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Developing Appropriate Strategies for Adjusting Provider Panel Sizes at

AltaMed Community Health Center

I.   Introduction

The purpose of my project was to begin the transition from a fee for service approach to a

population health outcomes approach at AltaMed as there will likely be shifts in future reimbursement.

Currently, our medical system is focused on encounters and procedures as revenue generators but

there is a movement toward Primary Care Medical Homes (PCMH), which AltaMed has developed but

consideration must be given to increasing provider capacity through appropriately designing provider

panels without compromising quality. Primary care is an important part of healthcare but good

outcomes are not necessarily linked to the current fee for service reimbursement used in the primary

care setting. Despite the fact that disease prevention decreases overall healthcare expenses, the

current system leaves providers without adequate time for counseling and preventative services and

there is a financial disincentive for providing these needed services. It is estimated that the average

clinic only provides 55% of the preventative and chronic medical care that is indicated for their patient

population (Altschuler et al 2012). More complex patients, especially those who are socioeconomically

disadvantaged, have multiple comorbidities, or have mental health problems require significantly more

time and attention than less complex patients. Therefore providers who see complex patients will not

have the same capacity as providers with less complex patients. My project was to create a formula for

adjusting provider panel size to account for the complexity of typical patients seen in an individual

providers practice at the AltaMed Federally Qualified Community Health Center (FQHC) in Los Angeles

with a goal of exploring different ways to adjust providers' panel and expand clinicians' capacity.

II.   **Background**

With the implementation of the Affordable Care Act (ACA), demands will likely increase on Primary Care Physicians ("PCPs"). A provider with a significant number of complex patients in their practice cannot provide the same quality of service as a provider who sees the same number of less complex patients. The core values at AltaMed include putting patients first, promoting wellness and advocating for strong healthy communities, commitment to team work and encouraging excellence and innovation. Mr. Castulo de la Rocha, CEO and President of AltaMed, has been concerned that in the new era of the Affordable Care Act business will be market driven and that patients perception of service and satisfaction will affect FQHCs like AltaMed more than in the past. Therefore, FQHCs who primarily provided service to individuals without any alternative will now have to compete with private practices in a new market place. However, the complexity of the location and patient population served may require additional expenses for FQHCs. For example, the President and CEO of Watts Healthcare Corporation, located in Watts neighborhood in Los Angeles commented that they require additional security working in this location with this population (GE-NMF Primary Care Leadership conference on July 17th, Healthcare in Los Angeles: Challenges & Commitments of Community Health Centers to Improving Access to Primary Care at The California Endowment). This expense will not be recovered and is unique to care of specific populations. There are significant racial and ethnic disparities in healthcare and the social determinants of health are not typically accounted for when planning appropriate provider panels. Additionally, social determinants like education and low SES have an impact on providers' ability to help patients achieve better outcomes. These factors are shown to contribute to health disparities and should be considered as a possible factor for adjusting panel size to improve outcomes in certain populations. To my knowledge the ACA doesn't adjust reimbursement for services based on the social determinants of health so it will be challenging for FQHCs to adequately service at similar outcomes a population that tends to require more resources to achieve equal outcomes due to lack of personal resources. I focused my project on how panel size should be adjusted and what AltaMed can do in the meantime to enhance quality and quantity of services provided to a difficult population in this new context.

III.   **Methodology**

A thorough literature review was completed including searching pubmed journals using the terms "panel size" and "case mix adjust". Additionally, I looked into the AHRQ, California Academy of Family Practice, Giesinger, Cochrane Review, Health Care Partners, Community Clinic Associates of California or the national organization and think tanks to see what the expert opinion is on these topics. The literature search was primarily conducted to help determine what AltaMed should consider when adjusting provider panel size and other issues regarding provider paneling at AltaMed also surfaced through this process. I searched for panel size and case mix adjust in Cochrane Review and Geisinger but couldn't found anything. I found some resources available through AHRQ and several journal articles through pubmed search. I looked at organizations such as the National Committee for Quality Assurance (NCQA), Kaiser, California Academy of Family Practice, Health Care Partners, Community Clinic associates of California, and the Center for Primary Care Prevention. I also contacted several organizations and was able to speak to the Institute for Health Initiatives Triple Aim Director and a faculty physician regarding designing panels. The best sources I found were through IHI, AHRQ, and some of the primary literature through my pubmed search. I used this research to revise a formula and determine panel for all providers adjusting for age and sex without accounting for comorbidities. I then created a power point to explain panel size adjustment and population focus to AltaMed medical leadership. I also researched appropriate panel size and adjusting for comorbidities to lead the direction of future AltaMed plans with regard to panel size.

