions.</td>
<td>As needed by SW.</td>
<td>Closely. SW is main point of contact as well as health coach. Also meet routinely at our monthly Community Care Coordination meetings. Piloting embedded County Human Services Case Manager.</td>
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<th>How do you educate FM/IM residents about high utilizers?</th>
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<tr>
<td>Monthly case conferences with residents and medical students. Quarterly lecture series. During rotation at residency practice, spend time with SU team.</td>
<td>Formal presentations, elective rotations, communication with inpatient hospital service.</td>
<td>Case discussions during residency block curriculum, Residents will rotate through clinic, and can develop an area of concentration in Care of Complex Patients. Care navigator sits in on rounds with resident and inpatient team while patient is in the hospital.</td>
<td>Through IM residency clinic.</td>
<td>No formal process yet – hoping to initiate residents rotating into Bridges to observe or have them attend monthly Community Care Coordination Meetings. Piloting college intern involvement with patients.</td>
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<tr>
<th>What is your target # of patients to recruit? How many do you have now?</th>
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<td>For residency-based program, initial target was 5. Currently have 3 with one more in process. For IBC program, goal is 10. We currently have 5 with 2 in process.</td>
<td>Goal is 250 pt over three years, currently served 70 with approx. 40 graduated.</td>
<td>Target for first year of clinic is 200-400 by year two. Clinic just started.</td>
<td>No specific target.</td>
<td>Met target of 100 recruited to date. 55 patients currently enrolled.</td>
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## Appendix 1 – SU Program Comparisons

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<tr>
<td><strong>30</strong> What do you do to engage patients in their own health decisions?</td>
<td>Motivational Interviewing, helping them become their own advocates rather than doing things for them.</td>
<td>Relationship Centered Care Model: First step to develop connection, communication &amp; trust with patient. Help pts identify unconscious bias, build resilience to bias in communication. Develop goals with patients so they can talk about them when they visit providers. Developing materials that patients can bring to appointments to facilitate communication.</td>
<td>Use empowerment model. Start by asking patients what their goals are. Care navigator in conjunction with SW help patients work towards goals.</td>
<td>Start with what they see as a problem, what they are interested in. We get more traction with SU patients when they have some social structure/family to participate in decisions.</td>
<td>Patient goals in Shared Care Plan reviewed regularly. Try to never make decision for patient – try to make jointly and sometimes with family. Team training in motivational interviewing.</td>
</tr>
<tr>
<td><strong>31</strong> How many patients have you worked with to-date?</td>
<td>15</td>
<td>30</td>
<td>40 during pilot program. 53 in Care Connections in first 6 months.</td>
<td>Senior Living: 70+ patients in clinic but only 17 SU's; not all in clinic want to participate. IM Residency: 20. ED: 10</td>
<td>12 in original pilot. 100 in Bridges since Sept 2012 inception. 55 patients currently enrolled.</td>
</tr>
<tr>
<td><strong>32</strong> What is the biggest challenge in meeting your recruitment goals?</td>
<td>Data pool not large or comprehensive enough to give picture of entire SU population. Patients who are not willing to fully engage. Time constraints due to limited provider time dedicated to SU patients.</td>
<td>Need real time data feed from hospitals. Don’t have internal capacity for data analysis yet. Expanding to accommodate increase rate of referrals.</td>
<td>Don’t have payment arrangements with any payers.</td>
<td>Senior Living: Patients concerns about program having access to all their records. Otherwise, patients who are not motivated to change.</td>
<td>Intensity of existing patient panel makes it hard for team to devote time to recruitment of new patients. High attrition rate between potential patient identified and actually enrolling patient (PCP or Pt declines, Pt misses appt).</td>
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### Appendix 1 – SU Program Comparisons

