



# Big Data and Improving Patient Engagement in Health Plans:

## A Concrete Proposal for Helping Care Teams and Patients

Contributing Authors (in alphabetical order)



### Casey Le Jeune

has over a dozen years of healthcare experience and current co-founder of Elevar, a healthcare innovation firm.<sup>1</sup>



### Jason Cooper

is a seasoned executive and analytics thought leader, well-published author and experienced public speaker.<sup>3</sup>



### Dawn M. Gross, MD, PhD

is a Hospice and Palliative medicine physician, educator, writer, public speaker and radio host of Dying to Talk.<sup>2</sup>



### Peter Meyer

is the principal of the Meyer Group and author of three popular books.<sup>4</sup>

## Abstract

If you manage a health plan, can you improve engagement with your members by generating data? Only a few years ago, the answer was no. Within a year, the answer should be an unequivocal yes. This article lays out a proposal for you to do so.

## Introduction

There is growing agreement that when a patient is engaged, outcomes improve. The question is how to increase engagement without disrupting care for your plan members or your business itself. We propose a framework, which we will call My Values Map, that you can develop and implement to get more engagement sooner—and do so at a lower burden to care teams and providers. We'll suggest a trial that a health plan can conduct quickly and at a reasonable cost.

Our three objectives in this commentary are to:

1. Show you a simple outline for a health care plan to improve engagement by individual members;
2. Propose a simple set of tools to do that while improving patient outcomes, the sense of satisfaction for care teams, and the business strength of the plan; and

3. Show how some big data can be generated and applied in a concrete and low-cost way.

From this you should be able to craft a reasonably low-cost plan that you can apply in the next 18 months.

In this article the term “health plan” refers to any organization that manages care for members. We give examples, but if you match and pay for care teams to handle medical needs, and you have members who are not yet patients, then this is an article for you.

If you manage a health plan this article is a call to action. You will find a framework that we call My Values Map to help you increase the engagement of members before they become patients. With this framework you can improve outcomes, increase care team satisfaction, and strengthen your business.

## How Can You Use Big Data? Why Now?

With new low-cost tools and improved analytics you have enormous quantities of medical and health-care data available. But even more, you also have new capabilities to generate data as well as receive and analyze it. In addition to clinical data, as a membership organization you can produce and collect personalized data on what individuals value in their daily lives that can enhance wellness and treatment plans. You can engage them as individuals, earlier and more completely, without burdening the front-line care teams. (We define “care team” as the relevant combination of a primary care physician, nursing staff, and specialists appropriate for the individual’s treatment.)

For instance, would it be valuable to the care team to not only know the medical trends of each individual, but also any economic or community issues that affect their ability to support and engage in a treatment plan? Are they self-disciplined? Is it their style to question medical authority and rely on Google over a plan? Do they have beliefs that mean they will likely decline certain treatments?

Just as important: wouldn’t it be valuable to the individual and to the care team if a new patient comes into the plan already engaged in their own care and feeling respect for the care team before it is required?

All this involves more information than could reasonably be generated and captured even a few years ago. It’s an application of big data: a volume of data (both structured and unstructured) that’s difficult to turn into useful information. Why now? Today most health plans have analytics teams and the tools to make this work. The work to do this proposal is now almost simple.

What we propose in this article is that you start the work to **generate** member data before members become patients. This allows you to approach and engage with individuals before a clinical event occurs and do so in a way that can be easy for the member and the care team. In turn, this allows your team to build plans based on an individual’s values and clinical health data at the same time.

## What Is in This Plan for You?

You’ll get better outcomes at a lower cost to both the patient and your health plan. However, that’s not the only benefit you will realize from this data-generating project. Another key benefit is that your care teams will become more efficient and gain more fulfillment from their work. Given the increasing pressures on care teams, we think it’s important for clinicians to experience a quicker and surer sense of progress and satisfaction.<sup>5, 6</sup>

But there are more gains to be had, as are listed in Table 1.

