Cooperative Cardiovascular Project

NATIONAL Perspective

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CCP Liaison Conference Unites PROs, External Groups

Representatives from the Health Care Financing Administration (HCFA) and peer review organizations (PROs), researchers, and other interested professionals shared information on the Cooperative Cardiovascular Project (CCP), general cardiac care, and related topics during the CCP Liaison Conference, held on November 17 in Arlington, Virginia.

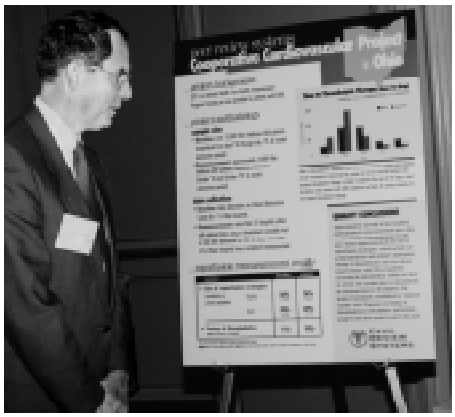
The nearly 200 attendees included members of over 40 organizations (*see sidebar on page 9*). The HCFA-funded conference was organized through the CCP Internal Steering Committee.

Overall, the external organizations' representatives were pleased with the conference, said Sharon Kessler, CCP special study project coordinator from Keystone Peer Review Organization, who helped organize the conference. Preliminary review of the evaluations showed positive, enthusiastic response.

"I am thrilled to be a part of such a large-scale collaborative project focusing on common goals," commented one participant.

The committee planned the CCP Liaison Conference to fulfill several goals:

- Provide an opportunity for HCFA and PROs to obtain external guidance about quality improvement efforts for acute myocardial infarction (AMI) care;
- Promote a cooperative learning relationship between HCFA and health-care professionals who treat Medicare AMI patients;
- Make CCP research and quality improvement program results available to a broader group of health-care professionals; and
- Reinforce attendees' background knowledge of CCP.



Thomas Marciniak, MD, HCFA physician consultant, surveys the Ohio PRO's poster, one of many displayed during the CCP Liaison Conference.

"CCP combines several elements for success and reflects HCFA's new vision," said Steven Clauser, PhD, the new director of HCFA's Quality Measurement and Health Assessment Group, in his opening speech to conference attendees.

As part of HCFA's new vision, the agency is "working toward becoming a beneficiary-centered, value-based purchaser of health care," he said.

In addition, an overview of CCP provided background for external organizations. Thomas Marciniak, MD, stressed that the national goal of CCP is to reduce mortality for AMI patients. He illustrated this with data showing that, although nationally 19 percent of Medicare patients die within 30 days of AMI, that number decreases to 13 percent in one CCP pilot state, and 6 percent in clinical AMI trials with younger patients.

Dr. Marciniak also presented pilot-state data and preliminary data from the national hospital-specific CCP sample to show linear progress toward lower mortality rates.

Another session, "CCP In Practice," demonstrated the ways in which PROs and hospitals have worked together on CCP activities. Dale Bratzler, DO, principal clinical coordinator of Oklahoma Foundation for Medical Quality, Inc., presented a report from the "Collection of AMI Intervention Strategies" special study. For this project, four PROs collaborated to identify and compile "best practice" information from hospitals around the country that participated in CCP.

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Inside This Report:

CCP Benchmarking Provides Achievable Goals for Hospitals

"Good, better, best. Never let it rest. 'Til my good is better and my better best."

Thomas Marciniak, MD, HCFA physician consultant, suggested this adage as the principle behind benchmarking for quality improvement efforts such as CCP.

HCFA defined benchmarking in a background paper for CCP as "a continuous process of searching for best practices that lead to superior performance." Benchmarks based on hospitals' "best practices" demonstrate that improvement in these areas is possible, thus forming a basis for continuous quality improvement processes.

By focusing on attainable superior goals instead of comparing performance levels to averages, hospitals are better able to strive for excellent care instead of average care.

Best practices form the basis for two definitions of benchmarking. *Metric benchmarking* is a data-driven, objective process that identifies performance levels and measures the difference between observed performance and optimal performance. *Process benchmarking* analyzes processes and clinical practice patterns that contribute to optimal performance.