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<th>What are the criteria for “graduating” from your program?</th>
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<td>For residency-based program, reduced use of ER and inpatient services. Reduced utilization level must be sustainable when patients graduate to typical, less intensive PCMH. For IBC program, there is no graduation per se; instead, study may end after 1 year.</td>
<td>We use a care plan to determine if patient is able to accomplish their goals and reach out for help from community and family.</td>
<td>Psychosocial risk improved. Met at least 50 percent of care plan goals. Reduction in hospital utilization. Able to return to original PCP.</td>
<td>No formal graduation. When ED use reduced and patient connected to a PCP, has a home, then we don’t review weekly but keep on list.</td>
<td>No formal utilization decrease goal per patient – when they maintain decreased utilization with a level of intensity that can be maintained by former PCMH, and pt goals met, then discuss transition back to former PCP.</td>
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| How many patients have left your program/practice other than by “graduation”? Voluntarily? Dismissed? | 2 patients were not fully engaged. 1 patient left voluntarily. 1 patient died. | 1 to hospice, 1 dropped out, and 1 moved to Philly. Three have died. | 10-15 percent left voluntarily because never really engaged. If patients don’t connect or keep appointments, we will not actively engage, but keep on “watch” list. | 2 moved, 1 dropped out, Do not formally dismiss but will not work actively with those who are not engaged. | 4 left without organized transition. 5 have died. |

| What measure(s) do you use for outcomes? How do you define success? | Rate of hospital utilization reduction. | Decreased hospital utilization (as soon as we can get hands on the data). Patient meets goals. | Fulfillment of care plan, quality measures, psychosocial risk improvement, at least 15 percent reduction in costs to hospital. | Lower ED use. At senior living: decreased refusal rate. Will add diabetes measures soon. | Utilization of inpatient, observation and ED visits. (overall goal for program is 30% decr) also meeting patient’s shared care plan goals. |

| If you measure “cost savings”, for whom are costs saved? | For residency-based program, we look at losses for the health system. For IBC program, we look at costs to the insurer. | Could be hospital or payer. | LGH or payer. | Do not measure. | Cost saving to WellSpan (our target payers are low reimburse-ment-Medical Assistance, self pay, charity or our own employees and their dependents.) |
## Appendix I - SU Program Comparisons

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<td><strong>How do you measure patient engagement?</strong></td>
<td>Willingness to allow home visits, returning calls, keeping appointments.</td>
<td>None yet. Tried PAM but has not worked well. Subjective.</td>
<td>Subjective measure, e.g., answering phone, keeping appointments, working on care plan goals.</td>
<td>Do not measure.</td>
<td>Using PAM-13 but still determining its usefulness.</td>
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<td><strong>Do you consider community engagement a core outcome of your program?</strong></td>
<td>Not yet. Hope to develop in the future when we have more staff.</td>
<td>Yes.</td>
<td>Yes.</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>How do you measure community engagement?</strong></td>
<td>N/A</td>
<td>Through the Community Exchange (hours of service) Document developing networks from exchanges. Will develop more qualitative measures. Also want to track accomplishment of patient goals. Use spaghetti maps of connections for each patient for medical care, crisis care, spiritual and emotional well-being. Want to see map change over time away from medical and crisis care towards spiritual and emotional well-being.</td>
<td>TBD – Developing a lay health worker program and time bank.</td>
<td>We don’t have a measure yet.</td>
<td>We don’t have a measure yet.</td>
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<td><strong>How often do you review your outcomes data as a team?</strong></td>
<td>Weekly review of utilization.</td>
<td>Do not have data to review yet.</td>
<td>Monthly</td>
<td>Senior living: monthly call with site owners; Weekly review of all cases in all sites.</td>
<td>Monthly</td>
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### Outcomes