## TABLE 1: Potential Benefits From Values Information and Patient Engagement

- Increase the sense of engagement for the individual, and the sense of being heard by her plan
- Helping the member better understand her values model before a treatment is ever planned
- Helping the care team to design a plan that will succeed early
- Increasing the chances of the plan working over longer periods of time
- Helping the plan understand the specific values of their membership as those values change
- Increasing member loyalty to her plan
- Increased engagement of the health care team to the member and vice versa
- Feeding the Federal Preventative Medicine Initiative (or whatever follows it across plans)

This is a case where wellness of both the plan members and the plan's business operations can be improved by one well crafted effort.

Implementing this model of gathering and using member values data:

- Gives your health plan a technique for improving member loyalty. Members who do not experience a clinical event still gain a more positive image of their plan. This can increase how long individuals stay with you when they do not need care.
- Informs your organization with useful data that you had no way to collect before. You can do as some plans do: Proactively help members live healthier lives now.<sup>7</sup>
- Allows your care teams to more easily triage and handle their increasing loads. As the teams develop treatment plans, each plan has a better chance of first-time success.

Finally, this My Values Map framework supports a unique opportunity for business disruption in the market.<sup>8</sup> That can translate into new revenue opportunities for health plans and technology companies. As multiple health plans build out the tools and use them, a new business need will arise. Patients will want to move from one health plan to another over time. As this person-by-person non-Health Insurance Portability & Accountability Act (HIPAA) data is generated, a new business in managing that data will grow. [See Sidebar 1](#), at the end of the article: A New Business Opportunity.

To be clear, we are not offering a product here. The My Values Map is a framework that you should adapt to your own organization. There should be enough information in this article for you to assign the project to a team, develop the tools quickly, and then get some measurable results.

It's important to look at how the data will be generated and circulated to individual patients and their care teams. But first, we'll start by discussing an underlying conundrum.

### The Conundrum

There is more medical and non-medical data about members of your plan available today than ever before. The amount of data is increasing at an exponential rate. You can now sit down with an expectant couple, a healthy teenager, and her parents, or a person in her 80s and realistically discuss probabilities and opportunities based on numerous trends and even genetic data.

Given the data available, it increasingly feels like there are myriad options for the member and clinician. The massive quantity of data is becoming even more detailed and can seem oppressive. When a member has a clinical event and becomes a patient, the data often seems to be impossible to comprehend. For the new patient, it can be paralyzing. But while the volume of information is increasing, the time for any individual to become overwhelmed is diminishing. Feeling overwhelmed doesn't foster engagement in health and planning.

In other words, the conundrum is not the data. The conundrum is how to help generate and then integrate the data to become information that's available at the right time so that the patient engages and the care team achieves success more quickly. The My Values Map framework supports that without taking more time from the care team.

## **The Decision and Starting With String**

When a clinical event occurs, the care team has the ability to tailor treatment. The team can make suggestions based on averages or tendencies, but you are not dealing with averages: You are dealing with an individual patient. No patient, and no patient's physical and social environment, is average. Worse, most of the data is technical, and the patient thrives in a non-technical world.

So what's a patient to do? They try to assimilate myriad and usually confusing data, perhaps under incredible distress. They then have to decide on a course of action. Frequently some data comes from non-medical sources, and the patient has to separate anecdote from science. Often, making a treatment decision is shared with family and community. The question is: how can an individual sort all the data and make a good decision under stress?

To illustrate the problem, let's use a bag sewn shut with string. You may have tried to open a bag of grain or seed that was sewn shut. When you pull on the string from one end, opening the bag becomes more and more difficult and potentially frustrating. The harder you pull, the more difficult it gets. Adding more data, more emphasis, or more argument does not make the grain more available.

However, if you move around to the other side of the bag and pull on that end of the string, the bag opens quickly and easily.

So now the question becomes: How do we present trends and data so that it's easy for the patient and her family and community to make a decision? How do we find the end of the string that works for the patient?

## **The Start: How Members Live And Their Values**

For clinicians, the normal starting point for conversations with the patient is data and facts. But for patients medical data is probably the difficult end of the string. We suggest that the other, easier, end of the string can be found when we start with how patients live and what they value.

