

SUMMARY REPORT: 90-DAY PROJECT

Complex Patients and Primary Care

October 31, 2012

Executive Summary:

The intent of this project is to study the role of primary care to support and manage complex patients.

During this project we took time to understand more about the characteristics of the high cost population. In summary, here are some observations about the group of highest spenders in the US. Firstly, they account for a large portion of the spending, with the top 5% of people spending nearly 50% of the national total. Secondly, many are elderly and have one or more chronic conditions, with risk increasing for each additional chronic condition. This group is also likely to have functional limitations and need help with activities of daily living. Lastly, this group is not static. Only 38% of the top 5% of spenders remained in the high-spending group the following year. Based on 1997 data, nearly 15% of high-spenders died by January 1st of the next year. Thus, we know that without any change to the system nearly 60% of the high spenders each year will be new to that group. Predicting the group of high-cost patients can be very difficult, especially given the dynamic nature of the group, and any interventions must take into account the limitations of targeting a single year's high spenders.

The paper goes on to describe three approaches to these patients that involve primary care.

1. A high cost intensive model that is supported by nurse care management along with primary care that often limits their work to a relatively small panel of patients.
2. A model that primarily focuses on the redesign and retraining of the primary care team.
3. A model that works more with usual primary care and uses community health workers.

In summary complex patients have medical and social needs that must be met and coordinated if we are to provide better care and better health at a lower cost.



Team

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I. Research and Development Team:

- John Whittington
- Amelia Cline

II. Intent:

The intent of this project is to study the role of primary care to support and manage complex patients. We will also study the characteristics of these complex patients.

III. Background:

Payers, providers and purchasers all need to control health care cost to make health care accessible to all patients. With the continuing rise in health care cost it requires multiple approaches to control those costs. A key subpopulation to work with is the complex patients. In general 1% of all patients in a large population spend 25 % of the money and 5% of the patients spend 50% of the money.^{vii}.

In the past at IHI we did a 90-day project on complex patients. IHI has also spent time working on the dual eligible. There is a published white paper on the complex patients. However we have never specifically outlined what role primary care plays with these patients. Presently within the Triple Aim community there is a workgroup that specifically focuses on this population. The Triple Aim team has developed a change package to support managing this population.

Outside of IHI many organizations are tackling this work. Examples of this are the ambulatory ICUⁱ, Atul Gawande's "Hot Spotters"ⁱⁱ and virtual wardⁱⁱⁱ among others.

IV. Description of Work to Date:

The Final deliverables for this work:

1. A better understanding of the role that primary care plays in driving the cost for complex patients.
2. 5% of the population spends 50 % of the money. However we need to understand the subsets of patients that make up the 5 %. How many of these are frail elderly, how many are trauma cases, how many are dual eligible, etc.?



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To accomplish this work we had discussions with the following individuals in support of this work: Wendy Bradley, Southcentral Foundation; Rebecca Ramsey, CareOregon; Xavier Sevilla, Catholic Health Initiatives; Steven B. Cohen, AHRQ; Richard Whittington, Intermountain Healthcare; Heidi Louise Behforouz, Brigham and Women's Hospital; Kedar Mate, IHI; and Matt Stiefel, Kaiser Permanente.

In addition to the discussion with the above individuals we concentrated on understanding data from the MEPS Database.

V. Results of the 90-Day Scan:

In this paper we are concentrating on the complex patients and how primary care can help with these patients. Our results are then broken into two sections. The first section focuses on the complex patients and the second on primary care.

It is widely reported that a relatively small number of complex, high-cost patients account for a disproportionate amount of the total costs in the system. Most research attributes over half of the medical expenditure cost to a mere 5% of patients. Many posit that the most effective way to bend the cost curve is to focus on this high concentration of cost.

When defining complex patients in terms of cost, the most common method is to take the top 5% or 10% spending beneficiaries and estimate their total spent. Others set a cost threshold, such as \$25,000 or \$50,000 per year, and include all beneficiaries who spend above that limit.

Using the data from 2009 Medical Expenditure Panel Survey (MEPS) data we can see how much spending is attributable to each category of spender. In order to create a strategy for addressing these patients, it is important to know what this group of high spenders looks like.

We know that high spenders are significantly older and describe themselves to be in worse health. People over the age of 64 are 13% of the civilian non-institutionalized population (See Appendix A for more on MEPS survey population), yet they made up 38.2% of the top 5% of spenders in 2008. In 2002, they made up 43% of the top 5% of spenders^{iv}.

