



# Health Manager

A rational path to health improvement

**PRAGMATE**

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A rational path to health improvement

## Introduction

We all agree that the health care needs to change and that our existing model will not work. There are also many views on how to improve it. The health care as it is today is result of both economical and scientific influences. We are witnessing the most amazing advances of technology and science combined with an outrageously byzantine organization of delivery and financing. Why is that?

- **Majority of our efforts in medicine focuses on treatment of disease.** We have sophisticated diagnostic equipment, expensive medications, and highly developed treatments. All these have two things in common – they are expensive, and they are applied only after the disease became clinically apparent.
- **Most people have strangely detached view of responsibility for their own health.** We are quite cavalier about our health while we are young – we do many things that we know we should not have. When the inevitable disease strikes, we go to the doctor asking to fix what is broken. In too many cases we call on the lawyer to sue somebody to pay for our misfortune. Not many of us are willing to take care of our own health – primarily because it is actually quite difficult.
- **The way we pay for healthcare is designed to maximize costs.** Much of our healthcare financing is designed and managed by people who honestly believe that laws of economics stop at the hospital door. First, most of the prices are established between employers and payers. Second, the provider who decides about what tests or procedures to schedule rarely knows how much it will cost. Third, since most patients are concerned primarily with their out of pocket expenditure, they expect the best after they paid their \$25 copay. This system has no incentive for reducing costs.

Our costs for healthcare have grown faster than costs of almost any other service or product. Without change in managing our health and in financing it we will inevitably end up with full governmental control. This will mean rationing of healthcare and many other unpleasant aspects for most of us. Who would argue that the government will make healthcare more efficient and less costly?

The change needs three major changes:

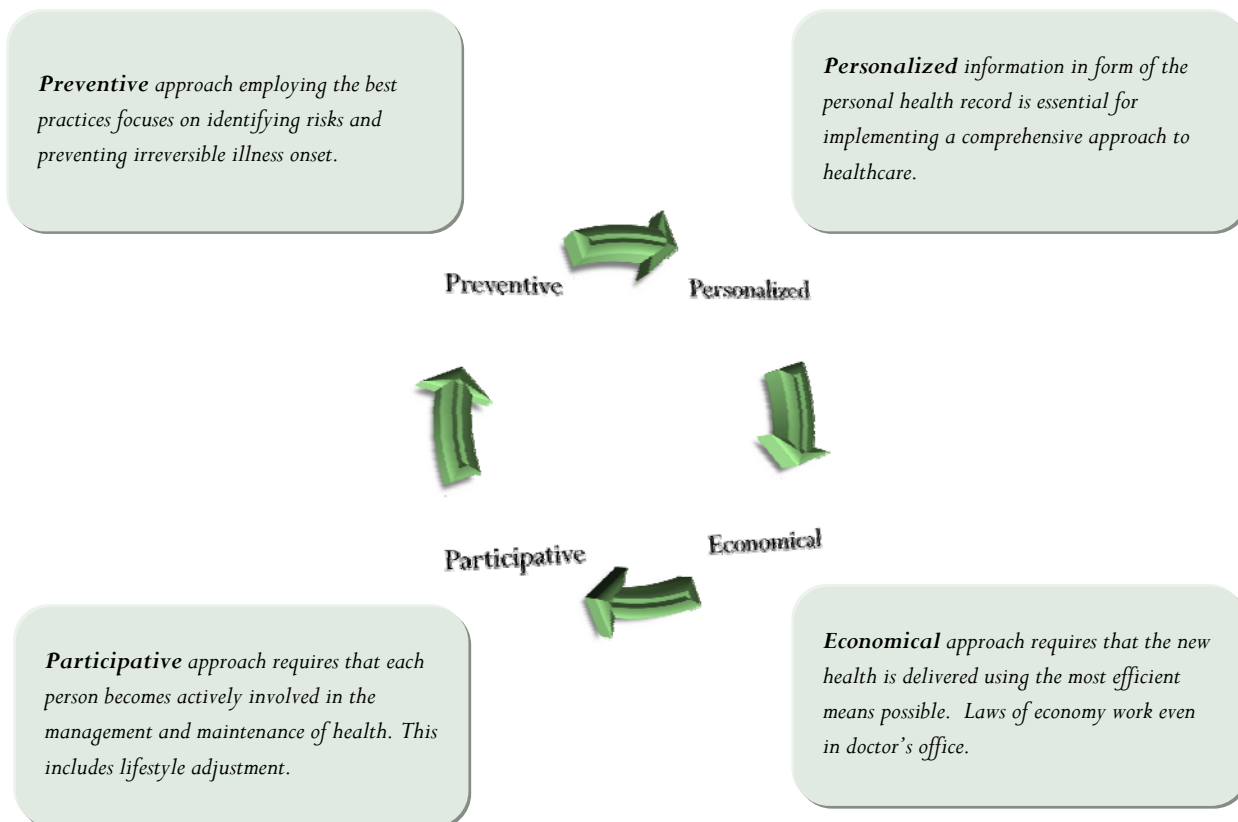
- **Our science needs to focus on health rather than on disease.** We need to learn to prevent the disease and we need to learn to focus on individual genetic, behavioral, and environmental causes of disease. We need to treat the disease before it emerges.
- **We need to take responsibility for our own health.** This includes uncomfortable changes in our lifestyle, focus on healthy habits, and a lot of exercise. We also need to become more active in selecting and using healthcare appropriately.
- **We need to accept that laws of economics cannot be changed by our decision.** Government mandate cannot make corn grow faster any more than it can make healthcare economical without using proven market models. The costs need to be part of decisions about treatment. The consumers of health care must feel the direct economic impact of their health care.

In order to improve our health system, we will have to utilize our information technology. The current technology can make us more effective in taking care of our health.

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## Rational Approach

The new approach to health care must include elements that are personalized, elements that focus on preventions, elements that are participative, and the whole solution must be economical. What is the meaning of these terms and how would they benefit our health?



The need for personalization and participation in health care management by individuals will require expansion of health care dispatcher – a person familiar with whole range of available medical care that can perform the initial evaluation and low level treatment. This person needs to focus on management of healthy patients and patients with manageable chronic condition. Currently, the family and primary care physicians are closest to this role.

According to the “Health, United States 2007” published by US Department of Health and Human Services (table 93), the number of visits to primary care providers are decreasing and the number of visits to specialists are increasing for the observed 1980 – 2005 period. The table 105 of the same document shows that while the general primary care physician percentage is decreasing, the percentage of subspecialty physicians is increasing. In other world, the class of providers that can have most beneficial impact on healthcare is remaining flat, while the specialty care, where the costs are highest, is growing.

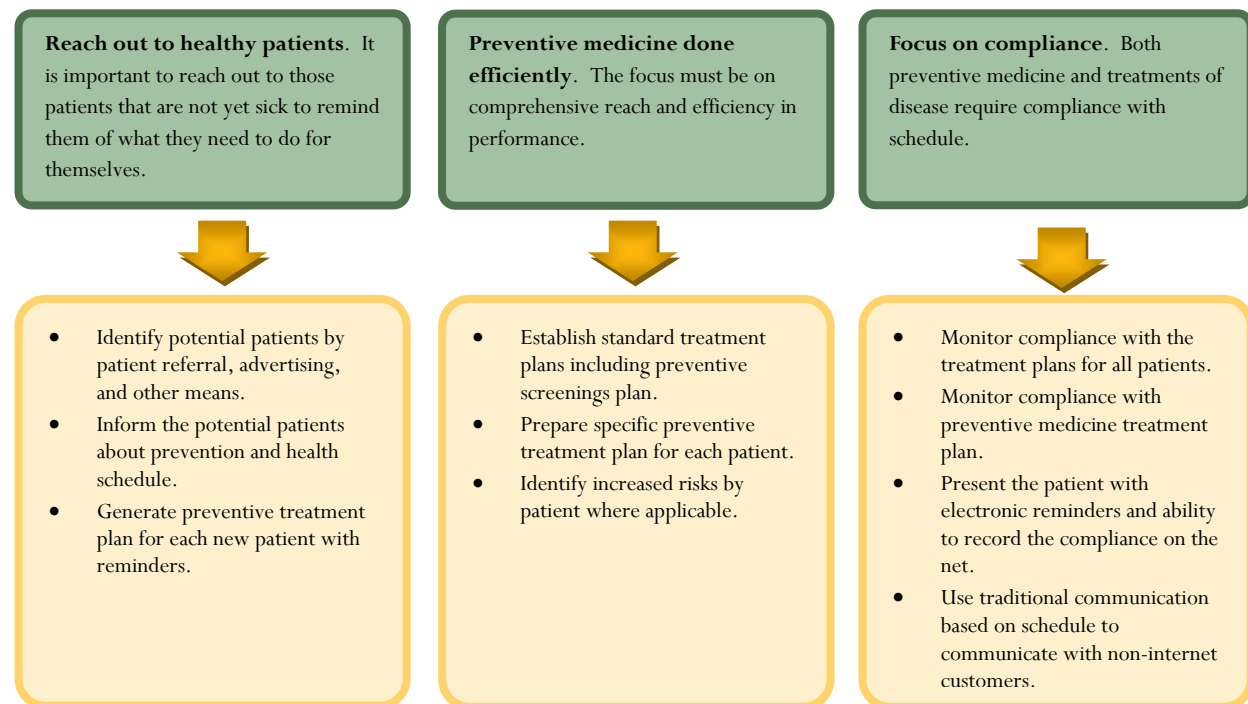
The primary care will have to carry most of the responsibilities of the new medicine. Specialist focus will continue to focus on solving advanced symptoms for those diseases that reached clinical symptoms and exceeded the scope of the primary medicine. The primary medicine will have to take on the most responsibility for this new medicine.

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## New Practice of Medicine

The new practice of medicine focuses on prevention of disease and on improving consistency of health care delivery. It is based on assumption that relatively small costs incurred in prevention will prevent higher costs of treatment.

The practice of medicine that has most potential in the new practice of medicine will come from the primary care and from changes in the patient behavior. The primary medicine is in the best position to lead this change. This presents both challenges and opportunities.



The picture shows a number of elements that are not frequently implemented as a part of the medical practice model. The focus of the medicine will have to include people that are healthy – potential patients – and ensure that they are covered under the preventive treatment schedule.

Much of the above activities will require deployment of technology as the key to new medicine is ability to cover larger population more efficiently. Technology can create a participative environment where both providers and patients share information. The personalized model will require that all data about the patient are in same place accessible both by the patients and providers. The model of practice centric electronic medical record will have to accommodate the new medicine by making the practice records accessible or presentable to the personal health record.

## Economy of prevention

Preventing disease is a virtuous activity. But, as with many other virtuous activities it is not always comfortable to pursue. It requires us to do things that we did not have to do before. It forces us to pay now and benefit later. Concepts of prevention require rational approach and discipline.

Individual impact of prevention is currently the greatest obstacle to wide adoption of preventive medicine application. Only few of us are willing to do what is obviously needed – staying active and keeping healthy weight. Visiting physician once a while for checkup may not be that difficult, but the majority of people tends to do nothing until they have to. The primary motivator for the individuals will still be a lowered health insurance premium when they can maintain preventive schedule.

Employers are the ones who have to bear the weight of the health insurance premiums and the costs of disease related absences. Employers will also find the concepts of prevention understandable. When the employer maintains equipment, the concept of costs saved by prevention is usually quite clear. The employers that implement health maintenance programs will not only improve lives of their employees, but will also see decrease in the health care costs.

Primary medicine providers have the most important stake in the prevention. First, most of the preventive medicine falls squarely into the scope of primary healthcare. Second, the incorporation of the primary medicine methodologies outlined in this article creates a substantial revenue opportunity.

Health insurance carriers' business model typically improves with the increase of premiums and healthcare costs. Self insured employer management agreements that are structured on cost plus basis will bring more revenues with more costs. Even though the health insurance does have interest in keeping the costs growing, predictive medicine has potential of transferring the high costs of treatment into a more predictable primary care costs.

In summary, all those that pay for healthcare will benefit from expanding the role of preventive healthcare.

## Include healthy patients

The concept of “healthy patient” has an oxymoron sound, but it simply represents the people who are either healthy or have diseases with no clinically significant symptoms. It is the population that can benefit most from the preventive medicine and that represents the greatest challenge for the preventive medicine.

The healthy patients will be mostly young or middle age. They typically do not have primary (go to) provider and if they do, their visits are only occasional and related to the current cold or other temporary ailment. There will be a minority of health conscious that are physically active and interested in their health, but majority will have high risk lifestyle such as sedentary lifestyle with ascendant or fully developed obesity. The challenge is to get them personally involved in their personal health.

The solution to this challenge is marketing and promotion within the practice. For example:

- Families of the current chronic disease patients can be included by simply explaining the increased genetic risk to the patients and let the patient convince everyone to join.
- Employers may be contacted to help distribute the educational materials about the preventive healthcare and to motivate their employees to engage in the program.
- Using other traditional marketing efforts may be very effective in expanding your practice.

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There is whole industry to support you in your marketing campaign. It should be noted that any form of direct person specific marketing as suggested above is not only the most effective, but also least expensive form of getting your message to people. Remember that there is wealth of information in your patient database!

The primary practice can most benefit from the addition of preventive medicine for healthy patients. Most of the actual procedures can be performed by technician through mid-level healthcare professional and most can be time managed outside the normal patient flow. By establishing routine patient – provider relationships via preventive medicine, the practice is uniquely poised as the trusted provider and the first place the patient goes when he or she is sick.

## Track treatment compliance

The treatment compliance is an important issue in effectiveness of the treatment. Based on XXX statistics, the compliance in prescription medicine is as low as 20%. The lack of treatment compliance will increase costs of healthcare simply by requiring repeated visits or, in some cases, allowing the disease to expand into hard to treat levels.

The reasons for lack treatment compliance are many. The patient felt better after first few treatments and failed to show up for the rest. This omission is particularly dangerous in cancer treatment. The patient forgot to get refill or something else caused interruption in the treatment plan.

The only way to manage the treatment compliance is to measure it and to act on basis of that measurement. There are several compliance elements that manageable treatment compliance requires:

### Treatment Plan

- Fixed schedule of visits.
- Content of each visit.

### Schedule Compliance

- Compliance with specified schedule.
- Changes in subsequent visits due to delays.

### Content Compliance

- Fixed schedule of visits.
- Content of each visit.

Obviously, prepared treatment plans that incorporate the sound medical approach to each disease and patient information specific to the treatment plan represents the best starting point. The measurement requires recording the comparison of the plan and of what actually happened.

Knowing your compliance level – both of the overall practice and of the individual patients – is the prerequisite for incorporating the appropriate processes. This is where a comprehensive technology – business process will produce the best result.

## Manage Reminders

//TODO: Show how reminders can increase practice while improving quality

Why are you in the business of medical practice?

When this question is posed to a physician, his or her responses will range from the “need to help people” to “earn as much money as I can”. All answers will have one in common – for a medical practice to exist, it has to have patients. Growth of the patient base is vital for a sustainable medical practice.

The ability to get and retain customers is not unique to medicine. It is the primary interest of most businesses and it led to an emergence of Customer Relationship Management systems. These systems are customer databases that allow the business to stay close to the customer. Thus the Patient Relation Management has identical function for medical practice.

The purpose of this white paper is to outline the concepts of sound patient relationship management (PRM) and to establish the benefits of having such system available. It will also show that PRM provides better health for the patients and better income for the practice.

## Background

Medical practice is built on a population of customers. All non-retiring providers need to know whether their practice grows or diminishes. Most prominent symptom of growing practice is increasing number of visits. This indicates the size of practice better than the roster of patients available from medical records. Of all patients on the roster only a percentage will become repeat visitors for one reason or another. There will be a percentage that leaves the practice to another provider, a percentage of those that move from the area, a percentage of those that appeared once and do not have reason to visit again, and, finally, a percentage of those who die. A prudent provider knows that the practice needs to be actively marketed and grown to compensate for the continuous thinning of the patient ranks.

Since most of the revenue is directly related with the number of visits, all providers need to focus on increasing number of visits. This can be accomplished by increasing the patient population (practice) and by increasing the number of visits from the patient population.

Most businesses have the same problem: how to increase number of customers and how to do more business with the current customers. It is accepted fact that it costs more money to get new customer than to get more business from current customer. That is where the Customer Relationship Management systems (CRM) come in.

CRMs became a critical part of many businesses. In addition to keeping a complete customer database, the CRM's also retain full history of customer activities, as well as action plans and reminders associated with the customer “maintenance”. To see the pervasiveness of the CRM movement, just search for CRM on internet.

In addition to the obvious need to gain and keep patients in practice, the practice of medicine has its own requirements of follow-up and compliance: treatment plans, medication plans, etc. A great number of medical treatments occur over period of time and the compliance with the treatment protocol is the key determinant of the treatment efficacy. The ability of the medical practice to follow-up consistently is an integral part of the delivery of healthcare.

The benefit of ensuring that comprehensive follow-up and prescribed screening procedures are in place is not limited to the patient's health. It also increases the number of visits and thus revenue. The true value of PRM for the medical practice is that it creates additional revenue while improving the patient health.

## Patient Relationship Management

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The purpose of patient relationship system is to ensure that communication between provider and the patient is efficient and effective. The efficiency offered by technology must be accompanied by effective communication and follow-up. The PRM is based on following foundation:

|   |  |
|---|--|
| <b>Personal Health Record</b>             | The Personal Health Record (PHR) is the latest stage of development that started with the paper charts kept in the physician office. The Electronic Health Record (EHR) is now available with majority of the practice management system. It is an improvement from the paper record, but it retains an important flaw – it is practice centric rather than patient centric. The information, while electronic, resides in separate places with limited data exchange capabilities. The PHR promise is to make the health information about patient available to patients and all related providers from one centralized database. |
| <b>Reminder and Follow-up</b>             | Reminders are the key facility of any PRM system. Effective use of reminders in the practice can not only improve health care of its patients, but it can also improve fiscal health of the practice. The reminders for visits will lower the incidence of no-shows, the reminders about treatment plans, or simply to remind the patients to take care of important health screening procedures. Effective reminder system can greatly improve consistency of patient healthcare.   |
| <b>Treatment Plan Compliance</b>          | Majority of health care is delivered over time – there is a treatment plan that spans many weeks or years. The chronic condition treatment is by definition a long term process. The critical part of any treatment plan is patient compliance with the treatment. For example, many medication therapies depend on patient taking the medications regularly, in prescribed quantities, and for the prescribed time period. The compliance with the treatment plan is an essential determinant of its effectiveness.   |
| <b>Preventive and Predictive Medicine</b> | The volume of medical knowledge exists that allows us to establish a plan of preventive diagnostic tests for a person. The preventive maintenance plan can be adjusted by age and gender, and it can take into account any special condition of the person. Based on this knowledge, each person can have highly personalized plan of preventive and predictive medicine.  |

## Personal Health Record

The PHR (Personal Health Record) is the third evolutionary phase of the medical record development. The paper based charts have been with us for a long time and are still the mainstay of 80% of medical practices. Many physician offices are already using EMR (Electronic Medical Records) to retain clinical information about their patients. While the EMR technology represents a step in the right direction, it does not help much if a patient’s information is dispersed among multiple EMR systems – a situation which is inevitable when a patient visits multiple physicians and hospitals. This level of discontinuity is increased by an escalation of rising specialization throughout healthcare delivery. Most practitioners find that the lack of complete health information is their greatest concern when they make a diagnosis or decide on a treatment. The lack of continuity of care resulting from these related issues is phenomenal. That is the primary reason for the PHR.

While an EMR is classified as physician office-centric, the PHR is patient-centric. The patient-centric information provides a platform on which each healthcare provider can build. The patient-centric information provides each new physician with a sound basis for treatment.

Connectivity is an important part of the PHR appeal because majority of medical information can be imported automatically without physician or patient input. This area is also the most difficult part of the PHR as there is wide variety of EMR systems and because many of the standard communication formats are not completely standard. Technology of the information exchange will make the connectivity grow faster because more purchasers of such system will demand it.

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Acceptance of PHR technology is growing. There are three main drivers that help this process along: money, money, and money. HSA's (Health Saving Accounts) and other business models make consumers actual purchasers of care. Once consumers fully embrace this concept, they will start behaving like purchasers. The movement of healthcare into specializations and the vanishing concept of the "medical home" is forcing many patients to take charge of their medical destiny. The ability to keep up with health and wellness knowledge will make everyone better stewards of their body's well-being.

## Reminders and Follow-up

Many mistakes that occur in delivery of healthcare start with omission. Consistently implemented reminder procedures allow notification of not only the medical staff but also the patient. Technology can make this process efficient.

## Health Record

Many elements of the personal health record are suited for follow-up. There may be reminder for receiving results of a test, reminder to schedule immunization, or reminders that will renew subscription. Those reminders are set manually by the patient or provider.

## Group Selections

The provider may need to communicate to whole group of persons. The selection criteria for the group of persons may vary from simple zip code promotion of flu shots or high school medicals to selection based on some combination of health record elements. Those reminders are initiated by the provider.

## Communication

Bringing technology into the patient communication may not work for all patients. Some patients will not become "computer savvy" and those will always need to speak to a person. Any communication technology must include the ability to choose the appropriate venue. Regardless of whether the communication is via email, text message, mail pigeon, or traditional call to the patient, the technology can become the supporting workflow tool that makes whatever needs to be done more efficient.

## Reminders

Reminders use in medical practice is a time honored strategy. It may be a reminder card inserted into the paper chart, marker on the schedule, or note on the chart itself. Using software for reminders provides the user with the ability to use reminders much more effectively at lower cost.

The reminders can be used in a number of ways - from showing as due on a report for manual processing to automated generation of reminder emails. Reminder may be initiated manually by directly entering it to an appropriate entity. For example, to remind about next immunization, you can just add reminder to the immunization record. Reminders can be also generated from a list – selected either by demographic or clinical information. Once the list is selected, the generation can produce groups of the reminders. Finally, the reminders may be generated based on evidence based medical treatment plans appropriate to each specific patient. When a test or an immunization becomes due, the system can generate reminders automatically.

## Secure Communication

Technology and its security is obviously a concern especially when it relates to health information. The ability to communicate securely outside the standard email (which is not secure) is essential. The patient relationship management must include ability to send secure messages between patient and provider.

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## Marketing

The marketing is an important aspect of any medical practice that needs to grow. The marketing activities may get costly so it is always important to find the most effective way to market your services. The ability to create focused marketing efforts – for example to all diabetic patients – will consistently be highly effective. The Patient Relationship Management system has all information in one place and can be a platform for marketing campaigns.

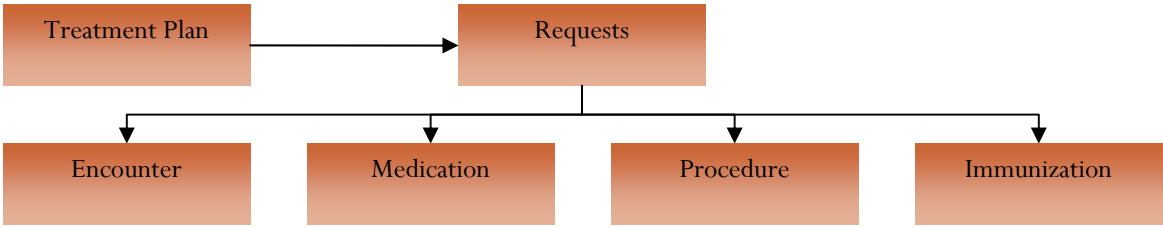
## Treatment Plan Compliance

Successful treatment depends on compliance with the Treatment Plan. Many treatment plans are effective only when the procedures, medications, and other components are delivered in accordance with the plan. It is important for a system to incorporate both standard plan templates and patient specific treatment plans. The reminders are generated for treatment plans both prior to scheduled date and after the scheduled date for plan compliance.

## Treatment Plan

The best practices of any profession consist of standard procedures. Most of the medical research focuses on how to treat certain conditions. While each patient reacts differently, there is a set of “evidence based” treatments for most conditions that are effective with a majority of patients.

Treatment plan consists of multiple elements:



The **Requests** represent the schedule – this establishes the timeline of the treatment. For example, the treatment occurs on weekly schedule: there will be one **Request** for each week.

The **Request** consists of **Encounter**, **Medication**, **Procedure**, and **Immunization**. These contain the information about the content of each treatment request. Note that all these elements are not needed each time.

The treatment plans may be established for each individual patient or generated automatically from a template that is established for a practice. The practice of medicine may achieve substantial standardization (and efficiency) by using standard treatment plans that may be adjusted to singular characteristics of some patients.

## Treatment Compliance

Compliance with treatment plans is a critical issue for quality of health care. Many treatment plans (such as medication regimens) are not followed by patient. Many patients do not complete their treatment plan because they start feeling better after the first few steps. The result of such non-compliance is re-occurrence of the ailment, start of another treatment plan, and increase in costs that would not happen if the patient completed the treatment plan as initially prescribed.

Compliance can be improved by:

- **Reminders** generated from the specific treatment plan can be generated automatically with a pre-determined lead time to ensure that the patient is informed about next treatment plan step.
- **Follow-up** of not completed treatment plan can help the providers focus on patients that lack the discipline and to provide them with the appropriate information and motivation to comply with the treatment plan.

Measure of compliance is an important metric of quality of care and is especially important for chronic conditions and any long term treatment plans. By complying with the treatment plan, the patient can improve their health and avoid risks of chronic condition turning into acute life threatening situation.

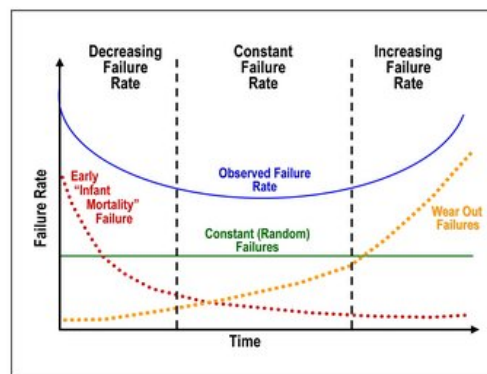
## Preventive and Predictive Medicine

Much of the contemporary medicine focuses on resolving problems. A patient comes to the office with a complaint and the provider treats the problem. The benefit of expanded preventive and predictive medicine is widely accepted, but not widely practiced.

### Problem Incidence

Ability to predict health problems for a given individual is important tool in our ability to prevent ailment rather than to treat it. The measurement of problem incidence provides the provider with information about normal and abnormal incidence in particular population. This metrics is critical for prediction of the cost of healthcare.