Consider how treatment would work if you could understand the patient's values. What if you knew,



just as she enters your office, whether she is self-disciplined? Would it be valuable to know if she has values-based reasons to support one treatment plan over another? Could your team craft a better plan if you knew that she did or did not have steady access to good nutrition and housing?

**TABLE 2: Values to Query and Track**

- Does this individual tend to actively engage in plans or just accept them?
- Is nutrition stable for the individual?
- Is housing stable for the individual?
- Is the individual more likely to embrace the care team's plan or do her own research?
- Does the individual have strong self-discipline in her life (athletics, difficult hobby, etc.)
- Is the individual habitually driven by outside rules or internal rules?
- Does the individual place community above self or self above community?
- Can this individual rely on family and community support for her plan?
- Is the individual good at focusing?

None of the questions will ever be phrased this way, but by crafting standard values questions and repeating the topics over time the data will reflect the core values of the plan member before the stress of a treatment plan is added.

Today this values-based data is not presented to a care team in an efficient and organized way. However, it could be and Table 2 shows an example of what could be shared. We propose a structure to capture that data before the individual becomes a patient. That is the first step. The second step is to stream the correct information to the care team when they are considering a treatment plan.

This starts with the individual before she is a patient. The My Values Map generates useful personal values data that supplements, but does not replace, the medical data. (See Table 2 for examples, and see **Sidebar 2** for a discussion of how to build values questions.) When you combine these two forms of data, care teams can make an informed recommendation that is more likely to deliver a successful outcome in less time with less rework and less need to convince the patient. This process causes the patient to feel heard and be more engaged and she will get a better plan for her treatment. As a result, she is more likely to follow it.

*“The treatment plans of the future are really around what the patient is able to do that works within their life, in the context of agreed-upon health outcomes between the patient and the treatment team. This requires the provider team and patient coming together interdependently as equal partners, coming to an agreed set of outcomes with realistic steps for both.”* Dr. Nirav R. Shah, MD, MPH<sup>9</sup>

## Using Cards to Determine Values

For some individuals, pulling on the science end of the string is perfect. For some, the “What does the patient value” end is much better. Often you can’t know which end will work better until a clinical event occurs. But waiting until the event to get the values data is waiting too long. Generating that data should start before the individual becomes a patient. (For more on working with members before they become patients, see [Sidebar 3: Delay Death or Enhance Life?](#))

One current example of a tool to generate values data is Go Wish cards. (These are an existing product, produced by the CODA alliance and available at <http://codaalliance.org/go-wish/>) This deck of cards helps the patient decide and tell others how to approach her end-of-life choices.<sup>10</sup> The patient sorts the cards and assigns value to personal, life, and community situations.

To be clear, this is not about specific treatments. When you play Go Wish, you are making values choices that pertain to end-of-life decisions. When you use the cards, you sort statements by level of importance. You might say that “to prevent arguments by making sure that my family knows what I want” is Very Important. You could hold that “not being short of breath” is Somewhat Important. If “to meet with clergy or a chaplain” is not as important as those, you put that card in the Not Important pile.

No individual’s values are static. At the same time, we can never predict the myriad and changing medical innovations becoming available. Consequently, the patient should repeat the exercise periodically, perhaps once or twice a year, so she learns as she plays, and you are up to date on her values as they evolve.

Each Go Wish deck comes with a wild card, allowing players to add their own wish or category. Over time, the more patients play, the more specific they become with their wild card. As the players repeat the game, they show a maturation of values and, they add their own cards. These might be: “more time with my grandparents” or “be alert long enough to watch my daughter get married.” Playing Go Wish is an example of helping individuals express something that might never get discussed in a clinical environment.

This card “game” is not just for the individual; it also informs her community. The game provides a way for her to show her family, wider community, and healthcare team what it is that she values. But even more, the game provides a way for the patient to literally set values on the table that guide treatment decisions. A mother who wanted to watch her daughter get married before she (the parent) passed away found that her care team was willing to arrange the ceremony in the hospital. The values conversation that came from the game helped engage the patient and her team. It was a special outcome for everyone.

These values do not give medical direction. They inform it and support the patient and care team in making better decisions about that direction. They support greater engagement by the individual in her wellness and, if necessary, in her care. They help care teams feel even better about their work.