Chart: 2002 Top 5%^{iv}



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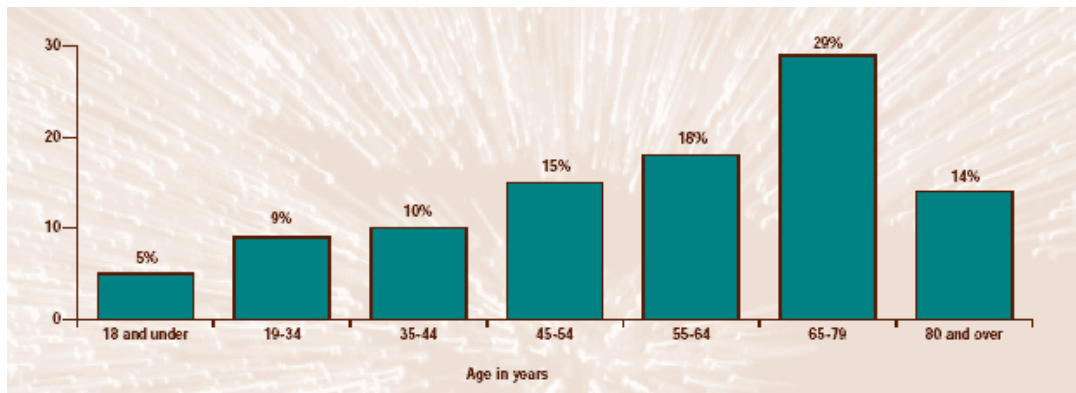
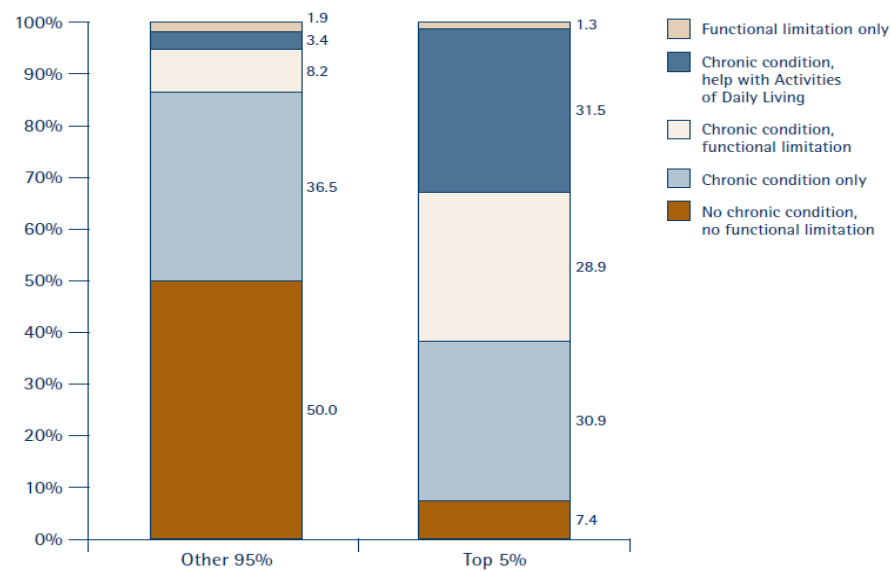


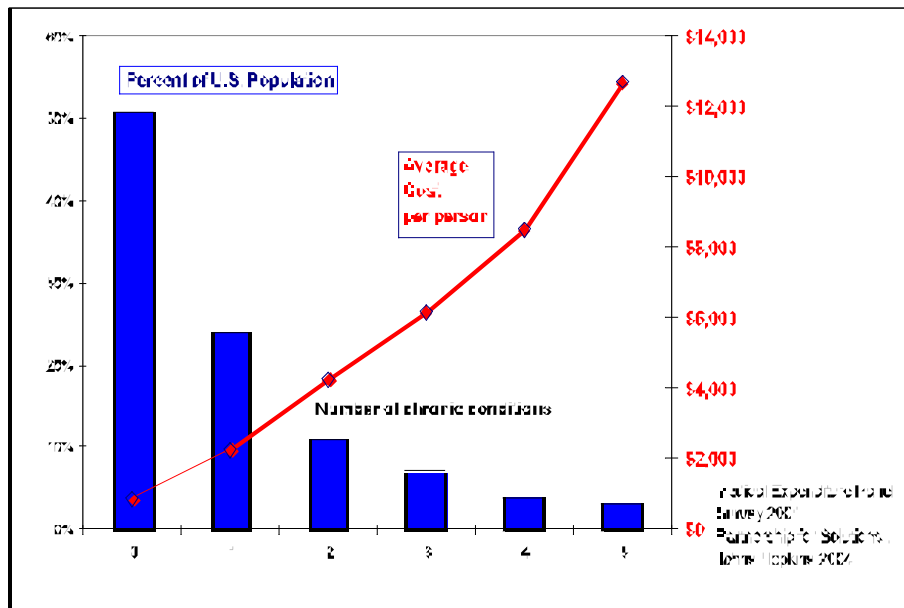
FIGURE 5. CHRONIC CONDITIONS AND FUNCTIONAL LIMITS AMONG LOW VS. HIGH SPENDING GROUPS, 2006



NIHCM Foundation analysis of data contained in The Lewin Group, "Individuals Living in the Community with Chronic Conditions and Functional Limitations: A Closer Look," January 2010.

