INSTITUTE FOR HEALTHCARE IMPROVEMENT

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SUMMARY REPORT: 90-DAY PROJECT

Complex Patients

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I. Research and Development Team:

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II. Intent:

The goal of the work is to better understand complex patients and how to support them on their health journey leading to better outcomes and less total cost.

III. Background:

Complex individuals are the small percentage of patients who make up a large percentage of the total health care cost. Typical numbers for a population are: 1% spends 25%, 5 % spends 50% and 10% spends 70%. However, in one major health system 1% of the patients spent nearly 36% of the money.

In the Triple Aim community we have a workgroup that has worked on this topic for the last four months. Here are some of the observations to date**:**

- Evidence is that our 'usual' medical system does a poor job of meeting their needs. Major issues where we currently fail most high utilizers are: fully understanding the complexities of their situation, poor ability of the system to coordinate across all services and boundaries, and poor ability to educate and support social systems to provide primary support.
- Emphasis on not blaming, but rather on understanding and finding effective approaches.

The workgroup did work around segmentation, trying to answer the following questions:

- What screening tools are being used and found helpful?
- What segmentation has been found to be helpful?
- How has segmentation of this population helped craft effective interventions?

The group identified many screening tools. Identification of people as being high utilizers is useful. It's questionable if further tools are useful to segment further.

The initially proposed segments were the following:

- Complex multiple medical diagnosis – office based with expanded community support - maximizing self care - program-Expert Patient
- Addictions – Specialized facilities and teams
- Mental health – specialist nurses in the community – medical practice coordinated
- Homeless – housing before able to do much else, more social work key in this population
- Elderly with Dementia - home and family based
- Depression - psych aspects of ability to cope
- High Dependency/Passivity/Isolation

The majority of the workgroup members felt that it would be good to simplify the groups into three:

- Mental Health
- Social Instability
- Medically Complex

If the goal is to meet people where they are and fully understand their need, then a model which would effectively design support on a case by case basis would be helpful. It would focus on coordination across boundaries and moving locus of control to individuals/families.

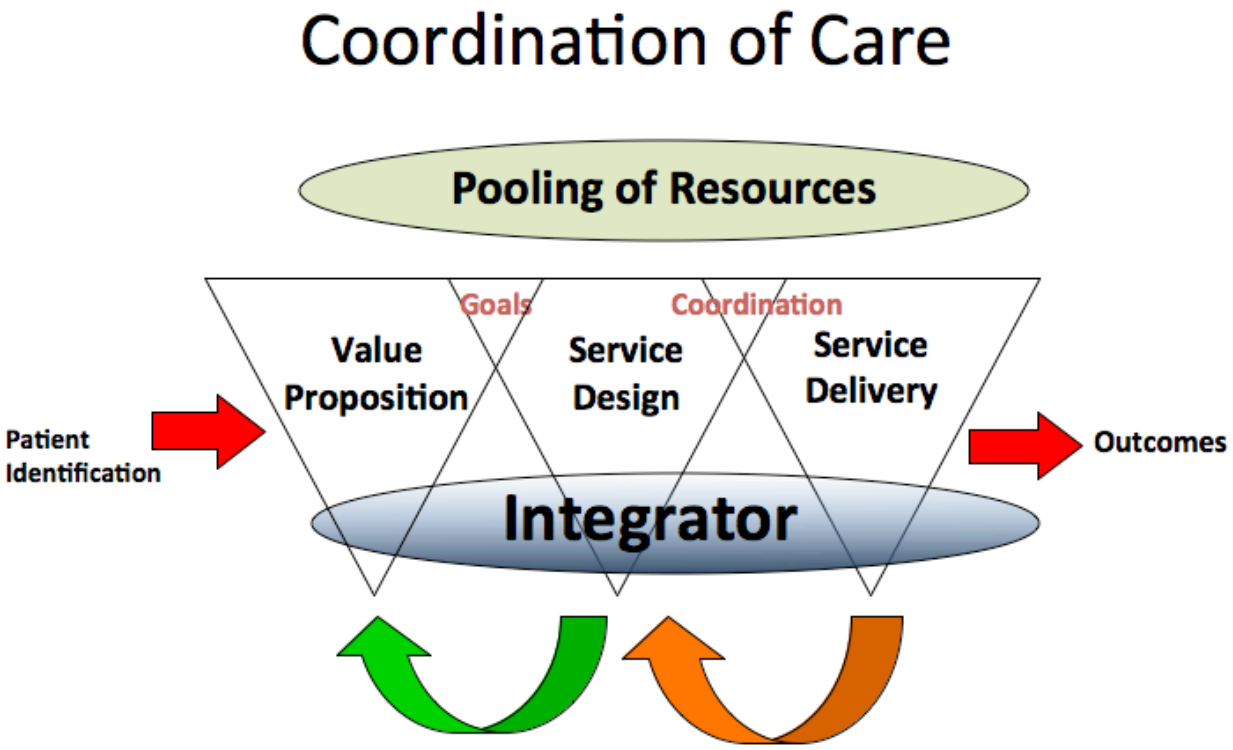
IV. Description of Work to Date:

The deliverables for this project would be to: Apply this model to complex patients - Identify the effective interventions --- and even more importantly – the common elements – the 'must-do's' – of successful interventions – that can be replicated across locations and systems. We want to take this model and figure out the details for how we would apply it to complex patients.

V. Results of the 90-Day Scan

The following model was used during this R and D cycle (figure 1). It is to be used in situations in which you need to develop a customized approach for an individual. If 1% of the population in the US is spending 500 billion dollars, based on a total US spend of 2 trillion dollars for health care, then each person in that population is spending about $183,000 in a year. With spending at that level a unique design can be used.

Figure 1



This model comes from Dr Tom Nolan.
"The framework contains three interlocking components held together by an integrator.
Value Proposition: Reach agreement on the intent of the service with the team of providers and the beneficiaries.

Service Design: Define the components of the service and how they will interact to provide the service. Take into account the unique situational factors of the beneficiaries.

Service Delivery: Design and execute processes that provide efficient and effective collaboration among the providers in pursuit of the goals." (For more details see the R and D final paper **Failure-Free Operation Over Time (Reliability) February 5, 2007)**

The asset pool in this model refers to the resources the individuals bring to their situation along with the resources of the health team. The integrator is someone who will work through the value proposition, service design and service delivery for the individual patient to produce a level of customized service for the individual. Since at least the health team asset pool is known you should be able to apply this model in a mass customized way. The integrator will need to monitor how well this design is working for that patient. The red and green feedback loops represent the monitoring that the integrator will be doing.

During this work some discussion was held on the various types of integrators.

Integrator Models outside of Health Care:

- "Building Model" General Contractor
  - Has purchasing and coordinating power
  - Very strong role with specific skills
  - Independent person directing care in response to the client (patient/family)
- "Finance Model" Financial Advisor
  - Expert advisor connecting client to resources
  - Companion navigating difficult choices and systems

The question is who can be a personal integrator for health?

There are basically two challenges with complex patients: can you identify them and can you do anything which will help them? We will try to illustrate the use of this model from several examples that are being used among Triple Aim sites.

The examples basically follow this pattern. A predictive modeling tool is used to identify a high risk set of patients. The modeling tool is based on past hospitalization and sometimes on other patient characteristics. Every member of the population is scored with this tool and based on their score the at risk patients are chosen. That is the first challenge, identify the patients. The next challenge is to be able to do something that makes a difference. The approaches are to wrap either a case manager or a multidisciplinary team around their usual care, embed case management into the care team or take care away from the usual providers and place it in the hands of a specialized team.

Even if you can identify high risk individuals and do interventions for these individuals that improve their health and care, can you do it in a cost effective manner? The creation of special teams is costly. One large integrated system was able to show a cost effective reduction by the use of a multidisciplinary team including a physician who made home visits. The model resulted in approximately a 20 to 30% reduction of hospitalization and a 10% overall cost reduction. But even with good results like this they still had concerns that they could not scale up this model.

Some of the key learning's from this integrated system:
1. Predictive modeling works.
2. Primary care must be effective (Physician led).
3. Need strong care transitions and palliative care interventions
4. Need interdisciplinary team with psycho-social skills
5. Medication management is key.
6. Ethnography is a powerful tool.
7. Understanding of patient needs and patient engagement is critical.

8. Balancing the cost of the intervention with the size of the target population is tricky. It's hard to identify the "top 1%", and it's expensive to intervene on too many people.
9. It's difficult to sell and scale new operating models of care.