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<td><strong>To whom are you primarily responsible for the outcomes of your program? (institutional reporting relationship?)</strong></td>
<td>Residency program, accountable to residency program director, chair of FM, executives from the system’s physician network. In the future we will report to the chair of family medicine and the COO of the health system. For the IBC program, accountable to IBC physician executive.</td>
<td>Rutgers through CMMI grant.</td>
<td>The population health/innovation senior leadership team of LGH.</td>
<td>WellSpan senior leadership. Direct reporting to Medical Group – matrixed reporting to Population Health.</td>
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<td><strong>Do you consider leveraging learning from your SU program to achieve broader health system change a key goal of your program?</strong></td>
<td>We planned from the beginning to develop a successful pilot program that would motivate the health system (CKHS) to develop a larger, fully-staffed SU program.</td>
<td>Yes. Develop community solutions for community problems, rather than from health systems. Be catalyst for hospital collaboration and data sharing. Promote integrated behavioral health model.</td>
<td>Yes, we have already seen that. Processes we put in place are applicable to other parts of system.</td>
<td>Yes – share patient barriers with senior health system leadership.</td>
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<td><strong>If so, how do you disseminate your learning? To whom?</strong></td>
<td>Stakeholders and payers at annual SU conferences; at system’s annual Quality Retreat. Residents and staff through case conferences and lectures. Fellows presented to the Society of Teachers of Family Medicine, Collaborative Family Healthcare Association, Aetna Foundation, FMEC, SU Learning Community, and the South Central PA collaborative.</td>
<td>Currently through the South Central Collaborative. Also Rutgers CMMI HCIA group, PCMH learning collaboratives. LVSUP hosted a community dialogue about partnerships for good care in November with approx. 60 participants from three area hospitals and various community agencies. Health Care Council of the Lehigh Valley.</td>
<td>We are connected internally to our health system, including case management, PCMH development, Community and Wellness and LG medical staff. We are redefining IT. Steering committee with hospital and county leadership will meet regularly to review any lessons learned. Connected regionally and nationally (SCPAHU, FMEC and STFM).</td>
<td>Primarily through Collaborative. Administration at Pinnacle getting interested because want a Medicare shared savings contract. Also do case presentations in the hospital, nursing grand rounds, to congregations and other senior living facilities.</td>
<td>Medical Group and Population Health Leadership group presentations. Frequent presentations by Bridges and other WellSpan leadership at internal and external meetings and to media. Periodic newsletter to stakeholders highlighting outcome data and patient stories.</td>
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## Appendix 1 - SU Program Comparisons

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<td><strong>What do you consider to be your program’s strengths?</strong></td>
<td>Funded fellowship program in conjunction with the Camden Coalition of Healthcare Providers which is why we are able to work closely with Jeff Brenner and his experienced team. Other strengths include our multi-disciplinary approach, shared space with patients’ PCPs, and the educational component for residents and medical students.</td>
<td>Community engagement and connection.</td>
<td>Fully supported program by health system leadership and county leadership. Direct relationships within community resources already established. High level of care coordination, including home visit, 24-7 access and open-access scheduling.</td>
<td>VP Mission Effectiveness (Community) in hospital is well-known and well-liked in community which helps us engage community groups. Hospital’s community engagement work is very robust. Hospital serves 90 percent of the underserved population. Pinnacle is the primary provider in Harrisburg. Program has good team. Open to experimentation and innovation. SW is very experienced and knows everyone.</td>
<td>Our team—creative, compassionate, truly patient-centered. Part of a system that not only fully supports our project but is engaging in PCHM and system-wide care management re-design. Increasing partnerships with community agencies.</td>
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<td><strong>What do you consider to be your program’s weaknesses?</strong></td>
<td>For the residency-based program, lack of staff dedicated solely to SU Program. Dependence on residents, interns and students to do much of the work. Fellows, residents and other students leave, requiring us to reconstitute the team, train team members, and introduce SU patients to new team members.</td>
<td>Data</td>
<td>Availability of cost data. Physical location in hospital may lead to us being confined by hospital regulations, ICHAO etc.\ No payer relationships.</td>
<td>Not integrated into the hospital system. Need behavioral health resources. Few of the team can work full-time on the SU program. Need access to more data. Don’t get real-time notification of hospital admission.</td>
<td>Need to standardize more of our work. Continue to apply lean principles to our efforts. Despite much effort-data analysis remains a challenge.</td>
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<td>How would you like to modify your program in the future?</td>
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<td>WellSpan</td>
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<td>Expand program to SU patients of all CKHN physicians. Focus may change to system financial losses or specific payers or specific location, i.e. Chester. Need to develop more rigorous data collection. Need more FTEs dedicated to SU work.</td>
<td>Getting referrals from hospitals at time of admission. Developing a care plan structure. Data feeds from hospitals. Expand second team (coming this spring). Teams credentialed with all hospital networks. Formalize integrated behavioral health. Standardize enrollment and preparation for commencement to streamline process. Outcome data would be really nice.</td>
<td>Continue to make program more mobile &quot;provide care where the patients are&quot;. Become less dependent on the bricks and mortar requirements. Introduce other insurance programs (Medicare and Commercial). We would like to include persons that are not attributed directly to Lancaster General Health outpatient providers, to whom we care for on an inpatient basis (i.e. patients of our local FQHC).</td>
<td>Have NP to do home visits, med reconciliation, work with PCPs. Add health coach. Also need behavioral health and pharmacy support. Working with hospital to get funding for these resources to build a larger, coordinated team. Focus on Medicaid and/or uninsured populations.</td>
<td>Piloting college interns (nursing and human service) to increase non-medical intensity with patients. Piloting embedded County Human Services Case Manager and increasing collaboration with our complimentary medicine unit especially around chronic pain. Need to increase availability of substance abuse services for a significant number of our patients.</td>
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| Do you have a formal mechanism for incorporating patient/family input into the development of your program? | Not yet. | Not yet. May involve "graduates" in community organizing. Two graduates completed Digital Story. Citizen Health Care Model being used with one group of patients with chronic pain. Patients play major role in upcoming community summit. Develop this event together, promote participant ownership of project. Initiative for Spring 2014, develop patient Advisory Council. | Formalized community advisory council. | No. | No. We don't have a mechanism other than patient experience survey. We desire to have more input. |
SU PROGRAM POTENTIAL BENEFITS AND CORE ELEMENTS