To both enhance the quality of life of an individual and improve her engagement with her own wellness, you need to get started before a clinical event. You need to focus on living, not end of life. And this thought exercise can be adapted to do that. We propose it as an application for a phone/tablet/desktop as well as live interview. This is the core of the software application that is part of the My Values Map framework.

The value is not in the tool or its name. The prize comes when we get the individual to identify values and share them with her community and her health plan. Then, if treatment is required, the conversation

can start with engagement and with either end of the string: Values or data.

A fundamental tenet of this protocol is that it's important for the individual and her community to have this discussion before she becomes a patient. The best time to use either the Go Wish cards or your My Values Map software/questions is before any decisions are pending. That means talking to the individual when she is healthy.

## Five Best Practices for Generating and Integrating the Values Data

The information collected by the My Values Map software or questions is not medical data included in HIPAA-compliant repositories or political or religious information. It reflects the questions in Table 2. The data is owned by the plan member and shared by specific consent. That implies the creation of a separate transaction system to support the data becoming available outside the plan. For more on that, see [Sidebar 1: A New Business Opportunity](#).

The care team should be making calls on topics such as which compounds or genetic-based treatments are medically appropriate. Adding the values data at the time the care team creates a treatment plan helps both the care team and patient. Understanding the patient's values allows a much quicker path to better outcomes.

This is similar to the way that advanced care directives are used in LaCrosse, Wisconsin.<sup>11,12, 13, 14</sup> The My Values Map framework can be adapted for use at specific intervals with members before they become ill. This approach provides values-based information well ahead of the chaos/confusion/fear cycle and helps collect good data for treatment if it is needed. Finally, it provides more data for roll up and analysis by the health plan.

A best practice is to use the My Values Map early. Asking a practitioner to stop a consultation with a patient to collect this data is expensive. Asking a member to answer these questions under the pressure of a pending treatment plan is too late. A better answer for both the individual and the care team is to collect this information before a clinical problem develops and is diagnosed. Then it should be integrated into the Electronic Health Record (EHR) and examined when it's time to consider treatment options. The care team can review all the medical and values information at one time and make a quicker, less expensive decision that is more likely to be followed over time.

A second best practice is to refresh the individual values data and add to it every year. While there are many tools to gather data as a treatment plan is designed, this best practice enables you to gather and use data **before** a clinical event occurs. We know that personal values, community support, economic conditions, and individual behaviors are critical to developing a treatment plan that works over time. These factors are dynamic, so a patient's answers at any one moment may be incomplete. The data needs to be collected over time and updated as the individual's life changes. We also know that subjective answers are distorted when a patient faces life-challenging decisions. Collecting the data before it is needed provides better quality information, a chance to see trends, and quick access to information no matter what the current state of the patient is.

A third best practice is to make the data-gathering interaction very quick for the member. In the My Values Map, the plan member answers five questions at least twice a year. The questions are from a larger pool, so they vary each time the plan member responds. Most plan members would be asked to do this when they renew their membership and when they have an annual health checkup. No one transit through the app should take more than three minutes.

A fourth best practice is to make it easy, even attractive, for the member to use the My Values Map software. For most members, this is a quick smartphone interaction, easily done while they are in a waiting room or renewing their membership. Some members do not have, or prefer to not use, a smartphone. For those individuals, a quick interview with a nursing assistant can replace the phone application.

A fifth best practice is to make the application feel as personal as possible. It's important to limit the number of questions, and to clearly thank the member. Doing this right, so that the member feels valued, increases the available data, and leads to higher quality clinical care and better quality of life for patients. It also leads to lower costs and better experiences for members, patients and providers.

To build the questions for the My Values Map, you can look to several decision models. One is "Smarter Decisions, Better Results."<sup>15</sup> You may also find that the model your organization already uses is quite workable. For more on this, see [Sidebar 2: Behavioral Considerations](#).

## How to Make My Values Map Work

Let's consider a simple process to make the My Values Map work. This is built and adopted by a fictional health plan named Western Health Plan. At any given time, Western Health has a large number of patients and a much larger number of members who are not patients.