IV.   **Results**

a. Determining Appropriate Provider Panel size

When I first researched this, I wondered what was wrong with just filling providers schedule but through my literature review on panel size I found that this is not ideal in terms of patient satisfaction or outcomes, two important perimeters for AltaMed's future success. Currently, the average size of

primary care provider panels in the US is approximately 2300 (Reid and Trescott 2010). If demand of the panel exceeds provider capacity than access is compromised so labor must be divided appropriately so that patients can receive quality care. One Airforce model has 1500 as the average panel size (Sales 2006). It is important for the provider and the members of the providers' team to feel responsible for their patient population. Limiting provider panels allows clinics to offer quality care in a timely manner and to have ownership in their patient population. There have been several relatively recent studies that have shown great promise in lowering panel size in PCMH (IHI 2011). A recent Veterans Administration study showed that decreasing panel size from about 1200 to 1000 can have a positive impact[2]. Another commonly cited initiative is a pilot conducted by Group Health Cooperative that found that decreasing panel from 2327 to 1800, increasing average visit time from 20 to 30 minutes while increasing alternative communication methods with patients via email and telephone can have a positive impact (McCarthy C, Mueller K, and Tillmann I 2009). The per capita cost went down and satisfaction went up with care coordination agreements between primary care doctors and specialists leading to fewer specialty appointments and longer pcp appointments.

It is important to determine the number of visits per week that can be supported based on current supply, and use this as a proxy for the total of visit and non-visit work. As the clinic adopts a model of care based on continuous healing relationships, non-visit work will increase and clinics will need to adjust panel size targets (Laurant et al 2009). Providers can improve the quality of care provided by allowing clinics to offer good care in a timely fashion. Said another way, having to large of a panel actually compromises access if demand of the panel exceeds the provider's capacity to deliver care (IHI 2011). Another study showed that reducing panel size can improve access by decreasing waiting time by 44% and increasing patient provider continuity by 40% over baseline (Balasubramanian 2010). Another key to good panel management is teams that feel responsible for their panel of patients and dividing the labor amongst many practitioners. According to a recent Duke study, approximately 20 hours/day would be required for one physician to provide acute, chronic and preventative care for the average provider panel in the US (Altchuler 2012). This study also demonstrated that decreasing

panel size results in decreased spending. The Primary Care Workforce in the US is limited despite great need with increasing needs in the Affordable Care Act. There certainly remains a need for a more efficient system: better quality and increased cost effectiveness.

Important goals to consider when increasing provider panel include: increase physician capacity without creating more burnout, determine the best use of mid-levels, and designing a primary care model for optimal patient satisfaction and outcomes. With these goals in mind, two paradigms have developed: the concierge practices and organized team models (Altchuler 2012). The concierge practices with panel sizes of 200 to 1000 would be problematic if universally adopted because there are definitely not enough PCPs in the United States to use this model. The organized team model promotes primary teams that distribute the responsibility for patients amongst an interdisciplinary team which allows physicians to maintain a large panel with a reasonable work day. It is important for each member of the panel to perform at the top of their skill level and for the provider to delegate to non-clinician members or utilize health information technology to expand capabilities. For example, having standard orders for mammograms can save time and enhance complaints with recommended health maintenance. According to the Altchuler et al study in 2012, delegation within a primary care team could increase one providers' panel capacity from about 1000 to as much as 1947, if the provider is willing to use all team member non-clinicians, medical assistants, pharmacists, health educators, registered nurses, etc. to their maximum capability. This degree of delegation assumes that non-clinicians can provide large portions of routine chronic care services involving patient education, behavior-change counseling, medication adherence counseling, and protocol-based services delivered understanding physician orders. The aggressiveness of delegation determined how much expansion the provider panel could accommodate, this was without using mid-levels who would be able to assist in more skilled preventative care such as pap smears. The group health model utilized these principals and decreased panel size at the same cost with increased patient satisfaction and decreased burn out.