Potential Benefits

A Super-utilizer program is a focused, data-driven, high-intensity, patient-centered program that provides inter-disciplinary team care coordination, helping patients navigate the health and social service systems in the community, and empowering patients to assume responsibility and advocate for their own health.

Super-Utilizer Programs Can Improve Lives: Super-utilizer programs enhance the patient’s ability to solve problems through critical decision making and deepen the patient’s commitment to personal responsibility, community investment, partnership with a team, and personal wellness. The patient becomes a key member of the team who defines and directs personal goals for health care empowerment.

Super-Utilizer Programs Can Enhance Primary Care: Patients with high complexity illnesses frequently slip through the cracks of traditional patient-centered medical home (PCMH) primary care settings without receiving the proven benefits of primary care. They tend to lack the tools, often through no fault of their own, to interact successfully in the primary care environment. Through coaching and motivational interviewing, super-utilizer programs teach the tools people need to become effective managers of their own health in the PCMH setting. Super-utilizer programs help primary care offices work more efficiently by coordinating care for high-utilizing patients, thus opening up capacity in the primary care practice to focus on patients with lower levels of risk, and potentially decreasing provider and staff burnout.

Super-Utilizer Programs Can Enhance Specialty, Behavioral Health Care and Social Service Effectiveness: Super-utilizer patients are more likely to miss appointments and to have the complexity of their situation lead to frustration, confusion and inefficiencies for the specialists, behavioral health, and social service professionals involved in their care. By helping develop a coordinated care plan that the patient is committed to, making sure this care plan is communicated to others involved in the patient’s care, and possibly “navigating” specialty, behavioral health or social service appointments along with the patient, super-utilizer programs improve the experience of those other professionals. In addition these members of the patient’s care team – especially behavioral health and social service – have key insights into the patient’s circumstances that are often not communicated to the primary care provider.
Super-Utilizer Programs Can “Bend the Cost Curve”: Data show that super-utilizer programs decrease the costs of the most expensive aspects of their patients’ care – inpatient admissions and total inpatient days. Given the medical complexities of super-utilizer patients, it is likely that they will consume more health care resources than the typical patient. All payers, but particularly Medicare and Medicaid, are urgently trying to find innovative programs that improve patient’s health while decreasing costs. Growing evidence shows that super-utilizer programs can deliver on that goal.

Super-Utilizer Programs Can Sustain Healthcare Transformation: Super-utilizer programs engage with healthcare and community systems proactively to build solutions when systems fail our most vulnerable patients. By coordinating among primary care, specialists, hospitals, and social service agencies, super-utilizer programs facilitate communication between clinicians, decrease duplication of services, and clarify-patient centered goals to guide care. Lessons learned from work with super-utilizer patients can create sustainable change throughout the broader health system to equip patients and practices to function more effectively and efficiently.