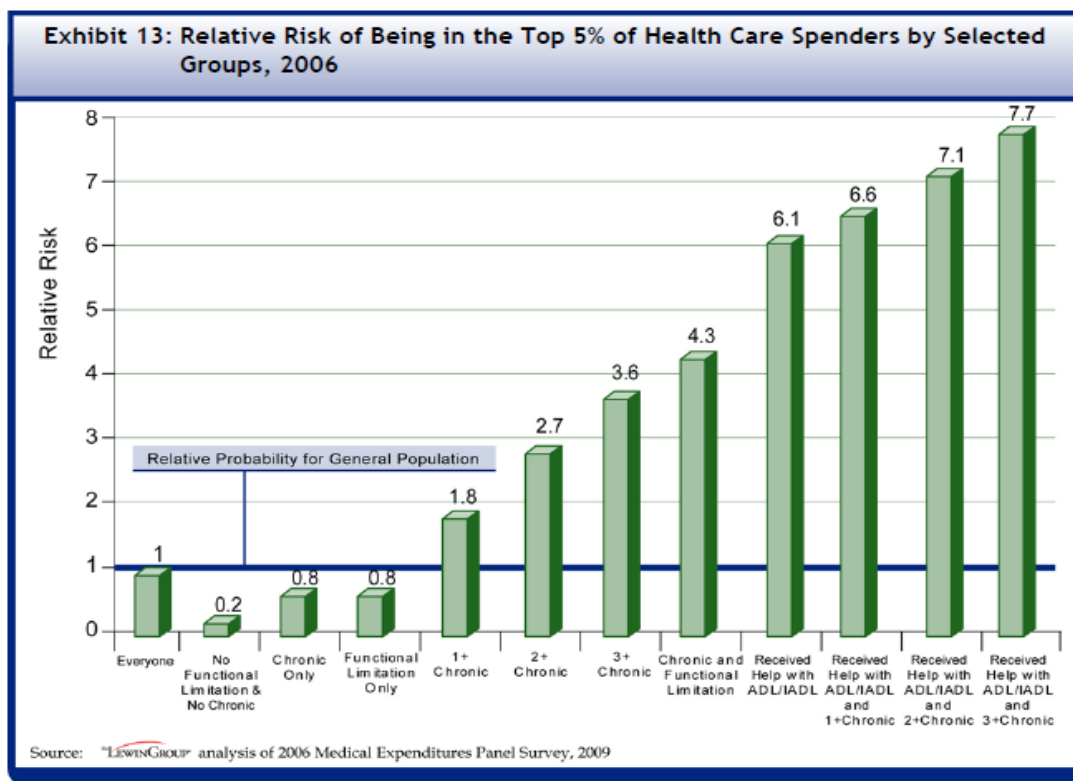
We also know that patients with chronic conditions are much more likely to fall into this group of costliest patients. In 2006, those without chronic conditions made up 51.9% of the bottom 95% of spenders, but only 8.7% of the top 5% of spenders.

National Implications



The figure above shows that patients with one or more chronic conditions have higher average costs, with the costs increasing significantly with each additional chronic condition. One potential take away from this insight is that individual disease management programs have a limited impact. If your focus is simply on patients with a single disease, that is often not a high cost individual. So any system that wants to help these individuals will need to focus its energy on managing and coordinating the care of multiple conditions along with assisting with the social needs of the individual.

Among People with Chronic Conditions, Having a Functional Limitation Significantly Increases the Likelihood of Being in the Top 5% of Health Care Spenders



The Lewin Group^{Error! Bookmark not defined.} analyzed the top 5% of spenders using MEPS 2006 data, and assessed the risk of falling into this group by chronic condition status and functional limitation status, shown below. They determined that those with 3 or more chronic conditions are 3.6 times as likely to be in the top 5% of spenders. Those with functional limitations and chronic condition are over 4 times as likely to be in the top 5% of spenders^v. This group accounts for 14% of the population, but 46% of all spending. High-cost beneficiaries with chronic conditions and functional limitations also have a similar profile of chronic conditions to those without functional limitations with hypertension, diseases of lipid metabolism, and depressive disorders falling in the top 5 for both groups.

Within this group of 42 million people with chronic conditions and functional limitations, 34% also received help with an activity of daily living (ADL) or an instrumental activity of daily living (IADL). This small slice of the population, 5%, accounts for 23% of total spending and is 6.6 times as likely to be in the top 5% of spenders overall.

Persistence

The persistence of spending in the same category is of particular importance as we shape policy and strategy to target this subset of the population, especially from the vantage point of primary care. By comparing the records for 2008 and 2009, we can see who of those top spenders remained in that level of spending the next year. Of those individuals who fell in the top 1% in 2008, only 20% maintained this rank in 2009^{vi,vii}.

	Total Spent (\$)	Share of Total Spending	Average Per Capita (\$)	Number of people	Persistence in Spending Level (2008-2009)
Top 1%	275,000,000,000	21.84%	90,061	3,060,000	20.0%
Top 5%	623,000,000,000	49.48%	40,682	15,300,000	38.0%
Top 10%	821,000,000,000	65.21%	26767	30,700,000	44.8%
Bottom 50%	36,000,000,000	2.86%	236	150,000,000	73.9%