b. Mid-level Clinicians

According to the American Academy of Family Physicians (AAFP), the evidence suggests that nonphysician clinicians working as substitutes or supplements for physicians in defined areas of care can maintain and often improve the quality of care and outcomes for patients. The effect on health care costs is mixed, with savings dependent on the context of care and specific nature of role revision. According to Dr. Reid Blackwelder, AAFP President Elect, nurse practitioners are most cost effectively used for treating common problems and health maintenance (Alliance for Health Reform/RWJF Webinar 2013). There is no doubt in my mind that there is a place for mid-levels in primary care. One study showed that increasing the number of nurse practitioners' per provider increased patient satisfaction thought secondary to decreased time elapse from scheduling an appointment to the appointment itself and decreased physician burnout (Potts, Adams, and Spadin 2011). The 2009 Cochrane review indicated that the quality of care is similar for nurses and doctors but it was unknown if the doctor's workload was decreased. Additionally, the review suggested that nurses tended to provide more health advice and achieve higher levels of patient satisfaction at a decreased salary cost but nurses may order more tests for diagnosis negating the cost savings. In a January 2013 Cochrane qualitative review was initiated to settle the debate about the role of nurses in substituting for doctors in primary care. Unfortunately, the results are still pending but may be informative as AltaMed makes a plan of how to design the best model that utilizes all members of the PCMH team optimally. The 2013 review is an attempt to get at the nuances of barriers and facilitators to substituting nurses for doctors in primary care practices after the questions raised from the 2009 review. None of the objectives for the 2013 Cochrane indicate that they will look at outcomes but I would be interested in seeing if the higher number of diagnostic tests causes delay in diagnosis resulting in poorer long term outcomes and increased spending not seen in the 2009 review. I suspect that the delay in diagnosis may be secondary to the differences in training between physicians whose training focuses on diagnosis and management of complex patients while nursing education focuses more on patient education and disease prevention. It would be best if each PCMH utilized each member whether nursing, physician, or health educator of the team to their maximum training potential.

c. Adjusting Provider Panel Based on Age and Sex of the Population

There have been several models that have been suggested by insurance companies and other sources to adjust for healthcare utilization. It is well established that women visit clinicians more frequently than men, older adults are more complex, insured individuals tend to visit providers more than uninsured, etc. Currently, men are more likely to be uninsured and therefore many people predict an increase in men with coverage under the ACA and there is a disparity in the number of medical students entering primary care compared with needs of the primary care work force (Petterson et al 2012). Dr. Hochman and I utilized several resources to develop a formula to adjust provider panels at AltaMed. The following tools were used to create the formula include Blue Cross HMO-Professional Capitation Age/Sex Relativity and AltaMed panel size numbers divided by age and gender. Please see Appendix C which has more details from a PowerPoint presentation that I created with the development of this process.

d. Models for Adjusting for Patient Comorbidities

Age and sex doesn't take into account the mix of individuals' illnesses. Reasons to adjust panels include providing a fairer measurement of differences in expected resources, and support internal plan management. It also provides a common language for clinicians, actuaries and managers to discuss utilization issues and enables a credible response to providers with more complex patient panels. Although the developers generally agree on the advantages of case-mix assessment, their approaches vary significantly. Therefore, it is important that selection of the appropriate case-mix adjustment model must be based on a critical evaluation of each tool and careful consideration. There were 3 consistently mentioned, commercially available case-mix assessment tools to adjust panels for illness of the patient that had 10 times greater power for predicting variations in resource utilization when compared with age-sex alone. The following models use demographic data and healthcare service events typically found in encounter claims: Adjusted Clinical Groups ("ACGs"), Diagnostic Cost Groups ("DCGs") and Episode Risk Groups ("ERGs") (Sevcik 2004). ACGs are population based case

mix which requires 10,000 individuals where a subset of at least 50 individuals from a provider are analyzed and compared to national bench marks. This is a clinical based system which uses demographics and diagnostic codes from both inpatient and outpatient settings over one year to categorize individuals based on severity and diagnostic certainty that services will be needed. ACGs can be used in HMO, preferred provider organizations, point of service networks to profile groups by location, provider, as a predictive model to identify currently low cost individuals who are at high risk of high resource use. DCGs are a population-based risk assessment model based on diagnosis which has been used for profiling disease management, actuarial and capitation payment. The prospective relative risk score calculated by DCGs is said to be a representation of individual intrinsic illness burden. A clinical and resource based system combines demographic and diagnostic information to create groups with clinical needs within the population and to evaluate management programs. It uses a complex system with clinical judgement to measure severity. Individual risks are calculated and then placed into one of 25 DCG expected to have similar expenditures. At least 50 individuals are needed to compare PCP and specialist panel burden retrospectively or prospectively to predict high cost cases. ERGs are a population episode-of-care based model used in both gatekeeper and non-gatekeeper networks to profile provider and employer groups. Each treatment episode is used to group patients who are assumed to have similar clinical and risk characteristics. One patient can have multiple ERGs and are further grouped into one of twenty-sex groups that have a similar predicted expenditure. They utilize the data from one year to identify and predict future expenses such as hospitalizations and illness in individuals the following year. They are compared in the table located in Appendix F which is from an article by Sevcik et al which was published in the Journal of Health Quality Research Toolbox in 2004. The National Association for Health Care Quality comparison of advantages of case-mix assessment indicate the advantages and disadvantages to each and therefore each organization must evaluate each tool carefully to determine which one is the best fit.

