
Editorials

Get With The Guidelines to improve heart care

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(Ital Heart J 2004; 5 (7): 489-493)

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Supported in part by an unrestricted educational grant to the American Heart Association by Merck, Inc.

Received April 29, 2004; accepted May 10, 2004.

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Introduction

Clinical practice guidelines based on evidence from clinical trials provide a substantial armamentarium for the treatment of acute coronary events and prevention of subsequent events^{1,2}. Treatment based on these guidelines, including such basics as aspirin, beta-blockers, ACE-inhibitors and statin therapy in patients hospitalized with cardiovascular events, can produce significant reductions in mortality when initiated during the hospitalization³⁻⁵.

Despite this compelling evidence, guidelines are frequently not followed in this population both in the United States and in Europe (Table I)⁶⁻¹⁰. Ongoing hospital registries that provide retrospective performance feedback to participating hospitals have produced small changes in adherence to guideline-derived measures⁸. Even with data feedback, guidelines do not implement themselves. Our good intentions and “trying harder” are not sufficient to produce good performance. As Deming¹¹ observed, “the bulk of the causes of low quality ... belong to the system and thus lie beyond the power of the workforce”.

Barriers to guideline use

Cabana et al.¹² have developed a framework to explain the various barriers in the use of guidelines, separating the barriers into three types: knowledge, attitudes, and behavior. It is intuitive that guidelines that are not well known will not likely be implemented. Additional evidence suggests guidelines that are customized to local environments are more likely to be followed¹³. Knowledge, while essential, is not

sufficient. In a study of outpatient use of statin therapy by a group of primary care physicians who scored 95% on an assessment of their knowledge of the guidelines for cholesterol therapy only 18% of their coronary artery disease patients had low-density lipoprotein cholesterol treated to goal¹⁴.

Attitudinal barriers for guideline use include lack of belief in a specific recommendation or guidelines in general. In the same analysis by Pearson et al.¹⁴, 65% of the physicians in the analysis indicated that they believed the guidelines and used them most or all of the time.

The third kind of barrier can be characterized as behavioral. Even if the guidelines are well understood and there is an intention to use them, they are often not used because the behavior of routine appropriate use as the automatic response is not designed into our practices. The reliance on the memory of the clinician when there are multiple critical tasks to be completed, too often leads to errors. This barrier can be overcome by the application of systems in the patient care environment. Berwick, from the Institute for Healthcare Improvement (IHI) cites the “heroic” effort required to provide good basic care in the current healthcare system. The Institute of Medicine Report, “Crossing the quality chasm”, also notes the importance of creating systems to close the gap in evidence-based care¹⁵.

Creating systems to improve care

Despite this disappointing adherence to the guidelines health care professionals develop, there is now evidence that these bar-

Table I. Treatment rates in the United States and Europe.

	US Medicare ⁶ (2000-2001)	Euro Heart Survey ¹⁰ (2000-2001)	GRACE ⁹ (1999-2000)	
			All	Europe
Early aspirin	85%	93%	93%	90%
Early beta-blocker	69%	78%	81%	72%
Discharge aspirin	86%	89%	89%	94%
Discharge beta-blocker	79%	75%	71%	63%
Discharge ACE-inhibitor	74%	61%	55%	54%
Discharge statin	40%	54%	47%	50%
Patient population	AMI	STEMI	ACS	ACS

ACS = acute coronary syndrome; AMI = acute myocardial infarction; STEMI = ST-segment elevation myocardial infarction.

riers to implementation can be overcome. Hospital systems were, in fact changed to produce substantial improvement in care in a pilot program of the American Heart Association called Get With The Guidelines (GWTG)¹⁶. The program uses teams composed of the many types of professionals that touch our patients such as nurses, pharmacists, case managers and cardiac rehabilitation staff, working with physicians to redesign systems of care. When teams from many hospitals can work together sharing solutions and lessons learned, the process of redesign becomes efficient and effective; hospitals learn to improve care not by working harder, but by redesigning systems to work smarter¹⁷.

GWTG used a collaborative model in a group of 24 hospitals in Massachusetts over 1 year, from July 2000-June 2001. Improvement in the use of guideline-de-

rived measures occurred in 10-12 months in eight secondary prevention measures (Fig. 1). Hospital teams created preprinted orders, discharge order sets, prompts and reminders to share the burden of remembering the basics of care. In this project smoking cessation counseling rose from 53 to 88% ($p < 0.05$), lipid therapy at discharge increased from 54 to 78% ($p < 0.05$), and referral to cardiac rehabilitation rose from 33 to 73% ($p < 0.05$).