For this conversation we'll start with the Ottawa Personal Decision Guide<sup>16</sup> as a platform.

It has four key attributes:

1. It works with the individual's current knowledge.
2. This process helps capture her values around choices and her sense of quality of life.
3. The process also starts to identify the support structure surrounding that specific person.
4. Lastly, the process can provide concrete data that can be measured analytically.

The process, as we propose using it, generates new data. This information can also be rolled into the healthcare organization's data repository for analysis and to help craft better patient-centric policies and programs. This becomes part of the big data collections for future use. Only if and when it's time to develop a treatment plan, can the answers be linked to and placed in the EHR to inform treatment decisions.

Your questions might ask the member to assign a number of stars to time with family, exercise, importance of physical appearance, religious community, personal/private time, and so on. The answers are likely to change as the member stays with the plan, creating a trend. The member-specific trend becomes part of the data.

Similar tools in use today include StopCOPD, the LaCrosse directive, ChoiceMap, and the Ottawa Guide. For the sake of an example, let's use ChoiceMap, a tool specifically designed to collect information for healthcare using a smartphone. Western Health would take topics from the Ottawa Guide and work with ChoiceMap's development team to create a Western Health version of My Values Map that would collect some of the values, community and behavior data, and add some questions that best feed the Western Health data systems. Again, in any given interaction the application will only ask five or so questions. Since the questions can change every time the member uses the application, over enough

repetitions all the information you want is generated.

Western Health will want to gather different information than other plans, so while Table 2 shows some values to collect, the questions for each area must be well crafted to meet Western Health's needs. Your vendor might have the skill to build the right questions, or your own team may have the right experience to do this.

Remember that the questions can and should be iterative. You can update the questions over months and years as you learn what works for you. However, you might go through several iterations until you find a good question that discusses the stability of housing or nutrition for an individual. The result of this work is a phone- or tablet-driven application that any member can use to generate the data for her record.

Since the best way to collect this data is before the patient needs a care plan, Western Health would need a systematic way to update it annually. The simple solution might be to do this as part of member renewals and in-person checkups. Each member would be given the option of answering questions electronically or talking with a Western Health staff member who steps the member through the questions. When Western Health establishes a voice-oriented help desk for members, the staff there can be the alternative to phone or tablet application use.

It is important to write the user interface in a way that helps the member see that Western Health wants to listen. The text should make it clear that Western Health's team wants to improve outcomes by understanding the member's real life. It should also be clear that the Western Health team is grateful for the member's cooperation. This all implies using a personal style of wording.

There will be analytics backend work for this project. That team will take the tens of thousands of records and do three things.

One is to store them securely.

The next bit of back-office work is to build an algorithm that summarizes the answers to the questions. It won't be very useful to deliver raw data to the care team. It might be much more useful to provide a simple question with a score on a bar graph. The soon-to-be patient has a score for self-discipline, that is presented as a topic (ability to adhere to a difficult plan) and a number score with a colored bar graph. A member who has faith-based reasons to never accept a transfusion need not be identified by her faith, just by a score that effectively says "avoid transfusions" by showing that is ranked 1 on the scale and colored red.

The third part of the data back-office work is to have a software connection (perhaps an application programming interface or API) to the EHR that can be triggered when needed. Before a treatment plan is developed, both the care team and the soon-to-be patient acknowledge and give permission to integrate the answers into the EHR. Then the data flows into the record. This would be a one-way flow. As soon as it enters the EHR the data is managed under the rules Western Health uses for EHRs.

These answers could also be merged with information from a precision medicine project. For a discussion of that see [Sidebar 4: The Promise of Precision Medicine](#).

The work load to generate this system is relatively trivial. The decision to act and gather the data is a policy decision that requires the concurrence of data managers, clinical managers, financial managers, and medical staff within Western Health. The authors of this article recognize that this is not always as easy as building a phone app. So what is the value for Western Health?

## Why Bother to Invest in This Work?

We are proposing that a health care plan management team make a decision to invest time, people, and money into a project. There has to be a reason to do it. Let's summarize some advantages.