So, without any changes in the system, we can expect that 80% of the top 1% of spenders will not spend at that level the following year. That begs the question, what do the folks who are consistently in this group look like? The persistent top 10% of spenders (the 44.8% shown above) are more likely to be female (50.9% in total population and 59.0% in this group), and more likely to describe themselves as being in “poor health” (23.9% vs. 2.8% in the total population) or “fair health” (29.6% vs. 8% in the total population).
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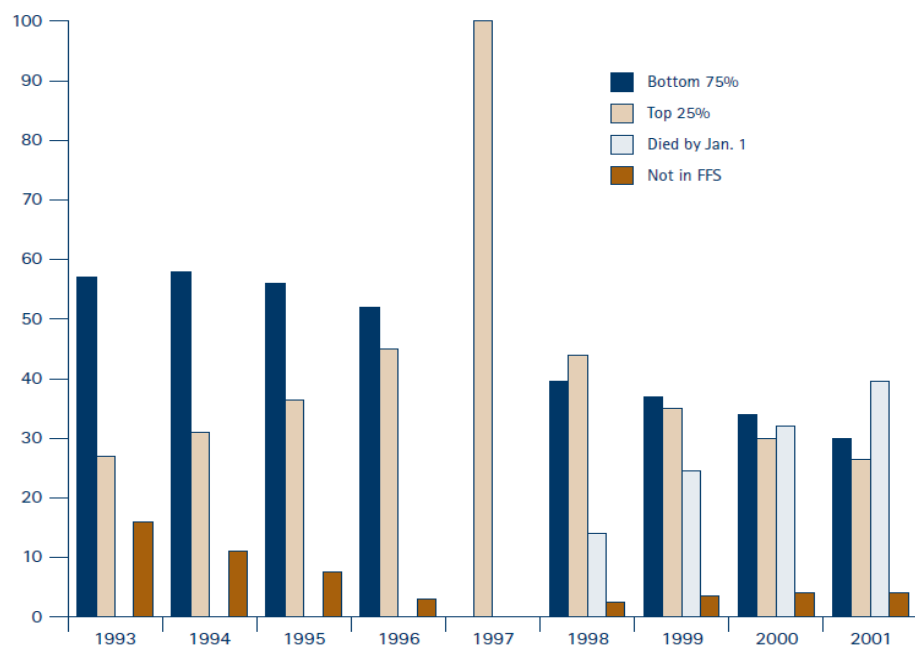
Based on MEPS data in 1996 and 1997, and after controlling for income, insurance status, and health status, black and Hispanic beneficiaries are less likely than whites and others to be in the top 10% of spenders in both years (88.1% of the persistent top 10% spenders are “White and Other” compared to 76.1% of the total population)^{viii}. This is consistent with the 2008-2009 analysis which found that Hispanics represented 16% of the overall population in 2009 and 24.5% of those who remained in the bottom half of spenders, and only 6.7% of those who were in the top decile of spenders both years.



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FIGURE 10. LONG-TERM PATTERNS OF MEDICAL SPENDING



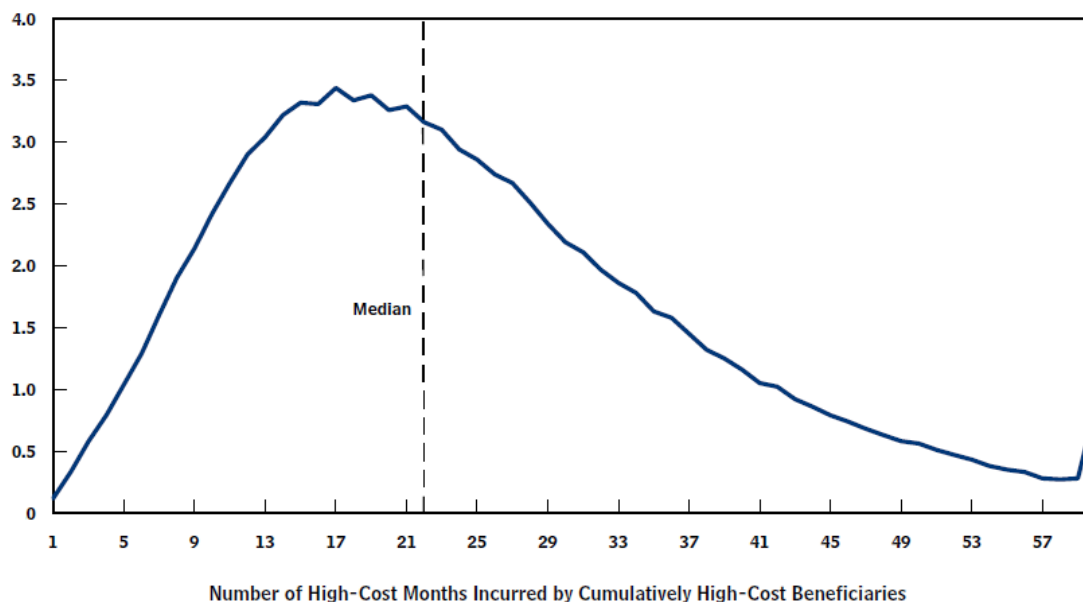
Source: Congressional Budget Office. "High-Cost Medicare Beneficiaries." May 2005.

Another factor to consider when tracking this group over time is death. Looking at Medicare beneficiaries in 1997, nearly 15% of the top quartile of spenders died in that year (by January 1st of 1998) and over 40% died within 4 years (by January 1st of 2001).^{ix}

Figure 4.

Distribution of High-Cost Months Over the 1997-2001 Period

(Percentage of beneficiaries in the top 25 percent)



Source: Congressional Budget Office based on data from the Centers for Medicare and Medicaid Services.