Hospital teams met quarterly for 1 year. During these collaborative meetings, didactic presentations summarizing the latest evidence were presented. In addition early adopter hospitals¹⁸ presented examples of significant implementation of system changes producing improvement. Hospitals willingly shared the order sets, protocols, reminders and education materials they developed. Breakout sessions with facilitators experi-

12 Month GWTG Pilot Results

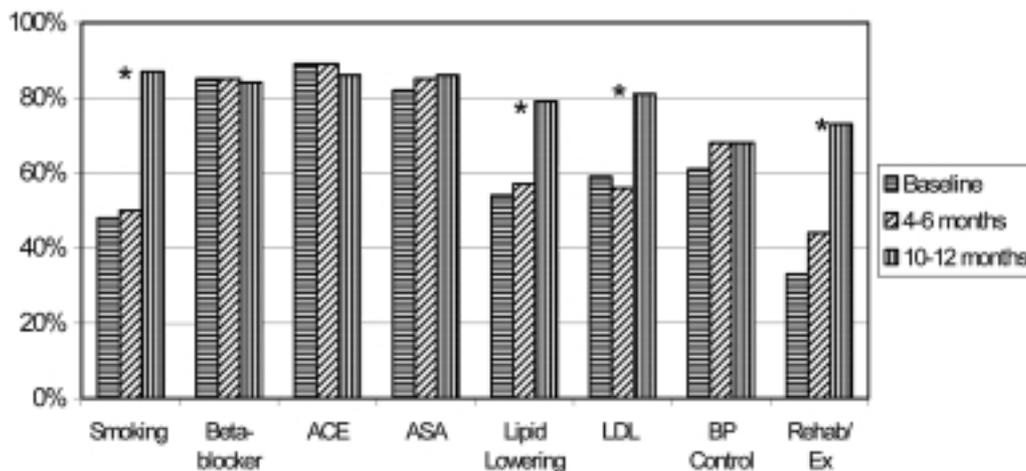


Figure 1. Pilot data from the New England Get With The Guidelines (GWTG) program (12-month results). Smoking indicates smoking cessation counseling; beta-blocker, beta-blocker at discharge; ACE, angiotensin-converting enzyme inhibitor use at discharge; ASA, aspirin use at discharge; lipid lowering, use of lipid lowering agents at discharge; LDL, lipid profile measurement in the hospital for determination of low-density lipoprotein; BP control, blood pressure < 140/90 mmHg by the time of discharge; and Rehab/Ex, referral to cardiac rehabilitation or exercise recommendations at discharge. Significance (asterisk) based on nonoverlapping confidence intervals compared to the baseline period. From LaBresh et al.¹⁶, with permission.

enced in quality improvement methodology were held during each meeting to give teams the ability to collaboratively find solutions to barriers¹⁹⁻²¹.

Teams also used some of the breakout session time for team planning to select change ideas that could be tested in their hospitals. Hospital teams then report both their plans for change and their timeline to each other. This public accountability with their peers helps create a sense of community and provides additional motivation to succeed.

An important element of the GWTG is an Internet-based data collection and reporting tool called the Patient Management Tool²². The tool includes a simple one page on-line form that allows collection of basic patient demographics, risk factors and relevant laboratory test results (Fig. 2). The use of drop-down windows and point and click entry captures data efficiently at the point of care. By integrating data collection with patient care, hospital professionals can receive on-line prompts for incomplete or incorrect (out of range) data. Guideline summaries for each of the relevant measures are available as drop-down windows that can be used as the data is entered. For example, when the lipid profile data is entered a drop-down screen can be easily accessed to review recommendations for lipid goals and suggested therapy, thus eliminating lack of knowledge of the guidelines as a barrier (Table I).

Prior to discharge, the patient's risk factors can be summarized to ensure each has been appropriately addressed and provide a last reminder before the patient

leaves to insure that the guidelines have been applied appropriately. The summary can also be automatically generated as a letter that can be faxed to the patient's referring physician, improving the transition to outpatient care.

Hospital performance feedback can be obtained on-line, on-demand. Reports can demonstrate hospital performance over time and can be benchmarked to the aggregate data from all of the hospitals in the program or by geographic region.