      e.   How can panels be altered in the least disruptive way to improve access?

The question of reallocation of provider panels was one that came up during my short time with AltaMed. I did read a little bit of the literature and found a few tips for provider panel reallocation. There is no need to reallocate abruptly, incremental changes as people leave could easily be accomplished by having the front desk freeze providers who are over capacity. In addition, patient surveys could be used to determine preferences which may increase patient satisfaction. Another plausible solution is to change to another physician who the patient has seen almost as much as their own PCP or possibly to one in the same care team who has a smaller panel (Balasubramanian et al 2010).

d) IHI Advise on Panel Size

I arranged a conference call with the director of the Triple AIM and a faculty member from the Triple AIM at the Institute for Healthcare Improvement (IHI). The Triple AIM is an initiative created by IHI to optimize health systems performance by improving patient experience, improving the health of populations and reducing per capita cost. They indicated that physicians are not appropriately trained to deal with the type of psychosocial issues that often interfere with good outcomes and recommended more modern paradigms. They emphasized focusing on those who are at highest risk to spend a lot of health care dollars and how to address their psychosocial and behavioral needs so as to best improve outcomes, often using other staff members which are more experienced and less expensive than physicians to address this need.

At their suggestion, I reviewed the 90-day project summary report on high risk-high cost patients entitled Complex Patients in Primary Care which was completed October 31st, 2012 and is part of the Triple AIM. This suggests that identifying and focusing on high risk high cost patients to prevent future costs by targeting cost effective interventions which can impact specific populations. They suggested utilizing predictive modeling to identify these individuals. It is commonly said that 5% of patients account for 50% of the cost and health insurance companies have been working to try to address this for decades. Risk of expenses increases with age and more chronic conditions. Without changing the

system about 60% of the highest spenders are new to the top 5% highest spenders each year. If you break it into low, medium and high cost spenders next years group of top 5% will consist of all three groups of the previous year. Using historical population data is a good way to estimate and predict cost of the population but not as useful for predicting an individuals' risk. A predictive model based solely on costs for the last year would end up providing additional support for the 60% of patients who were in the previous cohort of high spenders but will not be there again. They outline a plan for how to decide on a population to provide interventions. Principles of the plan include: 1) using predictive modeling which has a better chance of risk stratifying the population than alternative approaches. Predictive modeling allows you to predict who will be at greatest risk next year 2) choose a population we can impact in a cost effective manner. Most predictive models use claim data which doesn't get at the social determinants of health and or psycho-social issues but interviewing may help with this. You can also look to companies like Acxiom which can help to give data on a population's social and economic situation. At the end of step two you should have an idea of the root cause and some potential interventions. 3) Test out ideas with the 5x scale up method. The 5x scale up method is basically starting a program with only 5 individuals and get started right away without much planning and learn your way through it. You have limited risk by only working with 5 people. Appendix A shows the 5x scale model from this IHI article. 4) Learn from your work with 5 and scale up. Know your long term goal number to impact. Use all of your resources to design the best programs: community health workers, case managers, pharmacy, EMR coordinators, primary care, community resources.