Super-Utilizer Programs Can Build Community: Super-utilizer programs work with community organizations to identify community assets and infrastructure gaps that impact patients’ ability to succeed to direct their care. As community builders, SU programs can create healing environments where people can care for each other, providing pragmatic approaches to the gaps in healthcare and social service systems. Community organizing brings us together with community leaders to call out the processes that do harm and lift up community solutions.
Appendix 2 – Benefits and Core Elements

CORE ELEMENTS

The five super-utilizer programs of the Collaborative aim to include the following elements in their work, although no program has achieved all of these elements yet:

1) **Intensive team-based and relationship-centered care**
   a. Whole-person approach that integrates behavioral, social, and physical health through healing relationships based in trust and empowerment
   b. Inter-disciplinary meetings to create a care plan directed by patient goals
   c. Coaching and motivational interviewing that supports development of life skills and provides the framework to identify patient goals that focus the work of the care team.
   d. High frequency of encounters determined by patient needs and goals, often multiple times a week
   e. Support for writing patient health stories that help them thrive.

2) **Outreach**
   a. Home visits by members of the inter-disciplinary team
   b. Comprehensive and holistic assessment in the home environment of social, spiritual, physical, and environmental assets and strengths that contribute to quality of life and barriers to achieving patient goals
   c. Advocacy for individual needs of patients within the health care system, the local community, and on state and federal levels

3) **Coordination**
   a. Accompanied visits to hospital, specialist and primary care sites to develop a shared understanding of the care plan and support self-advocacy
   b. Shared Care Plan, proactively shared by the super-utilizer program with other health system/social service providers
   c. Around the clock access to the team for patient and other clinicians to draw on the team’s knowledge of the patient, a shared care plan, and the patient’s trust in the team
4) **Foundation in high quality, shared data**
   a. Real time data-driven, standardized patient identification
   b. Real time data about the patient and patient goals available to clinicians at the point of care
   c. Integrated, shared data (outpatient – inpatient) to demonstrate decreased cost across systems
   d. Data to demonstrate quality of care and outcome measures, including activation at patient, practice and community level

5) **Community Engagement**
   a. Proactive engagement with community based organizations that support the care of the patient
   b. Support for patient engagement in community as active participant in solving problems
   c. Community partnerships to build a healing environment that nurtures and supports our patients (examples include involvement in community organizing and volunteer time banks)
   d. Shared learning and constructive feedback with the broader health system and community to assist in the process of improving care for all in the community
Appendix 3 – Program Updates

NEIGHBORHOOD HEALTH CENTERS OF THE LEHIGH VALLEY

Lehigh Valley Super Utilizer Partnership and the Neighborhood Health Centers of the Lehigh Valley The Lehigh Valley Super Utilizer Partnership (LVSUP) and the Neighborhood Health Centers of the Lehigh Valley provide intensive outreach and care coordination for patients with complex illness who have been admitted to the hospital two times in the past 6 months, have 2 or more chronic conditions, and take 5 or more medications. Through an intensive coaching model, a team of nurses, one social worker, community health workers and a community engagement staff guide patients along their individual paths to wellness and towards a decrease in hospitalizations. Our program is currently funded through a Health Care Innovation Award via the Center for Medicare and Medicaid Services. The LVSUP is one of four sites across the country who are sub-recipients of this grant through Rutgers University. From December 2012 to present, the LVSUP has served 86 patients, with a goal of serving 125 patients by the end of June 2015. Patients have different lengths of enrollment in the program based on when they are considered ready for graduation by the team, with successful goals met of decreased hospitalizations and progression towards wellness in the physical, mental, and spiritual realms. Some patients have graduated in as little as 4 months, while others have stay enrolled in the program for more than 1 year. Out of 86 patients served, 44 have graduated to date, 22 are currently enrolled, 6 have died and the small remainder have left the program or been lost to follow-up.

The LVSUP patients are very diverse, but share a common challenge of extremely high-complexity medical and social services needs. We have served approximately equivalent numbers of men and women. Only half are white, with the rest being a mix of different races. Half of the patients identify themselves as Hispanic or Latino, and many speak only Spanish. Interestingly, of the total patients served, almost 20% have been under the age of 45. The majority of our patients, 44%, have Medicaid, with the other patients’ insurance status a mix of some form of Medicare (43%) and uninsured (6%). Only 1% of our patients have had commercial insurance. Our patients’ average number of chronic conditions is five and many take more than 5 medications daily.