Based on the results from the Massachusetts pilot, GWTG has become a national quality improvement project of the American Heart Association and includes the secondary prevention measures developed in the pilot and additionally, the use of aspirin and beta-blockers in the first 24 hours for acute coronary syndrome and time to reperfusion for ST-segment elevation myocardial infarction. Preliminary data presented at the American Heart Association's 2003 Scientific Sessions from the first 123 hospitals across the United States demonstrate rapid, significant improvement in all measures²³ similar to the data recently published from the pilot program¹⁶.

These data demonstrate that hospitals can build systems that can significantly improve the use of evidence-based cardiovascular care regardless of size, location or teaching status²⁴. The collaborative approach is based on the IHI Break Through Series Model that has been successfully adopted around the world^{20,21}. It is therefore likely that many of the elements of the program

SIMPLE, ONE PAGE, ON-LINE FORM

AMA Discharge Form

Patient ID: _____ Physician: _____

Demographics 6 clicks

Age: _____ years Gender: female male Race: _____

Cardiac diagnosis: _____

Prevalence: _____

What does the patient's past history include?
 previous MI angina heart failure hypertension
 diabetes renal insufficiency stroke (within the past year)
 no significant cardiac history other (specify): _____

Clinical/Lab 8 clicks

Height/Weight: Height: _____ inches Weight: _____ lbs BMI: _____ kg/m²
 Waist Circumference: _____ inches

Blood pressure: _____ mmHg

Lipids: HDL: _____ mg/dL Total Cholesterol: _____ mg/dL HDL: _____ mg/dL LDL: _____ mg/dL
 Triglycerides: _____ mg/dL HbA1C: _____ %

Ejection fraction: _____ %

Discharge meds and interventions 7 clicks

Aspirin: Aspirin (90-325mg/d) Clopidogrel (Plavix)
 hold (platelets) check if taking one of these meds prior to admission contraindications

ACE Inhibitors: _____ taking prior to admission

Beta Blockers: _____ taking prior to admission

Cholesterol Reducer: _____ taking prior to admission

Other medical discharge: Cyst/Class B Blockers Other anti-ischemic Nitroglycerin
 Digoxin Diuretic Diabetes Medication Other None

Referred to Cardiac Rehab Program: yes no unknown

Risk Interventions: smoking cessation weight management activity recommendations
 psychosocial services diet/nutrition other (specify): _____

Interactively checks patient's data with the AHA guidelines

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Figure 2. Get With The Guidelines Internet tool data entry form. From LaBresh et al.²², with permission.

can be moved across the Atlantic and adapted for different hospital care environments.

The collaborative model encourages rapid cycle improvement that is greatly facilitated by the GWTG Internet tool. Thus, it is not clear which elements of the program are responsible for the rapid, breakthrough change observed. It is likely that in this program, the outcome is both a product of the components and of the interaction between the components, which is a fundamental part of the functioning of systems.

The Guidelines Applied in Practice²⁵ report sheds some light on this issue. In the 8 hospitals in southeastern Michigan, there was a small change in performance of many of the same hospital measures using an intervention strategy of education and the influence of opinion leaders. In those patients for whom the suggested tools were used, including preprinted orders, protocols, and a patient contract, significant improvement was noted. This reinforces the use of tools and support to improve care. In GWTG many of these tools are embedded in the Internet-based tool.

Conclusions

The problems of systems not designed to produce optimum cardiovascular care is an issue that clearly spans both sides of the Atlantic. The use of collaborative problem solving and multidisciplinary teams, coupled with efficient and timely data collection and feedback, has been demonstrated to produce substantial improvement in evidence-based care in the United States. This improvement was seen in the initial 24 pilot GWTG hospitals¹⁶ and in the first 123 hospitals in the national GWTG program²³. Currently, GWTG has been implemented in over 400 hospitals. Substantially more work needs to be done, however, to expand the reach of this program to the 4300 acute care hospitals in the United States.

Similarly, assessments of treatment rates in Europe^{9,10} show a substantial opportunity to improve care. Perhaps an approach similar to GWTG could be adapted and tested in Europe. The collaborative model has been used successfully in locations around the world²¹. The Internet platform on which the GWTG data tool is based is currently being used in a stroke registry in Italy.

The time has come to expand our efforts from writing guidelines to even more vigorous system-based efforts to implement them. In so doing it may be possible to make the significant progress in secondary cardiovascular prevention we all seek. Is now the time to "Get With The Guidelines?"

Acknowledgments

The author wishes to thank Gregg C. Fonarow, MD for review of the manuscript. The Centers for Medicare

& Medicaid Services provided resources for program development and analysis under contract 500-02-MA03. The conclusions and interpretation of results are the sole responsibility of the author and do not necessarily reflect the position or policy of the government.

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