### ***Better outcomes***

The first reason is to improve outcomes. ***Patients who feel heard and engaged in their treatment plans have better outcomes.***

The corollary to this is that you can cut the time and cost to deliver better outcomes. When a member becomes a patient, she can have a substantial effect on how long it takes to reach an outcome. If she feels engaged and supportive of her treatment plan, and if she feels as though her health plan has paid attention and is considering her as a person as well as a patient, she will be more open to accepting the plan as crafted.

In addition, the treatment plan is more likely to be the right plan the first time. There will be fewer restarts of plans. That means better outcomes more quickly.

### ***Reduced costs to the plan and the patient***

Delivering the right treatment plan more quickly means fewer restarts, less time spent trying to convince patients to do the right thing, and a reduced cost of materials and operations. The plan can deliver better care at a lower cost to the patient and for your business.

### ***Closer connection to members***

The next answer is to improve the way members feel about their plan. From a business perspective, this increases member loyalty and reduces churn. There are clear economic benefits to this. However, it is just as important that when a member walks into her first session for a treatment plan, she feels positive about your health plan. When that happens she will be more likely to engage in and support her treatment. That means better outcomes at a lower clinical cost.

### ***Care team gets more grins in each week***

At the risk of seeming glib, there is a benefit to having a satisfied care team. When they can deliver better treatment plans the first time, your staff may feel better about coming into work each day. The plan gains when the clinical staff feel more satisfied and more successful. This proposal will help them deliver the right treatment plan more quickly.

### ***Plan gets more and better data***

When you do this your health plan gains at the same time. One of the key reasons to do a project like this is to get data that can be rolled up to your plan's analytic process. There are two advantages the plan might gain.

First, from a longitudinal, continuum-of-care perspective, your management can better understand how personal values evolve over a member's lifespan.

Second, this allows better treatment plans more quickly. Once your analytical team understands more of the cross-correlations of demographics, socioeconomics and medicine, the treatment tools can improve steadily. This will happen as the team starts to develop smarter profiles that populate the different tool choices. Smarter profiles save time for the care team, and allow the patient to have better choices more quickly.

## **What Does the Member Gain? Increasing Her Engagement Improves Her Care**

As the value questions become familiar to the member, the discussion of values and community no longer feels difficult or threatening. For most members, this is an annual exercise in which they reconnect to their sense of, and inform their plan about, what matters. For the members who do not need care plans, this is a way to improve how they see their health and their plan.

However, some members will become patients, and a smaller number of those will need substantial treatment plans. For those, being engaged in a treatment plan can mean three benefits:

1. Positive outcomes delivered more quickly
2. Better relationships with the care team
3. Potentially lower costs for that treatment and for being a member.

## **Conclusion**

Getting patients to engage with their treatment plans is not just about medicine, it is also about tailoring a plan that works with what the patient values and how the patient lives. Having both approaches available makes the process much easier for patients and their communities and care teams to start and fully commit to success. Choosing one end of the medical data/member values “string” offers a better start to conversations that improve quality of life for the patient, increase satisfaction for care givers, and reduce the cost of delivery for providers and funders.

Increased engagement has an impact on the health plan as well, increasing member loyalty and reducing churn. At the same time, costs for restarting treatment plans are reduced, allowing your business to offer the same level of service at a lower cost to the payer and member.

The benefits to your health plan as a business are real. The key is to speed the path to a positive outcome for each patient. One clear rate-controlling factor is emotional and practical engagement. When a patient believes in her treatment plan, it can speed up achieving success.

When your health plan captures, learns and knows more about people’s preferences and how those drive behavior change, the care team can implement more personalized interventions that will result in positive outcomes. Your health plan can deliver positive outcomes more quickly and at a lower cost.

You can quickly build a program that increases patient engagement with their treatment plans and member engagement with your service. The same program can help your care teams deliver treatment plans that match each patient’s life as well as their medical profile. The result for the individual and care team is better outcomes in fewer tries with a higher level of satisfaction.

Some health plans will build this program. Will your business be one of those?

## Sidebar 1: A New Business Opportunity

It won't be long before some members change health plans. This creates a brand-new market for some company.