We have just recently begun to get data, as of September 2014, from one of our three hospital systems that feed into the program. This is a major step forward for our program and will allow us to analyze utilization and success of the program, as well as to begin the process of targeted referrals based on actual admissions. We are continuing to work with the other two hospital systems and hope to have their data soon.
Preliminary analysis of our data is exciting. Though we cannot describe full details of the data until we receive all three hospital data sources, our analysis thus far shows substantial decreases in hospitalization rates post-graduation from our program. Multiple patients have a record of 10-20 hospital admissions prior to the start of the program and zero or one admission post-graduation. We look forward to continuing to investigate our new data and report our total findings soon.

The intense level of involvement that LVSUP can have with its high-complexity patients is one of its biggest strengths but also creates challenges. The level of involvement that is needed for some high-utilizing patients, who cannot graduate until they participate in more than one year of intensive support and community engagement skill-building, creates questions about financing options available to sustain this type of program. We are currently investigating our data to see what patient characteristics lead one patient to be able to graduate sooner compared with another patient who needs longer support. We are excited to uncover which aspects of our program may be replicated across the country for this highest-complexity subsection of the super-utilizer community. We look forward to continuing to provide high-level intensive support to all of our patients through the program as both political, insurance and financing environments continue to progress towards recognizing and valuing super-utilizer programs.
Appendix 3 – Program Updates

Bridges to Health (BTH) Outcomes – Encounters
ALUMNI – PATIENTS ENGAGED FOR 3+ Months
(n=51)

Patients who are no longer engaged with Bridges but had been engaged for 3 months had decreases in ED, Inpatient and Observation encounters compared to their historical baseline. This decrease continued after “graduation” for Inpatient and Observations. NOTE – Encounters are PER 1000 Members PER month (for national comparison).

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(n=51)

Patients who are no longer engaged with Bridges but had been engaged for 3 months had decreases in ED, Inpatient and Observation encounters compared to their historical baseline. This decrease continued after “graduation” for Inpatient and Observations. NOTE – Encounters are PER 1000 Members PER month (for national comparison).
These are CHARGES per member per month (as opposed to per 1000 members for encounter data). Patients who are no longer engaged with our Bridges but had been engaged for at least 3 month had decreases in Inpatient and Observation charges compared to their historical baseline. These decreases continued (actually even lower) after Bridges “graduated” the patient. Smaller increases were seen in ED charges. These were dwarfed in comparison to charge decreases in Inpatient.

These are CHARGES per member per month. Patients who currently engaged with Bridges for at least 3 month had decreases in Inpatient and ED charges compared to their historical baseline. Small increases were seen in Observation charges.
Appendix 3 – Program Updates

What is the current (9/6/2014) status of WellSpan Bridges to Health?

- 106 patients enrolled since inception Sept 2012
- 47 current patients
- 6 patients deceased
- 48 patients transitioned back to Primacy Care Provider
- 5 patients left program without organized transition

What is this data?

- Outcome data
  - Charges – for WellSpan as provider only – Inpatient, ED, Observation only (per member per month)
  - Encounters – WellSpan as provider only (per 1000 members per month)
  - Patients as their own historical control
- Patients included in analysis
  - At least 3 months of engagement with Bridges
  - Deceased excluded

What is the overall take away from this data?

- Bridges to Health has a significant impact on decreasing inpatient utilization
  - 24% for encounters
  - 60% for charges
- Decrease in inpatient utilization is maintained post re-integration with a traditional Patient Centered Medical Home
  - 36% for encounters
  - 48% for charges
- ED and Observation outcomes are more variable
  - Some decreases in sub-analysis
  - Some increases
  - Absolute changes in ED and Observations are dwarfed by decreases in inpatient utilization

What is next in terms of outcome analysis for WellSpan Bridges to Health?

- Explore including outpatient charges in evaluation
- Sub-segment population – with whom is Bridges most successful?
- Explore propensity matched controls
About the Highmark Foundation

The Highmark Foundation is a private, charitable organization of Highmark Inc. that supports initiatives and programs aimed at improving community health. The Foundation’s mission is to improve the health, well-being and quality of life for individuals who reside in the communities served by Highmark Inc. The Foundation strives to support evidence-based programs that impact multiple counties and work collaboratively to leverage additional funding to achieve replicable models. For more information, visit www.highmarkfoundation.org.