The Croydon Primary Care Trust, in the UK, developed a Virtual Ward model in May 2006 to deploy the systems and staffing pattern of an inpatient unit to deliver home-based care. Staff meet daily to coordinate care and calibrate services to meet patients' current needs, transferring information between the general practitioner in the community, the multidisciplinary care team, and the patient. The team works together to assist patients with complex care needs with the ultimate treatment goal of re-connecting patients back to the care of the General Practitioner. This work was supported by a predictive modeling tool, which identified the complex patients in a population of approximately 30,000. This results in a potential pool of approximately 300 people. Again the idea behind this work is identification and intervention of complex patients.

The Hospital to Home (H2H) program is a three-year grant-funded frequent users initiative based at Bellevue Hospital in New York City. H2H mirrors the Virtual Ward model, with the development of a multi-disciplinary Care Management Team (CMT) based at the hospital providing comprehensive outpatient care and a predictive tool to identify individuals who might benefit from this support. Bellevue leads the initiative with additional CMTs based at each of two other safety net hospitals. The CMT is led by a licensed social worker and includes a dedicated PCP, Community-Based Care Managers (CBCMs) providing case management and patient navigation services, and a housing coordinator placing patients experiencing homelessness in housing. The CBCM serves as the patient-level integrator, with caseloads of up to 25 patients and either a bachelor's degree or life experience that qualifies them to address patients' complex needs. In addition to a dedicated Primary Care Physician, patients are offered links to mental health and substance abuse treatment, assistance with transportation and other concrete needs, health and nutrition education. Patients who are experiencing homelessness are connected to a community-based homeless services provider to assist in placement in permanent housing.

The CMT is a model of coordination at multiple levels: data sharing agreements between the state Department of Health, city government health and homeless agencies and the safety-net hospital; a subcontracting agreement with a community-based organization to offer aforementioned housing placement services; weekly CMT meetings to troubleshoot care and monthly meetings with CMTs of partner hospitals to address system issues and share success stories and integration strategies. Perhaps most importantly, CBCMs coordinate care uniquely with each patient and serving as the patient's key resource on the CMT. CBCMs meet weekly with patients to identify their health and life goals, align services to meet those goals and assure that services are delivered in spite of obstacles to care. CBCMs begin their work by addressing the patient's stated need, recognizing and building on patients' strengths. Throughout the care plan, CBCMs advocate for patients with medical and other service professionals, prepare patients for appointments, troubleshoot obstacles and accompany patients to care when needed.

To better understand the integration work that the CBCMs carry out, we will briefly illustrate an individual patient's experience and apply to her experience the care coordination model developed by Dr. Tom Nolan. The patient, who we will call Mary, lives with very complex circumstances and has a myriad of health, mental health, substance abuse, and social needs. Mary, like many individuals who struggle to access services in the complex and fragmented health care system, fits all of the Socially Complex workgroup's 3 different patient categories: medical complexity, social instability and mental health needs. She is in her early 40s and completed the 7th grade, is fluently bilingual with Spanish and has a work history spanning a decade, with experience bartending and as a grocery store clerk. She has shared with the CBCM team, in small pieces, a life story interwoven with traumatic events beginning with repeated childhood sexual abuse and a series of incarcerations related to aggression and drug use, most recently in August 2008. Her apartment was destroyed by fire in May 2007, since then she has lived in the NYC homeless shelter system with little communication with her sister or her own children.

In August 2009, Mary received an invitation letter in the mail explaining the H2H services and inviting her to call to inquire and join the program. The H2H program sends invitation letters to individuals who have fee-for-service Medicaid and who were identified by a predictive algorithm as potential very high users of Medicaid based upon use of hospital-based services in the previous 3 years. Mary's name was one generated by the predictive algorithm.

Mary shared the letter with her counselor at the Methadone Maintenance Treatment Program she attends 6 days per week, and after completing the call came in for an initial appointment. She was enrolled in the program in the last week of August 2009, and upon enrollment stated that her goals were to be able to walk (she struggled with a swollen ankle and knee issues and ambulates with a cane or walker and sometimes uses a wheelchair) and to move out of the shelter.

In the first few weeks of working with Mary, the CMT became aware of many strengths: she has a warm connection with her MMTP counselor, access to shelter, a work history and current steady income through SSDI, and insight into her life trauma, her health needs, and the links between them.

Her health diagnoses include: a) chronic health issues: Type 1 diabetes, arthritis, hepatitis B, chronic bronchitis and asthma; b) acute illnesses: pneumonia, pain, cellulitis, obesity; and c) mental health and substance abuse diagnoses: adjustment disorder with depressed mood, Cluster B traits, and cocaine dependence. Her first psychiatric hospitalization was at age 14 and she was most recently hospitalized over ten years ago in 1997.