The Congressional Budget office, looking at Medicare spending, identified the top 25% of cumulative spenders across five years, from 1997 to 2001. They also tracked the number of high-cost months incurred by those in this group. The analysis showed that half of all beneficiaries had high monthly costs for at least a third of that time (22 of the 60 months). The distribution of high-cost months is shown above. So perhaps looking at a 2-year span is not as effective for predicting future spending, but looking at spending across 5 years is more accurate.

Predicting High Cost Patients

Although we can identify characteristics common in high-cost beneficiaries, there are many low-cost beneficiaries with a similar profile. For example, diabetes is nearly 2 times as prevalent in high-cost beneficiaries as low-cost, but there are many more low cost beneficiaries. Thus, the number of diabetes patients who are low-cost greatly exceeds the number who are high-cost. An intervention focused on reducing cost in beneficiaries with diabetes would likely include many who are not likely to become high-spenders.

Many have tried to predict this high-cost subset through the use of predictive modeling. While useful for narrowing the scope, these predictive models all have their limitations. For example, in an analysis by Reschovsky et al^x, the authors categorized the factors affecting medical care utilization by Medicare beneficiaries into three sets:

- Patient health status
- Other beneficiary characteristics that are correlated w/ health care preferences and budget constraints (e.g. income)



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- Supply factors representing "providers' proclivity to induce demand for services or affect utilization..."

Using their spending predictive modeling tool, they tried to predict who would be in the highest 25% of spenders. Those beneficiaries who were predicted to be in the top 25% ended up spending 69% of the total expenditure, which fell short of the actual upper quartile of spenders who spent 85% of the total expenditure, highlighting the inability to perfectly predict the high-cost patients using historical trends alone.

In summary, here are some observations about the group of highest spenders in the US. Firstly, they account for a large portion of the spending, with the top 5% of people spending nearly 50% of the national total. Secondly, many are elderly and have one or more chronic conditions, with risk increasing for each additional chronic condition. This group is also likely to have functional limitations and need help with activities of daily living. Lastly this group is not static. Only 38% of the top 5% of spenders remained in the high-spending group the following year. Based on 1997 data, nearly 15% of high-spenders died by January 1st of the next year. Thus, we know that without any change to the system nearly 60% of the high spenders each year will be new to that group. Predicting the group of high-cost patients can be very difficult, especially given the dynamic nature of the group, and any interventions must take into account the limitations of targeting a single year's high spenders.



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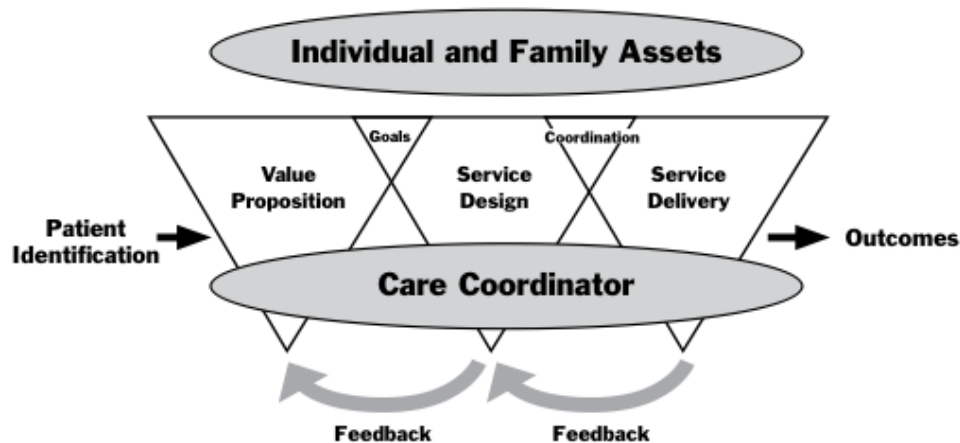
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Now let's consider the role of primary care and the high cost patient

At this point in time we are going to discuss three approaches for primary care and the complex patients. In these three approaches we are trying to highlight some differences. When you actually study examples of this work that are going on around the world you may see pieces of the models we describe being combined into a unique model.

1. The first model consists of two parts, a method to identify potential high utilizers and then an intensive system to take care of those patients. It usually includes someone who will provide care coordination along with a primary care clinician who is supporting the care for a small panel of patients. An example of this model is the ambulatory ICU^{xi}. For most organizations to afford this model they need to concentrate resources at the highest cost utilizers. In the IHI white paper on complex patients we used the following diagram to outline this model.

Figure 1. IHI Care Coordination Model for People with Multiple Health and Social Needs



The foundation of this model is to select a high cost group that you can afford to devote an expensive individual care coordinator such as a RN or social worker. The paper goes on in more depth to explain the model. That paper's focus was on the care coordinator who did not usually turn out to be the primary care doctor. The care coordinator can be a wrap around service or it could be integrated into the primary care team.

This is a fairly costly model and is normally applied to a narrow part of the population. The key for this model is great identification of the population such that a high cost team makes sense and that you have the necessary set of interventions to make a difference for this population. As we learned from our study of the high cost individuals, only a portion of costly patients this year will be costly next year. To make this model work you need great predictive tools to dynamically identify the future high cost segment. Also the team has to develop a set of interventions that can

support this population both on medical management and social issues that are driving the cost for this population.