It is clear that members will change plans. Even if they have been with their health plan for years, they might have very good reasons to change. It could be as simple as a geographic move, or as complex as a difference in how a health exchange works. When a member decides to move, both the member and the new health plan will want to have access to the values data.

This data is not in the EHR, but it is sensitive. There must be a structure to move the data from health plan to health plan. It is information that has to be kept secure, and moved from company to company at the direction of the individual plan members.

From the perspective of a health plan member, this is simple. All she needs to do is to authorize her new health plan to collect the values data from her old one. The issue for the health plan provider is that there is no vehicle to do this. This gap is where there is an opportunity for a new business.

In the same way that we now have a customized data system for charge card data that operates across domains, within a few years we will need a similar system for this My Values Map (non-HIPPA but still sensitive) data. Some company or companies will step up and become the equivalent of Visa or MasterCard. The new and high-volume offering will enable data flow in a secure and unbiased network that supports health plans and providers in an agnostic manner.

We don't need a radical new technology. This could be done using systems similar to what Visa and MasterCard do, or using something more like Apple Pay, or even a blockchain system.<sup>17</sup>

This simply requires a company to decide to start. Someone will, perhaps this year. This is the time to create a new market and dominate it.

"We don't know what will happen. If we don't start now we will never get there. But our peers and competitors will." — Maciej Kranz

## Sidebar 2: Behavioral Considerations

When it comes time to build effective questions for health plan members and patients, there are several behavioral concepts that can help make them better at getting good answers and easier for the member to understand and answer. Let's look at three useful models that can guide this.

Three of the most widely accepted and utilized, in order of tenure, are Prochaska's and DiClemente's Transtheoretical Model (TTM), Fisher & Fisher's Information-Motivation and Behavioral (IMB) Model, and Hibbard's Patient Activation Measure (PAM).

Developed about 10 years apart (TTM in the early 80s, IMB in the early 90s and PAM in the early 00s), each model has varying degrees of utility for individuals and healthcare professionals. TTM focuses on stages of change (pre-contemplation, contemplation, preparation, action, maintenance and potential relapse). IMB focuses on three key concepts to enable behavior change: Information, motivation and behavioral skills. PAM is a more commercial application covering knowledge, skill and confidence levels. In the authors' opinion, none of these tools is perfect. The process begins with the relationship and trust among care team members and between the care team and the patient. The application should and will vary based on circumstances and goals.

In using IMB, we have not been wanting for clinical information over the past two decades. Clinical information is not enough because we know that habits like smoking, which even some healthcare practitioners engage in, isn't healthy. However, information is updated and changes at a much more rapid pace now. Information is not the issue. Understanding the underlying motivations to change (better sleep, no reflux, able to play soccer, reduced probability of lung cancer, etc.) and behavioral skills (can the individual incorporate smoking cessation therapy into their daily life? Do they have the behavioral skills to maintain and not backslide?) is the issue. The M and B unfortunately remain components not probed often enough when considering shared clinical decision-making for patients and healthcare professionals.<sup>18, 19, 20</sup>

## Sidebar 3: Delay Death or Enhance Life?

The current data-driven decision process for individual healthcare is often built around delaying death. Impending death usually gets a lot more attention than daily life. Families and communities tend to rally around the risk of loss instead of around improving health. Typically the most expensive healthcare period of life in terms of dollars and disruption is the year before death. Our focus in the My Values Map framework is on the years before that. We are looking to enhance and extend life before we delay death.

If we want to extend life, we should start with data- and analytically driven decisions that impact living, not dying. For this article, we'd like to move the discussion from:

“how to use the new data to die with dignity?” to “how to use this data to live with more ease?”

This shift offers a significant opportunity to improve “sick care,” but starts with a way to easily engage an individual in her own “well care” first. The best care would be to use big data to make a patient's life better as well as longer. This proposal discusses a way to use tools like smartphones to help care teams do both, and do so at minimal expense and time until a treatment plan is required.

## Sidebar 4: The Promise of Precision Medicine

For this topic we'll start with the NIH project. The Precision Medicine Initiative (PMI) was formed to "leverage advances in genomics, emerging methods for managing and analyzing large data sets while protecting privacy, and health information technology to accelerate biomedical discoveries".<sup>21</sup> The process to do this includes surveying a million volunteers to contribute primarily biologic health data over many years. This is a substantial big data project, but the information gathered might help develop and target care that can be applied individually. If we know enough about a large population, we can start to develop patterns that help us both predict how a disease will progress and tailor individual treatments.

The focus of the PMI is biology and new discoveries. If successful, it will help provide a valuable way to tailor treatment to a very ill patient. Tailored oncology treatments are one example, but others on the horizon might treat diabetes or other diseases. These are not plans to improve "well care," they are treatments tailored to patients who are already ill.

The All of Us component of PMI is a plan to collect data from volunteers who may not be ill. The data from this effort offers potentially valuable detail on the health of individuals across large populations. This can, if it proceeds to conclusion, feed into research that will provide better information for companies that want to provide individualized patient treatments. It could complement our proposal.

Both aspects of the PMI can generate information that is incredibly technical and detailed. It will inform decisions on an individual patient level, and potentially increase the number of options available. The question is: How do we help patients and communities choose and be comfortable with their choices? How to manage the delivery of choice, not treatment, is the direction of this article. The tools here and the promise of PMI can combine to deliver better treatment plans. The advantage of the tools proposed here is that you can implement them immediately in your health plan.

## References

- 1 **Casey Le Jeune.** Casey is a co-founder of Elevar, a healthcare innovation firm that brings visionaries front-and-center to healthcare's long-standing challenges. She manages the day-to-day execution of Elevar's various innovation programs and specializes in bringing impactful solutions into an enterprise environment. Prior to Elevar, Casey joined Booz & Co. in their healthcare strategy practice and worked extensively with some of the nation's largest health payers, providers and life science companies in the areas of strategic planning, digital strategy, and operations. Casey received her MBA from Columbia Business School and her B.A. from UC Berkeley.
- 2 **Dawn M. Gross, MD, PhD.** Dawn is a hospice and palliative medicine physician practicing at the University of California, San Francisco. Considered a national thought leader on end of life care, Dr. Gross' is an education innovator and invited speaker whose writing has appeared in several journals including the New York Times, JAMA, Science and Annals of Internal Medicine. She is also the creator and host of the radio program, Dying To Talk, the first of its kind program dedicated to transforming the taboo around talking about death. Dr. Gross earned her BA from the University of Southern California and her MD and PhD from Tufts University School of Medicine.
- 3 **Jason Cooper, Seasoned Executive and Leader.** Mr. Cooper is the owner and managing director of his own analytics consulting firm – JGC LLC. Jason is a 20+year data and analytics professional and seasoned business executive specializing in analytics and informatics covering for-profit, nonprofit and government domains, including senior leadership roles at Blue Cross Blue Shield plans, Cigna and CVS Health, as well as experience with advanced NIOSH, NASA, DOD and other software systems. He is a well-published author, experienced public speaker and prior funded researcher. Additionally, Jason is a member of the International Institute for Analytics, the Healthcare Information and Management Systems Society, the Healthcare Financial Management Association and Sentrian's Advisory Board. He holds Masters Degrees in Computer Science and Biomedical Engineering.
- 4 **Peter Meyer.** Peter is founder and principal of The Meyer Group in Scotts Valley, California, which specializes in executive and management development, Peter Meyer has over 15 years' experience as a successful manager and problem solver for two of the largest communications and technology companies in the world and one of the smallest. He has done speaking tours on management, technology, and strategy throughout the United States and in Europe, Asia, and Australia. He has also twice addressed the Commonwealth Club of California, and guest lectured at the University of California and Santa Clara University. He is regularly published in business journals, including The Wall Street Journal, The Canadian Business Review, Business Horizons, Dateline, Internet Business Journal, Executive Female, and The Recorder. A profile of him also appeared in Entrepreneur. Peter Meyer has previously published in B>Quest and served as the contributing editor for technology for the Business & Economic Review. He is the author of three popular business books. His next book is partially available in his blog at [http://meyergrp.com/growing\\_your\\_blog.html](http://meyergrp.com/growing_your_blog.html).
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