The picture on the right is copied from the equipment reliability definition of “bathtub curve”. It depicts the time dependent failure incidence in total as computed by adding the typical “Early infant mortality” vs. “Wear out failures” curves. Interestingly, this typical equipment failure incidence curve reflects the behavior of humans. It is quite normal to have a higher incidence of health problems early in the age, and late in the age. The early childhood diseases are replaced by old age diseases (“wear out failures”).



While the knowledge of disease incidence by itself does not prevent or affect diseases, it is an important metrics that can be used to evaluate any of the preventive or predictive medicine approaches. The lower and wider the curve is, the better is the health of the population. The flat “bathtub” curve represents an optimal level of achieved health.

## Preventive Medicine

Preventive medicine focuses on establishing conditions and processes that avoid disease. These may be simple handwashing and maintenance of basic hygiene, establishing a system of diagnostic screenings that detects early indications of disease, to presenting the patients with educational materials.

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## Predictive Medicine

Predictive medicine is focused on a specific patient condition and pre-disposition. It reacts to a number of measurements, symptoms, and implements the appropriate treatment regimen. The patient age, sex, and a collection of diagnostic values are used to determine the appropriate schedule of treatment.

## Schedules

Medical science established screens and diagnostic tests that, when administered at schedule appropriate for the particular patient provide early detection of conditions that are benign when treated early. Additionally, the schedule of tests and / or treatments may be established on basis of each particular condition.

The Patient Relationship Management system provides basis for keeping track of tests and treatment and for issuing appropriate reminders that reflect the latest in the art of medicine and that are specific to the patient.



## Summary

Human body is an extremely sophisticated machine. It has tremendous capability to repair itself and most of its systems have a wonderful level of redundancy. Because of this, we were able to exist for thousands of years without much medical care and even today many people can go through life with only a minimal care.

The improved living conditions, quality and quantity of food, and modern medicine made our lives longer and typically less difficult. The increase in the length of our lives carries a penalty – many blemishes easily compensated for by the body in the younger age become diseases when we are old. In order to truly utilize the benefits of modern medical knowledge, we need to take more systematic and logical approach to health care.

The change from the current treatment oriented approach to a more comprehensive approach will require education of public by committed providers. It also represents an opportunity for the primary care providers to prevent, or at least postpone high cost treatments by implementing a comprehensive patient centric medicine. The experiences from many other industries have proven that this approach results in overall decrease of costs.

There are four elements of the comprehensive health:

|   |  |
|---|--|
| <b>Personal Health Record</b>             | Patient health information needs to be centralized for the patient regardless of how many providers are involved his or her health care.   |
| <b>Reminder and Follow-up</b>             | Much of the quality of care depends on proper communication between patient and provider.  |
| <b>Treatment Plan Compliance</b>          | Efficacy of the treatment plan depends on the compliance.  |
| <b>Preventive and Predictive Medicine</b> | Patient specific schedule of diagnostics and screens is essential for maintaining well being and for decreased need for costly procedures. |

The Patient Relationship Management system expands on the practice management system with EMR (Electronic Medical Record). It knows the population of the patients, represents a secure communication path, improves quality of healthcare by improving treatment plan compliance, and applies best practices of preventive and predictive medicine to improve quality of the patient population. A properly managed medical practice has procedures to perform all these functions. The PRM system can make it work more efficiently and more consistently.

Most of the preventive and predictive medicine will be delivered by the primary care providers. They will also receive greatest benefit from using the PRM system. Patients that would otherwise not visit the office will be reminded to have their tests done. This will not only improve their health, but it will help the practice business.

*Using specialized software for managing your health or the health of your employees is the only logical approach.*

For more details visit [www.pragmate.com](http://www.pragmate.com) or contact Mark Kajdos to see a demonstration of MedGrail, a revolution in PRM technology.

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