2. The second approach is best characterized by the work of Southcentral Foundation in Anchorage. Southcentral Foundation is known to have one of the strongest primary care systems in the US. As in the first approach they have also identified a complex cohort of patients. Their focus was primarily on patients who were heavy users of primary care. They analyzed this group of patients to find out what their top problems were. Armed with this knowledge they set about to retrain primary care doctors and the rest of the team. Part of their hypothesis was that the health care actually precipitated some of the utilization and spending. There are multiple discoveries that they have made along the way. For more details about their work contact Wendy Bradley at Southcentral Foundation. To summarize this approach, it relies more on the redesign and reskilling of the primary care team and does not rely as much on active case management as the first approach.

3. A third approach also uses a method to identify complex patients and then a system of care for these. However the system of care is somewhat of a hybrid of the first two models. It uses care management along with improving the community primary care team to develop a lower cost model. At the same time it broadens the parameters for the included patients. We have already learned from our study of the most expensive patients that their costs are somewhat dynamic. They may be extraordinarily costly in one year and not as much in the next. We are suggesting that the primary care team continues to manage a typical large panel of patients some of which are patients that have complex needs. This primary care team is taught a few extra skills to improve their management of the complex patients. Care management is supplied by community health workers who are connected to the practice. An example that has some of the elements of this type of approach has been Community Care of North Carolina. This model is not just directed at the complex patients but at a broad range of patients who have Medicaid insurance from the state. In this model they pay primary care a small amount on a per member per month basis to help manage these patients and at the same time they have created a community care regional network to support these patients. The community care network provides case management. The ratio of care managers to the population is 1 to 4000. But their efforts are usually concentrated on a smaller group. The state is divided into 14 community care networks. The care networks are also paid on a per member per month basis to fund their activity. In a published article in 2008 the estimated annual savings for Medicaid was \$160 million for this model in North Carolina. This model has been maintained for 14 years .^{xii}

A good example that can tie all this together is ongoing work by CareOregon. Rebecca Ramsey has been leading this work that utilizes community health workers. CareOregon is a managed Medicaid program that covers approximately 160,000 covered lives. Faced with significant challenges because of budgetary challenges they decided that they needed to intensify their work on high cost Medicaid patients. They took a road trip and visited both Bob



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Masters from Commonwealth Care Alliance which has a terrific program working with dual eligible patients in Boston and also Jeff Brenner from the Camden Coalition of Healthcare Providers.

Rebecca Ramsey observed the following key Lessons from the Commonwealth Care Alliance visit:

- Target population segments – physically disabled/homebound, frail elders, Medicaid-eligible without good primary care connection.
- Taking primary care to the patient in their home using home visiting Nurse Practitioners increases engagement in healthcare.
- Having NP on call 24/7 decreases ER and hospital visits.
- Staffing model: NP lead for primary care provision, RN (triage, initial assessment, transitional care), and community outreach worker (outreach, engagement, self management support)
 - NP and outreach workers most critical
- Medicaid-eligible segment most difficult to engage
 - For this segment, critically important to start with high cost individuals in order to ensure an ROI

Based on those visits and other experience they had they developed a new strategy. They would hire and train community health workers and assign them to a particular federally qualified health center to support the needs of high utilizing patients. This is how Care Oregon describes it:

- Staff are hired for engagement skills, compassion, non-judgmental attitude, outreach experience.
- Voluntary program
- High PCP/Specialist involvement
- Outreach worker is seen as part of the practice team, but also as a health plan employee.
- Documentation occurs in the practice's EMR.

An important difference between the CareOregon program and the work of Commonwealth Care Alliance was that they try to cut back on costly personnel. They did not hire any nurse practitioners for this work. The main focus was on the community health workers and connecting them back into the primary care team.

This program like all programs that wants to work on high cost patients has to have a mechanism to identify those individuals. Even though the team was familiar with predictive modeling software they chose to work with just a simple past claims approach. They looked at patients who



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were heavy utilizers of the emergency room, hospital or a combination of both. Based on their criteria they found that 10% of the population utilized 54% of cost for the past 12 months. They used that data as a first step to identify patients. They have a 4-step process:

Step One: Define Utilization Criteria.

Step Two: Use the criteria at the level of the Primary Care Clinic.

Step Three: Ask Providers for their recommendation.

Step Four: Engage with the Patient to gauge appropriateness.

By using these selection criteria they came up with a list of patients to work with.

By acting for the individuals they were learning for the system.

They had three main ways of learning: claims data, provider input and finally the patient input through the community health worker.

Here is an example of claims data from one clinic:

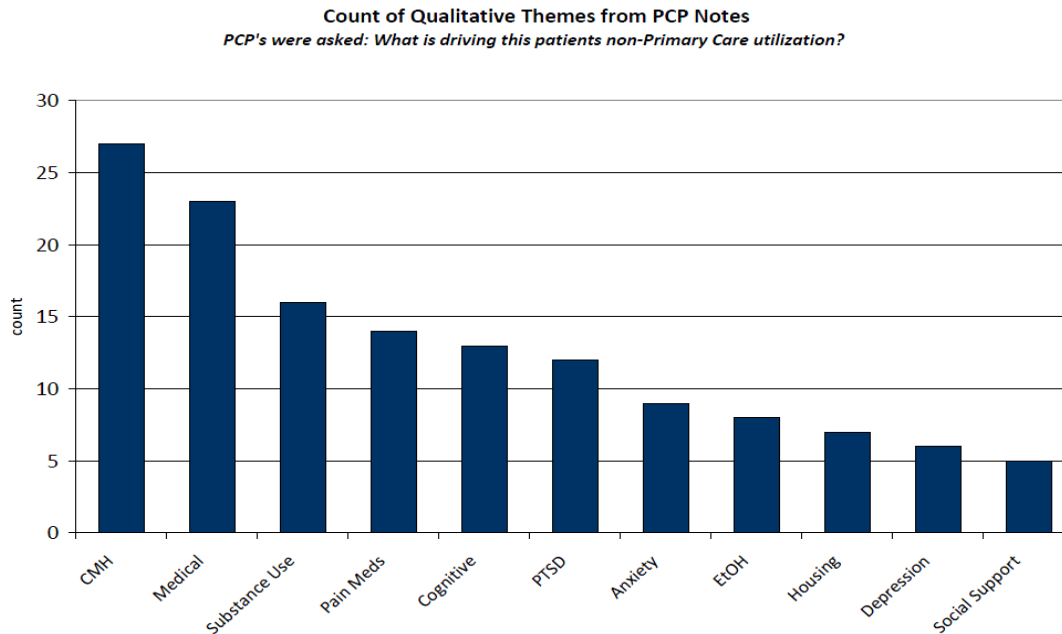
Population Segment	# Members	% Members	Avg Total Paid Cost per Member/ 12 mos	% Paid Cost of Segment/ 12 mos	# ED visits	# IP Admits
No inpatient visits/ 6+ ED	81	3%	\$8743	5%	786	0
1 Non-OB inpatient and 0-5 ED visits	97	4%	\$18,767	14%	147	97
2+ Non-OB inpatient OR 1 Non-OB inpatient AND 6+ ED visits	71	3%	\$59,440	32%	383	189

Here is what they learned from the providers prospective on these same patients. (CMH = chronic mental health, PTSD = post traumatic stress disorder)



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Here are some of the issues that the community health workers felt were important from 15 cases:

- High prevalence of childhood and life trauma often translates into distrust of health care providers.
- Prevalence of substance abuse and mental health conditions
- Lack of timely access to psychiatric assessment and mental health respite services
- Care coordination needs extensive (particularly between sites of care)
- Many can't afford or do not have access to non-medical items or services critical to optimal health and self management (i.e. transportation, stable housing, healthy food, medications, place to exercise, etc.)

Let's just look at what happened for one person:

Ann (not real name) had uncontrolled diabetes and her kidney function was decreasing rapidly. She was being admitted twice a month for gastroparesis and going to the ER 2-4 times a month. She did not feel connected to her Nephrologists and was not making appointments or taking medications. She was eating out and/or eating TV dinners and had 25lbs of water on her system. Essentially she was overwhelmed by her health and health care needs.

Goals:

- 1) Figure out how to stop gastroparesis or cope with it differently
- 2) Cook at home and eating low sodium and diabetic diet.
- 3) Advocate for Social Security
- 4) Attend all appointments including getting labs done before Nephrology appointments



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5) Attend an infusion clinic when dehydrated from gastroparesis rather than going to ER

Interventions:

- 1) Cooked at home – cooked no salt added meals and talked about sodium and healthy eating
- 2) Attended 4 Nephrology appointments with her
- 3) Community Health worker went to the hospital 3 times when she was admitted – what came out of these visits was her own recognition that her gastroparesis was triggered by diet
- 4) RN came to home visits for dietary education and support with medication management
- 5) Worked with her lawyer to get SSI
- 6) Called to remind her of appointments and or the need for a lab

Success:

Ann has kept off the 25lbs of water weight with no re-occurrence of edema. She has made all of her appointments over the past 4 months. She has had two periods of 3 weeks or more without going to the hospital (more recent). She feels better and her mood is better. Her kidney function has increased. She made a huge dietary change and only eats out a couple times a month rather than 4-6 times/week. She has increased her vegetable intake and is cooking for herself and her son again. And she recently was awarded social security.

Summary

We have discussed three different models for primary care involvement and the support that goes with each model when it comes to the complex patients. No one model will work well for all.

VII. Conclusions and Recommendations:

1. Develop a seminar on the management of the complex patients.
2. Base this seminar on the work of R and D and the ongoing work within the Triple Aim.
3. Key Elements for this seminar would be the following:
 1. Analysis and segmentation of the complex patients to understand subsets of various high-cost, high-need populations
 - a. Using data systems
 - b. Using clinic personnel
 - c. Using patient interviews
 2. Strengths and weaknesses of the present predicative modeling tools
 3. Design and training of the appropriate support team
 - a. High cost models
 - b. Lower cost models
 - c. Primary care's role and training needed



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- d. Nurse Care Managers and training needed
- e. Community Health workers and training needed
- f. Integration of the team
- 4. Support and the role of community in this work
- 5. The role of the patient and the family - key aspect is the patient's plan - what matters to them
- 6 Building care bundles for specific patient types
- 7. Building a learning system to manage this work
- 8. Business design and consideration for this work
- 3. There is also the possibility of a second seminar or web and action series that might just focus on retraining primary care to handle difficult patients. As mentioned in the report there is ongoing work in this direction.