H2H offers a myriad of services: PCP, motivational interviewing, supportive counseling, assistance in accessing specialty care, links to mental health treatment, support in addressing substance abuse, health education, food and nutrition support, housing placement assistance, provision of personal cell phones, and access to transportation. The CMT team decided with Mary that the first services she would participate in are primary and specialty care, concrete supports

including help accessing transportation and her own new cell phone, supportive counseling and housing placement support. Mary's CBCM has ensured that each of these services are delivered: arranging referrals, calling Mary to remind her of appointments, preparing her for discussions with medical professionals, and exploring with her motivation to improve her health. Mary has struggled with a tenuous and sometimes adversarial relationship with shelter staff, and the CBCM and housing placement specialist have advocated on Mary's behalf; the CBCM has also worked closely with the MMTP counselor with whom Mary feels a connection.

In the 4 months following her enrollment in H2H, Mary was hospitalized 3 times for pneumonia; each time, her PCP was able to coordinate her inpatient care and help direct the discharge plan. Mary's CBCM visited her often and offered support to inpatient medical professionals, who found her difficult to interact with, and was able to ease the inpatient staff's and Mary's concerns. One of the inpatient stays was precipitated by Mary's visit to the Asthma Maintenance Clinic: Mary was screened by medical professionals, left the office after her visit, and within an hour the results were in: traces of pneumonia in her lungs. The Asthma Maintenance Clinic staff called Mary on her personal cell phone - provided by H2H - and she followed their instructions and returned to the hospital to be admitted for care. Other early outcomes include her use of PCP and asthma maintenance clinic, connection to the CMT, and links to outpatient psychiatric care and housing placement support. She has also regained contact with her children, and her housing application is underway.

Mary is an illustration of the impact that comprehensive, supportive care teams can have on individuals living with multiple serious health issues and a fragile social net. Though it is early in her work with the H2H program, she is already better able to address her complex health and social needs.

VII. Conclusions and Recommendations:

This paper is based on two simple ideas: identify high-risk individuals and then build a customized solution for these individuals. We introduced a framework and an example to show how this can be done. This design will require us to inventory and build on existing strengths - asset based planning - listed in the paper. Identifying the values and motivators of the individual is really the only starting point that will really work to change the future in the end. We must identify the values and motivators and then find ways of building upon them over time. This is the only way to get to sustainable long term effective health improvement for these individual.

We think this plan is based upon the individual and their networks of support, their values, goals, and interests. Identify the already existing primary coordinator in the life of that individual - might be family, might be friend, might be housing person, might be social support system person, might be church, might be a shelter, might be a nurse, might be and employer, might be a soup kitchen. Once this main coordinator - whether strong or weak - is identified, then the work becomes ours to figure out how to 'insert' medical services into this already existing framework and not insist on the medical system doing the coordinating.

We need to meet them where they are, on their terms and walk with them in supportive partnering over time. This is where you work together to solve issues, make progress, and, over time, the individual and their 'family' take on more and more capability, growing self confidence, reasserting control over the decisions which drive life, and eventually walking more and more independently of the healthcare partner/expert over time.

VI. Open Questions:

1. How good are the prediction tools?
2. What is the optimal team to support these complex patients?
3. Can an effective model scale up?
4. Can the team be effective if it is wrapped around the care system or does it actually have to be the care system?
5. What are the minimal resources you need to make a difference?
6. Are case matched controls the best way to show that a system really makes a difference? Are all aspects of the problem on regression to the mean overcome with this type of measurement?
7. What community partners need to be at the table (to improve health and experience while decreasing cost)?
8. How can we follow patients' and families' lead in determining key partners and effective interventions?
9. How can we build effective coalitions across service systems?
10. What specific interventions will foster coordinated care efforts to address a wide array of social determinants of health?
11. What wrap-around services do we need to deploy?
12. What metrics should we use to assess the efficacy of these partnerships?

VIII: Further Tests

1. Would it be possible for teams to test taking five complex patients, designing a program for them and then telling us what wraparound services they are using for these 5 patients?
2. Could each organization identify at least one primary care office that is supporting these complex patients and what improvement/support that they can give to the office that will improve the care for these complex patients?
3. I would like more examples of who these organizations are using as the integrators for complex patients and how is this working.

4. I would like to understand more about the challenges organization face with homeless when they are focused on the Triple Aim.

VIII: Appendices: