

The Physician, the Community and Health Care Reform

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Abstract

Since 2000 the Rhode Island Alliance for Retired Americans fostered HealthLink Wellness a program committed to reducing the risk of chronic disease among retirees by promoting health screening, health education and exercise. Its strategy has been to develop partnerships that engage the retiree through their social networking. Starting in 2010 we added a network of primary care physicians who provided medical back up for community based outreach efforts. Essential to the communication process was the use of scientifically derived outcome measures as a means of monitoring both individual and total group health status.

One such measure used since the inception of the program is an estimate of the ten year probability of coronary heart disease developed by the Framingham Heart Study. In 2013 The American College of Cardiology/American Heart Association (ACC/AHA) established guidelines and health monitoring tools for the prevention of cardiovascular disease which includes both cardiac and blood vessel health. In this study we applied their new index to screening data collected at health fairs and participating physician offices in 2010 and 2011. We found it to be a quick and effective way for both community and medical office to compare on-going progress. Since the new index has the endorsement of both ACC and AHA it was readily accepted by our physician partners.

In addition to screenings that include blood glucose, blood pressure and cholesterol levels, we also asked retirees if they were currently being monitored for diabetes, hypertension and elevated cholesterol, all major contributors to chronic disease. We also asked if they were prescribed drugs for those same conditions. Results were that 87.1% of the retirees reported being monitored for any one of the three conditions. Of those monitored, 36.8% were monitored for one, 37.1% for two and 13.2% for all three conditions. In addition retirees exhibited a wide array of obesity concerns as measured by the BMI. The use of empirically derived health monitoring tools aided both HealthLink and medical offices to communicate on a real time basis and combine efforts in targeting both the individual and group.

Future reform will require strong communication links among doctor, patient and community resource. But also the use of empirically derived outcome measures makes it possible to measure health as the ultimate outcome of healthcare delivery and not just the repair of disease once it occurs.

Introduction

The United States is now in the process of healthcare reform. The primary area of change is the expansion of health insurance coverage administered by health insurance companies through both state and federal government exchanges. Concurrent with these changes is a demographic shift in the aging of the U.S. population. This segment of the population is also has the highest prevalence of chronic conditions that consume 70% of the U. S. healthcare dollar. Part of the treatment for these chronic conditions, which include diabetes mellitus, hypertension, and cardiovascular disease, involves the improvement of health-related behaviors.

Our nation's reforms at the macro level must also be complemented with reforms at the micro level. Since 2000, we have fostered a program called HealthLink Wellness, which is a program committed to reducing the risk of chronic disease among retirees by promoting health monitoring, health education, and walking exercise. Our strategy was to develop partnerships that engage the retiree through their social networking. In our most recent effort, we developed a pilot program of recruiting members through 3 participating primary care physicians.¹ The intent was to determine the feasibility of coordinating our community efforts with those of the primary care physician, creating an environment where the patient, community, and medical office work as a team.

We contend that the development of teamwork mechanisms represents an opportunity to provide linkages of cooperation between the primary care physician and other social networking efforts. The key communication link is using the latest outcome measures. In the past, we have used various outcome measures to help monitor our success and provide valuable feedback to our members and their primary care providers. We regard this communication as a 2-way street. We always had the need to summarize the health status of the groups we served. In addition, we needed information to help in the monitoring and follow-up process. However, our partnership with the primary care physician requires that we also have a mechanism to demonstrate to physicians how well we are performing in our attempts to improve health behaviors as they relate to the net collective health impact on their patients.

Methods

To test implementation, we decided to use the new ACC/AHA statistical model and guidelines on cardiovascular disease². We applied the guideline formulas to screening data we collected in 2010 and 2011 health fairs. We restricted the data to only those retirees who were aged ≤ 79 years, as outlined in the age limitation of the ACC/AHA guidelines. The resulting data file contained 1,440 screenings for 564 participants; 56% were women and 44% were men, with average ages of 74 and 73 years, respectively. The retiree population was predominately white and middle/working class.

This study was originally funded by the Centers for Disease Control and Prevention Healthy Aging Program. It was specifically designed to test the integration of The Patient Centered Medical Home model with our long standing community based medical screening and health education program. The American College of Physicians (ACP), the American Academy of Family Physicians (AAFP), and the American Osteopathic Association (AOA) have defined the Patient-Centered Medical Home as a physician-directed multidisciplinary team providing longitudinal management of health

promotion and disease prevention by focusing on behavior change, screening tests, and individualized risk reduction interventions. The methodology embodied in the Patient Centered Medical Home model is identical to the HealthLink Wellness agenda, except HealthLink Wellness operates in community settings, not the medical office. The goal of this study was to test the feasibility of combining two different wellness approaches that have identical goals, one clinical based and the other community based.

Results

The ACC/AHA guideline contains decision flow diagrams and in the primary prevention branch one key measure to monitor is body mass index (BMI). This is a good starting point in assessing a patients potential for chronic disease although BMI is not an actual input to the ACC/AHA risk formula. During our health fairs we ask participants if they are being monitored by their healthcare provider for hypertension, diabetes and elevated cholesterol. We also inquire if they are also being prescribed drugs for those three conditions. In Table 1, we break down BMI by the three conditions we queried (hypertension, diabetes, and elevated cholesterol) and the number of conditions actually being prescribed medication.

Table-1 Average Body Mass Index by 3 Chronic Conditions

		Number Conditions Prescribed				n	%
		0	1	2	3		
Number Conditions Diagnosed	0	26				186	12.9%
	1	27	28			530	36.8%
	2	29	30	31		534	37.1%
	3		29	28	34	190	13.2%
						1440	100%

The top left-most table value is the average BMI of participants who self-reported none of the three conditions being monitored; consequently, none were prescribed drugs. The bottom right-most value is the average BMI of individuals who reported being monitored for all 3 conditions and at the same time being prescribed drugs for all 3 conditions. Between these extremes are various combinations of number diagnosed and number prescribed.

The distribution in Table 1 indicates obesity is a uniform risk factor for all participants. Those included in the top left-most value have a good chance to move their average BMI into the normal weight BMI category of $<25 \text{ kg/m}^2$. For participants included in the other values, inroads in moving them from overweight ($\geq 25 \text{ kg/m}^2$) and obese ($\geq 30 \text{ kg/m}^2$) is progressively more difficult. The bottom right-most cell has the highest average BMI and the farthest to move in a downward trend. Over past years, we have been able to make inroads in some elements of this risk factor, but BMI is the most difficult in making sustained progress. We have documented individuals who made admirable weight improvement. However our communication link with the physician should also outline in more detail strategies in reducing obesity and its consequences.

Our strategy has been to reduce health risk on several fronts. We have used other risk estimators to help guide our health education message and to target individuals for follow-up. For example, we have used cardiac health risk index derived from the Framingham Heart Study. Our main approach was to calculate a risk ratio by dividing a participant's observed screening 10-year probability by optimal risk factor inputs for someone the same age. This is now a feature of the new cardiovascular risk profile. The ACC/AHA spreadsheet risk calculator provides both an observed 10-year probability risk and 10-year probability based on ideal inputs to the risk calculation. Table 2 shows the ratio of an individual's observed risk divided by the ideal broken down by the number of conditions monitored and prescribed.

Table-2 Ratio of Observed and Ideal Screening Inputs for Atherosclerotic Cardiovascular Disease

		Number Conditions Prescribed			
		0	1	2	3
Number Conditions Diagnosed	0	1.44			
	1	1.73	1.50		
	2	1.62	2.13	1.96	
	3		2.08	2.40	3.18

If an individual's screening inputs are ideal, then the ratio would be 1. The highest ratio in this grid is the bottom right—most value, with the average observed 10-year probability of CV disease among our members being 3.18 times higher than the ideal. This pattern has the same pattern of progressive increase in risk as shown in Table 1 for BMI. Is age a factor? We expect that the elderly subpopulation would show an overall higher risk ratio than the general adult population because that subpopulation has the highest morbidity of chronic disease. This has a bearing on where we will target risk ratios for future follow-up with the physician. We have a methodology of further review to finalize our targets for improvement, but for this discussion, we are looking at a total pattern of risk. In the calculation of 10-year risk probability, age is an input variable, but in calculating a ratio, age is held constant because it involves observed and ideal for the same person. Therefore, age was not a factor in the Table 2 variation. In fact, the age of those included in the bottom right—most highest risk part of the grid was on average 1 year younger (74.8 years) than those included in the top left—most lowest risk grid segment (75.9 years). In improving this pattern of risk ratios, a sustained partnership with the physician is vital.

Targeting based on the overall risk ratios of Table 2 is important, but we must also look further into the details and broaden the base of analysis. Participants of our health fairs are given three copies of their results; one for their own records, one for our monitoring purposes, and one for their primary care physician. The last copy is a critical link in the wellness process. A physician feedback loop helps in refining and communicating the details of the screenings and in coordinating physician/community support.

There are particulars of the ratios that can be communicated to the physician and patient. For example a key input in the ACC/AHA model is systolic blood pressure. Below systolic blood pressure is broken down by the risk grid.

**Table-3 Average Systolic Blood pressure by Three Conditions
Ideal Target SBP = 110 mmHg**

		Number Conditions Prescribed			
		0	1	2	3
Number Conditions Diagnosed	0	126			
	1	129	123		
	2	138	137	136	
	3		134	134	133

With this pattern, one has to take into consideration that some individuals included are currently being prescribed drug therapy for hypertension. Our goal is targeting, but it is up to the physician to work out the details for each case, a mutual effort to shift SBP in the direction of the ACC/AHA ideal value. This does not mean that the guideline ideal SBP of 110 mm Hg is best for all individuals. If blood pressure is already controlled by drug therapy, then the decision for an additional dose has to take into consideration the possibility of increasing cost with a diminishing net benefit. This is a different dynamic than that for an initial implementation of drug therapy. These specific decisions are best left to the discretion of the physician, who has to consider not only a patient’s total pattern of risk, but also integrate risk with a patient’s personal and family medical history. As in any clinical decision, context will continue to have a role in a physician’s decision-making process.

Diabetes is a key input component of the cardiovascular risk model. It does not use blood glucose as a specific input variable, but it is a measure we do monitor. For 68% of the screenings, blood glucose was at a fasting level. Table 4 shows a breakdown of fasting blood glucose.

Table-4 Average Fasting Blood Glucose by 3 Chronic Conditions

		Number Conditions Prescribed			
		0	1	2	3
Number Conditions Diagnosed	0	95			
	1	99	97		
	2	106	112	102	
	3		155	150	159

Once again, as with blood pressure, we have to take into account that some individuals are being prescribed drugs specifically for diabetes to control blood glucose. However, it seems clear that those in the bottom row exhibit high fasting blood glucose that warrants additional attention, with the physician determining specific therapy options. Our role in education and support is also paramount.

Another input in the risk calculation is total cholesterol (TC). Table 5 shows a breakdown of this factor.

**Table-5 Average Total Cholesterol by 3 Chronic Conditions
Ideal TC = 170 mg/dl**

		Number Conditions Prescribed			
		0	1	2	3
Number Conditions Diagnosed	0	219			
	1	216	176		
	2	199	187	156	
	3		189	165	147

The interesting pattern in Table 5 is that the values in the lower right portion achieve the guideline ideal target of 170 mg/dl. It can be interpreted that statins are contributing to this beneficial shift because this is usually the high-risk portion of the risk grid, with at least 2 conditions monitored with 2 or 3 being prescribed drug therapy. Should the values not reaching the ideal TC level be targeted? Once again, that should be determined via the individual doctor/patient relationship.

Smoking is another important input; however, for this group of retirees, only 6.4% reported being smokers. When queried further, it became clear for this population of fixed-income retirees that tobacco was much too expensive. We then asked if they were ever a regular smoker in the past and 43.4% responded affirmatively. It seems that the trend of loading taxes onto tobacco sales has had a potential beneficial public health impact.

Conclusion

We believe that the 2013 ACC/AHA cardiovascular risk assessment Model is a valuable public health tool and a useful guide in communicating risk to both the patient and physician. It is a tool that can enhance both clinical office and community outreach efforts provided there are strong communication links. It is important to note that we do not use absolute 10 year percentage risk in the targeting process as described in the published guidelines. Our intent is not to make individual clinical decisions. On the other hand we have demonstrated that age standardized risk ratios are valuable in providing markers in documenting population cardiovascular risk and where to target efforts for improvement. The ratios have the additional benefit of aiding the communication process. We can demonstrate to the individual where they are currently in their personal cardiovascular risk and a path of improved inputs to reach a healthier status, in this case a ratio shift more toward the ideal. This has been the same strategy for any of the models we have used in the past. Our goal is not determining when to initiate or modify specific therapies but to use the best available tools to help both doctors and patients improve the health status of the groups we screen. In the final analysis it must be emphasized that the most important hurdle for progress is for the individual patient to internalize the slogan of our HealthLink Wellness approach, "Taking Control".

1. *The HealthLink Wellness Approach: A Test of the Patient-Centered Medical Home; supported by CDC award No. H75DP002301-01 from the Healthy Aging Program, December 7, 2011.*

2. *Guidelines American College of Cardiology/American Heart Association Task Force on Practice 2013 ACC/AHA Guideline on the Assessment of Cardiovascular Risk: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines, Circulation. published online November 12, 2013;*