VI. Open Questions:

- 1 What is the state of the art of the best predictive models at this time?
- 2. What is the role of production planning for this work?
- 3. The balance between social support, medical support and coordination of all

VIII: Appendix:

Reconciling MEPS and NHE Health Care Spending Estimates

Total spending captured by MEPS, was \$1.259 trillion in 2009, which is significantly less than the \$2.496 trillion National Health Expenditure Accounts (NHEA) estimate, which begs the question: how do we account for the difference? The NHEA estimates are produced annually by the Office of the Actuary at CMS by aggregated provider-based data sources and includes government public health spending, administrative costs, research, capital investments, and institutionalized patients such as long-term care facilities and penitentiaries.^{vi} The MEPS (Medical Expenditure Panel Survey) estimates are produced using a set of large-scale surveys of families and individuals, their providers, and employers across the United States. By the nature of the survey methodology, the MEPS estimates only include civilian, non-institutionalized beneficiaries.

In order to convert between the two, we must adjust the NHEA estimate to account only for personal care services. Using the NHEA spending from 2009, The NIHCM Foundation estimated that approximately 84.06% of NHEA spending is used on “personal care”, and the rest is used on public program administration, the net cost of private health insurance, public health, investments, etc^{xiii}. After making that adjustment to the NHEA estimate, we must also adjust for the difference in the populations being estimated by the two methods, specifically the population not captured in



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the MEPS survey. Sing et al described a process for making the “personal care” NHEA estimate consistent with the MEPS estimate by subtracting the cost for the following from the “personal care” NHEA:

- long-term care facility expenditures (hospitals, nursing homes, and Veterans’ Administration facilities),
- acute care expenditures of the institutionalized, expenditures for active duty military and foreign visitors, patient care not captured in MEPS (non-durable products like aspirin and bandages),
- non-patient care revenues not included in MEPS (gift-shops, disproportionate share hospital and graduate medical education, etc),
- and previously paid expenditures (lab services and tests paid by other providers

In their analysis, Sing et al used 2002 NHE and MEPS data, and their adjustments found that approximately 62.12% of the “personal care” NHEA estimate was captured in the MEPS data^{xiv}. By using this rough estimate, combined with the rough estimate that “personal care” NHEA is 84% of the total NHEA, we can estimate that the MEPS estimate is 52.22% of the total NHEA estimate.

This estimate for 2009 and 2010 is shown in the table below:

	2009 Estimate*		2010 Estimate*
	% of Total	Total Spending	Total Spending
NHEA	100.00%	\$2,495,800,000,000	\$2,593,600,000,000
Personal Care NHEA	84.06%	\$2,097,969,480,000	\$2,180,180,160,000
MEPS	52.22%	\$1,303,258,640,976	\$1,354,327,915,392

Below is a diagram of the relationship between the two spending estimates.



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		Avg \$ per capita	% of per capita				
	2009, NIHCM	\$8,086	100%	100%			
Total Health Expenditure	Personal Care	Hospital Care	\$2,471	30.56%	84%	38%	Other
		Physician & Clinical Services	\$1,646	20.36%			
		Dental & Other Professional Services	\$548	6.78%			
		Home health & Other LTC Facilities and Services	\$1,066	13.18%		62%	MEPS
		Prescription Drugs, DME & Other Medical Products	\$1,066	13.18%			
		Public Program Administration and Net Cost of Private Health Insurance	\$530	6.55%			
	Other	Public health	\$251	3.10%	16%		
		Investment	\$508	6.28%			

ⁱ Milstein A. How Ambulatory Intensive Caring Units Can Reduce Costs and Improve Outcomes. May 2011 < <http://www.chcf.org/publications/2011/05/ambulatory-intensive-caring-units>> Accessed 10/18/2012

ⁱⁱ Gawande, A. "The Hot Spotters" New York Times, Jan 24, 2011

ⁱⁱⁱ Lewis G, et al. Multidisciplinary case management for patients at high risk of hospitalization: comparison of virtual ward models in the United Kingdom, United States, and Canada. *Popul Health Manag.* 2012 Oct;15(5):315-21. Epub 2012 Jul 12.

^{iv} Conwell LJ, Cohen JW. Characteristics of people with high medical expenses in the U.S. civilian noninstitutionalized population, 2002. *Statistical Brief* #73. March 2005. Agency for Healthcare Research and Quality, Rockville, MD. Web site: http://meps.ahrq.gov/mepsweb/data_files/publications/st73/stat73.pdf. Accessed April 7, 2006.

^v Individuals Living in the Community with Chronic Conditions and Functional Limitations : A Closer Look. The Lewin Group, Feb 2010. <<http://www.lewin.com/publications/publication/398/>>

^{vi} The Concentration of Health Care Spending. NIHCM Foundation Data Brief; July 2012 <http://www.nihcm.org/images/stories/DataBrief3_Final.pdf>

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