V.   **Discussion**

As part of using everyone to their maximum potential, I would suggest using mid-levels primarily for health maintenance and/or for management of lower risk patients within a physician panel. If diagnosis of a new problem is not achieved promptly, the patient should be seen by the physician to expedite the workup. Diagnosis promptly is vital for cost savings and improved outcomes and is thought to occur more efficiently with physicians due to the nature of their training. While health education and prevention may best be accomplished with trained midlevels and/ or health educators

providing more both cost savings and improved patient outcomes. I did find it interesting that with these techniques of distributing their does seem to be enough PCPs but they may not be distributed appropriately so we still are likely to have a relative shortage elsewhere. Researchers calculated that in 2008, an estimated 206,369 primary care physicians provided office-based primary care. That's one practicing primary care physician for every 1,475 persons not accounting for variations in distribution (Petterson 2012). It seems to me that the population that AltaMed works with would still have to few physicians so things like the GE-NMF Primary Care Leadership Program and other initiatives to encourage young providers to pursue working with underserved population may be helpful. In addition, things like lowering panel size and decreasing provider burn out would also be extraordinarily helpful for retaining quality physicians. One question that I have is if many tasks are delegated to other workers how does delegating tasks affect doctor-patient relationships and issues like adherence? I didn't see any comments in the literature on things like this.

To improve capacity decreasing frequency & volume of specialty referrals was also suggested. This may or may not be feasible. It requires unique interventions like I heard about in the Primary Care Progress Webinar on Project ECHO which was a program designed to facilitate PCP interactions with specialist to better manage chronic pain patients. This is a great way to save money and time for both patients and providers but I don't know how many physicians will be willing to work towards achieving this goal by implementing programs similar to Project ECHO. Using the Institute of Medicine's rules for healthcare redesign a group intervention known as CenteringPregnancy Group Prenatal Care was designed, implemented and has yielded publications in the scientific literature to disseminate the results (Massey, Rising and Ickovics 2006).The Centering model where patients are responsible for taking their own vitals and providers do a quick physical exam followed by a two hour support group with a learning issue that the provider educates the group significantly decreased premature births, decreased low birthweight and increased vaginal deliveries in a review of the literature (Thielen 2012). Another example of innovation was published in the Journal of American Geriatrics Society in 2004, this group model for geriatric patients reduced hospitalizations and emergency visits while increasing patient

satisfaction ands self efficacy. Use of secure messaging and phone appears to associated with higher quality diabetes care (Bredfelt 2011). While I was at AltaMed I had the priviledge of attending some parenting workshops that Dr. Puri put together. These I think could be expanded into well child visits and use a similar model as the centering model to address the needs of parents and kids with more thorough education and more time with the provider. What is great about these new initiatives is they are good opportunities to look for grant funding to support the initial development and see how it would best work in AltaMed's unique situation. Smaller panel size increases patient and provider satisfaction and AltaMed will actually compete with other private docs with ACA. Since AltaMed has an interest in improving outcomes and quality of life for people, a March 2013 policy post from the UK Department of Health indicates that people with chronic diseases could have improved quality of life with telemedicine. The CareMore model increased the ratio of providers to patients and had 25% better outcomes at 20% lower the cost (Leventhal, R. 2013). The readmission rate in this elderly population is 12% compared with the overall Medicare population which has a readmission rate of 20%. These results were achieved by increasing the focus on raising the quality of care, improving care coordination across all care settings and applying these methods over the long term. Correct use of technology decreased death rates, visits to accident and emergency departments and emergency admissions significantly. This has the potential to save a lot of money and staff time as well as improve outcome. One study showed that capacity increased just by gathering and reviewing the data and building interventions to bolster team-based care (Marx 2011).

Many conditions seem to increase non-primary care utilization including chronic mental health and medical conditions. Additionally, many social determinants of health such as social support, alcohol and substance abuse and lack of housing have an effect.. To begin to account for social determinants of health, investigations should be conducted on the affect of provider panel size to these factors to determine how to adjust the provider panel and/or need for ancillary staff based on differences in education, SES and other social determinants of health. I suspect that the disparities in

the social determinants of health may have a stronger affect on the number of case managers/support staff that are necessary to work with the patients on the providers' panel to achieve optimal outcomes.

My last day at AltaMed was a Saturday in a very busy clinic. There was only one provider who saw 18 patients in one morning. I could tell he was exhausted at the end of the day. It was supposed to be a ½ day but we were there till well into the afternoon. The more recent research indicates that smaller panel sizes with only 7 visits per ½ day is less expensive and has better outcomes. Less physician burn out and decreased spending which seems counter intuitive but I think more problems will get solved in fewer visits saving money and likely improving patients satisfaction. I also think that doctors who arent burnt out and are happier will communicate more effectively with their patients. I recognize that it is scary to try something new but the old system of having excessively large provider panels and providing limited chronic and preventative medicine isnt working we have to invest in our patients and providers by making sure that they experience the reward of healthier outcomes and increased satisfaction with their experience.

VI.   Recommendations

- ➢ **Decide on goal provider panel size:** The first step is to decide how much delegation will occur. Then determine which goal size panel between 1300 and 1800 maximum would be most reasonable according to the Duke 2012 study previously discussed. I would probably recommend closer to the 1300.
- ➢ **Adjust panels for age/sex**: Adjusting panels using the formula that was created by Dr. Hochman and I and is further outlined in Appendix CB to see which providers have panels that when they are adjusted are larger than the goal panel size.
- ➢ **Decide on factors to use for adjusting panels by comorbidity**
    - i. Pick the model above that best suits AltaMed, there are pros and cons to all choices.

- ➤ **Calculate provider panels**
    - i. Adjust for age, sex and comorbidity
- ➤ **Distribute the following to providers:**
    - i. Current panel size
    - ii. Goal panel size for each provider
    - iii. HEDIS stratification of provider panel size
- ➤ **Encourage provider compliance with maximum panel goal:** Utilize the techniques outlined in this document to shift patients from providers with excessively large panels to another smaller panel. Panel sizes should be designed for optimal population health at decrease cost and manageable for providers.
- ➤ **Innovations to increase provider panel :** Implement new systems and have non-clinicians adjust to their new responsibilities within the clinic and clinicians adjust to delegating these roles.
    - i. Continue to look through literature to determine best models for AltaMed to enhance panels, specifically look for the 2013 Cochrane report on nursing-physician roles as discussed previously. Consider some new innovative models
        1. Hire more physicians and midlevels to address the needs gap in chronic care or preventative care or both
        2. Use evidence based innovative models such as Centering & Geriatric Group Visits to increase capacity; Midlevels and non-clinicians may be useful in facilitating these models
        3. Use IHI rule of 5 to develop your own models based on the population that you serve who may be likely to be high cost

- ➢ **Develop social determinants of health adjustment to panels** to determine the number of case managers that should be pared with a physician which will vary based on population (while other support staff should be relatively constant).

- ➢ **Payments for coordination of care** examples of systems that work to coordinate care such as CareMore can save significant cost.

- ➢ **Computer based care**

- ➢ **Other tools to facilitate non-visit care and self directed care;** For example, use of technology to better track patient behavior such as scales that send data back to doctors for patients with congestive heart failure or glucose monitors that report data to doctors directly could be cost effective ways to save lives.

- ➢ **Lead the research** behind panel size adjustments for social determinants of health in hopes to push for increased reimbursement for dealing with the more challenging populations.

VII.   Conclusion

Mr. de la Rocha, the leader of AltaMed always talks about wanting to decrease the line and improve access to care. He often says has spent the last 40 years trying to "shorten the line" to see a clinician. My experience with AltaMed, including interviews with leadership, various clinical experiences at different sites and the words of Mr. de la Rocha at the PCLP panel, I believe that there are ways that designing provider panels can help AltaMed achieve their vision to be the leading community-based provider of quality health care and human services. Small panels with longer appointments and development of innovative paradigms have the potential to increase provider panel size without compromising quality and thus minimize wait time for appointments and improve the quality of the healthcare that AltaMed provides. No good model exists at this point that takes into account the complex nature of dealing with patients particularly in the FQHC setting so I think it is most important in the age of the ACA to be flexible and adoptable. Using evidenced based new paradigms for population

health improvement and securing grants to develop new initiatives will be key because population health and outcomes will be measured and vital to the success of AltaMed allowing the organization to continue to serve as a leader in innovation for FQHCs around the country.

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5. Managing Panel Size and Scope of the Practice, Institute for Healthcare Improvement; Last modified 4/27/11; accessed 8/12/13
http://www.ihi.org/knowledge/Pages/Changes/ManagePanelSizeandScopeofthePractice.aspx

Appendix A: 5x scale model for innovation from IHI's High Risk High Cost 90 day Report January 2013

Number of people	System issues to address
5	1. Form a team of volunteers 2. Find people through referrals
25	1. Full time team 2. Redesign of practice 3. Cooperation of hospitals for data 4. Assess outcomes
125	1. Grant funding for operations 2. Consistent population outcomes
625	1. ?
3125	1. ??
15,625	1. ???

Table 2: Commercial and non-commercial tools that you can use for predicative modeling

Model	Developer/ Vendor	Data Sources	Risk of	Link
PARR ++, PARR1, PARR2	Health Dialog	• Patient Demographics • Hospital and ED utilization • Diagnostic data (ICD) --DCC-HCC • Community Characteristics	Readmission in the next 12 months	Kings Fund, Nuffield Trust
Combined Predictive Model	Health Dialog; Kings Fund; John Billings, NYU	• Patient Demographics • Inpatient • Outpatient • A&E • GP data • Community Characteristics	Emergency hospitalization in the next 12 months	Kings Fund, Nuffield Trust
Adjusted Clinical Groups (ACG)	Johns Hopkins	• Age • Gender • Diagnostic data (ICD) • Pharmacy data (NDC)	Future hospitalization, high cost, or high pharmacy use	http://www.acg.jhsph.org/

Impact PRO	Optum (formerly Ingenix)	• Medical claims
		• Pharmacy claims
		• Additional modules:
		    • Lab data
		    • Pharm risk groups
		    • Clinical indicators
			Risk of future cost, inpatient stay.	Optum Insight

Model	Developer/ Vendor	Data Sources	Risk of	Link
Risk Navigator Clinical	Elsevier/ MEDai	- Medical claims - Patient demographics - Lab data - HRA data - Episode treatment groups - Pharmacy data (NDC) Insurance type	Future cost, clinical risk (diabetes, comorbid cardiovascular, etc.)	MEDai
Clinical Risk Groups (CRG)	3M	- Age - Gender - Medical claims data (ICD) - Pharmacy data - Functional health status	Future healthcare utilization and cost	3M
Diagnostic Cost Group-Hierarchical Coexisting Conditions (DCG-HCC)	Verisk Healthcare Inc. (formerly DxCG); developed at Boston University	- Age - Gender - Diagnostic data (ICD)	Concurrent 'expected' spending, risk of future expenditures	VeriskHealth
Scottish Patients at Risk of Readmission and Admission (SPARRA)	Information Services Division, NHS National Services Scotland	- Pharmacy data - Hospital, ED, outpatient, and psychiatric utilization	Admission, readmission in the next year	ISD Scotland

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Panel Size

FORMULA DEVELOPMENT

Tools that were used to create the formula:

- Blue Cross HMO- Professional Capitation Age/Sex Relativity
- Altamed Panel size numbers divided by age and gender
- Used a factor from the Blue Cross HMO and multiplied times the percent of patients a provider carries in that age range
- If the age ranges didn't match, we assumed that an equal number of people were each age. So if 100 people were age 0-4, 20 people were each age, so a weighted average was calculated

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Adjusted Panel

FORMULA

- For each provider the % of patients in their panel were multiplied by the appropriate blue cross factor for a male or female in a particular age group after that factor was converted into an appropriate Altamed factor using a weighted average, assuming the same number of patients per age within a particular category
  - These factors were then added together and multiplied by the providers current panel size and divided by FTE

BLUE CROSS HMO

Age/Sex Factors

Effective Date: 02/01/2014 To 01/31/2015
Professional Capitation Age/Sex Relativity Table

ALTAMED MEDICAL GROUP -PICO RIVERA
Prime Code: 0BG
Age/Sex Factors (includes HMO Commercial, Durational and Blue Cross Plus plans)

AGE RANGE		Factor	Factor
From	To	Male	Female
0	0	1.8000	1.8000
1	4	0.5000	0.5000
5	14	0.4600	0.4700
15	19	0.5500	0.7700
20	24	0.5000	1.0100
25	29	0.5900	1.2800
30	34	0.6800	1.4500
35	39	0.7800	1.4600
40	44	0.9000	1.4900
45	49	1.0500	1.5800
50	54	1.2500	1.6900
55	59	1.6100	1.8400
60	64	2.0500	2.0700
65	120	2.2800	2.2200
65+	MP*	0.6840	0.6660

Adjusted Panel

FORMULA

- For each provider the % of patients in their panel were multiplied by the appropriate blue cross factor for a male or female in a particular age group after that factor was converted into an appropriate Altamed factor using a weighted average, assuming the same number of patients per age within a particular category
  - These factors were then added together and multiplied by the providers current panel size and divided by FTE

Adjusted Panel=$\sum (BC_1 \text{ x }_{\%1} + BC_2 \text{ x }_{\%2 ..}) \text{ x ACP/FTE}$

- BC= blue cross factor after converting to Altamed weighted average factor
- ACP = Actual provider panel
- FTE= Full time equivalent
- %= number of patients a provider has in a certain age/sex group divided by ACP

Current Panels

Row Labels	Specialty	FTE	0 to 4		5 to 17		18 to 24		25 to 44		45 to 64		65+		Total	
			F	M	F	M	F	M	F	M	F	M	F	M	F	M
Estrella MD, Gustavo E	IM	0.90	49	50	160	116	344	121	563	240	572	311	106	51	**1,794**	**889**
Henar MD, Evelyn T	PEDS	1.00	487	486	521	494	25	22	0	1	0	0	0	0	**1,033**	**1,003**
Ross PAC, Soraya	FP	1.00	26	29	105	70	156	44	263	80	201	101	29	17	**780**	**341**
Rodriguez MD, Caithness A	FP	1.00	1	0	5	3	9	4	12	10	15	9	4	0	**46**	**26**
			563	565	791	683	534	191	838	331	788	421	101	55	3,653	2,259

Adjusted Panels

Row Labels	Specialty	FTE	Actual Total	FTE 1.0 Equivalent		FTE adj total	Adjusted Total	Adjusted FTE 1.0 Equivalent	Target	Visits	
			F+M	F	M	F+M	F+M	F+M	F+M	Target	Actual
Estrella MD, Gustavo E	IM	0.90	2,683	1,993	988	2,981	3,297	3,664	1,800	6594.43	8,246
Henar MD, Evelyn T	PEDS	1.00	2,036	1,033	1,003	2,036	2,372	2,372	1,800	4744.752	6,122
Ross PAC, Soraya	FP	1.00	1,121	780	341	1,121	1,348	1,348	1,800	2696.875	2,917
Rodriguez MD, Caithness A	FP	1.00	72	46	26	72	80	80	1,800	160.3558	180
Total			5,912	3,852	2,358	6,210	7,098	7,465	7,200	14196.41	17,465

Appendix D: AltaMed Conversion Factor: The AltaMed conversion factor is a weighted average utilizing the Blue Cross age/sex conversion factor for each year to create 1 conversion factor for each sex/age group at AltaMed

Age	Female	Male
0-4	.76= G	.76= A
5-17	.5392= H	.4807=B
18-24	.9414= I	.5143=C
25-44	1.42= J	.7375=D
45-64	1.795= K	1.49=E
65+	2.22= L	2.28=F

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Adjusted Panel=$\sum (BC_1 \times _{\%1} + BC_2 \times _{\%2 ..})$ x ACP/FTE

- BC= blue cross factor after converting to Altamed weighted average factor
- ACP = Actual provider panel
- FTE= Full time equivalent
- %= number of patients a provider has in a certain age/sex group divided by ACP

PATIENT PANEL SIZE WORKSHEET

Instructions: Input values into all "yellow" fields, below.

	CURRENT PANEL	Example	Your practice
A	The practice panel: The number of unique patients who have seen any provider (MD, NP or PA) in the practice in the last 12 or 18 months	6000	
B	Full-time-equivalent (FTE) providers	4.00	
C	FTE providers devoted to nonvisit work	1.00	
D	FTE clinical providers (B - C)	3.00	0.00
E	The "target" panel for each FTE clinical provider (A ÷ D)	2000	#DIV/0!
	For an individual provider		
F	Clinical FTE of the individual provider being analyzed	0.80	
G	Actual panel for the individual provider (This can be determined using the "four-cut"method described in the article.)	2000	
H	Difference between actual and target panel for the individual provider (G - (E x F))	400	#DIV/0!

	IDEAL PANEL	Example	Your practice
I	Visits per patient per year (The average is 3.19, but your number may vary and can be adjusted based on patient acuity, as described in the article.)	3.19	
J	Provider visits per day	24.0	
K	Provider days per year	240.0	
L	Ideal panel size ((J x K) ÷ I)	1806	#DIV/0!
M	Difference between actual and ideal panel for the individual provider (G - L)	194	#DIV/0!

Note: Strategies for reconciling the actual and ideal panels are provided in the article: Murray M, Davies M, Boushon B. Panel size: how many patients can one doctor manage? Fam Pract Manag. April 2007:44-51. Available at: http://www.aafp.org/fpm/20070400/44pane.html

Appendix F: Comparative Matrix of ACGs, DCGs, and ERGs, Table 2 of Sevcik et al article

http://www.nahq.org/uploads/files/Understanding_Approaches.pdf