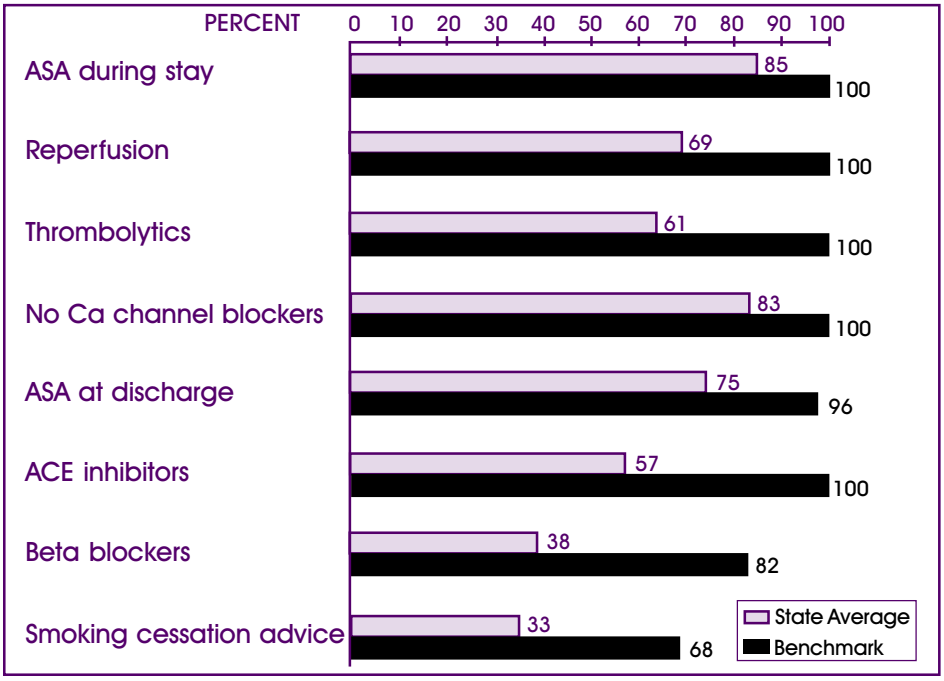
The structure of CCP data makes it invaluable for use in benchmarking studies. CCP's large national database includes statistics for AMI care from nearly all U.S. hospitals. The project's quality indicators are solid, measurable aspects of care with ideal and eligible patients clearly identified.

Benchmarking Application In Texas

Texas Medical Foundation (TMF) calculated and published quality indicator benchmark performance levels for Texas hospitals, based on the state's CCP baseline data. The Texas PRO wished to provide hospitals with high but achievable goals in addition to state and national averages used for initial feedback.

TMF biostatisticians referred to a 1994 Alabama benchmarking project for guidance on metric benchmarking. For that project, Alabama researchers used CCP pilot-state data to develop three methods for identifying benchmarks. TMF applied the "pared mean" method of metric benchmarking, the Alabama project's preferred method, to eight CCP quality indicators, omitting those related to timing issues.

Texas CCP Baseline Benchmarking Data



For each quality indicator, TMF:

1. determined a utilization rate for each hospital by dividing the number of ideal patients who received the indicated care (the numerator) by the number of ideal patients for the quality indicator (the denominator);
2. ranked hospitals in descending order by utilization rate;
3. selected enough hospitals from the highest utilization rates so that the total number of patients in their denominators would include at least 10 percent of the state's ideal patients for that indicator; and
4. determined the metric benchmark by dividing the sum of the selected hospitals' numerators by the sum of the selected hospitals' denominators.

This method avoided assigning disproportionate weight to high-performing hospitals with very few cases. Instead of calculating a percentage of hospitals, TMF calculated a percentage of ideal patient cases for each indicator.

Texas hospital benchmarks approached or reached 100 percent for six of the eight quality indicators (*see graph*). One hospital achieved benchmark performance for six indicators, while nearly 70 percent of hospitals met at least one benchmark.

Evolution of Benchmarking Methods In Alabama

In 1994, researchers from the Alabama Quality Assurance Foundation and the University of Alabama at Birmingham Department of Medicine explored metric benchmark performance for CCP quality indicators.

The research project analyzed current methods used by PROs for hospital evaluation. Researchers noted that if benchmark numbers were derived by simply choosing the top 10 percent of hospitals for a certain performance measure, hospitals with very few cases showed the same statistical impact as larger ones, thus creating an unrealistic benchmark.

Alabama researchers used sample data from the state's CCP pilot project to test three different benchmarking methods. Their preferred method, the pared mean, was adapted by TMF for use with Texas hospitals.

Benchmarking… cont'd on next page

Benchmarking... cont'd from previous page

Catarina Kiefe, PhD, MD, a researcher from the 1994 Alabama study, has continued to study benchmarking methods at the University of Alabama in Birmingham. Dr. Kiefe is applying metric benchmarking to other HCFA projects such as the Ambulatory Care Quality Improvement Program (ACQIP) for outpatient diabetes management.

Of note, the pared mean proposed by the Alabama group uses weighted averages and prevents hospitals with small numbers of admissions from unduly influencing the benchmark, while still contributing to it. These weighted calculations are the most useful way tested thus far of creating realistic metric benchmarks, Dr. Kiefe said.

A fourth method of calculating benchmarks has evolved from Dr. Kiefe's recent work. For this method, researchers identify hospitals with above-average utilization rates. This "average of above average" method may have certain advantages when it comes to aggregating performance across different indicators, but the pared mean method initially preferred by the Alabama investigators and used by TMF appears to work best at the individual indicator level.

Remeasurement for the ACQIP data is scheduled for January 1998. Dr. Kiefe hopes at that time to study whether the performance of Alabama physicians who received benchmarking information improved significantly more than the performance of those who received standard feedback only.

Dr. Kiefe is also the principal investigator for the "Measuring Quality by Achievable Benchmarks of Care" project, funded by the Agency for Health Care Policy and Research under the Q-SPAN initiative. The project is refining metric benchmarking methods and testing the feasibility of using them to help providers change clinical practices after evaluating quality of care.

"It is important to remember that when you use benchmarks to improve the quality of care, the benchmark itself will shift upward. It's very much in line with continuous quality improvement," Dr. Kiefe emphasized.

Abstraction Changes Enhance CCP Data Samples for 1998

A revised CCP data abstraction instrument that will take effect in 1998 incorporates the latest AMI guidelines and ensures that each variable has a definite use.

Thomas Marciniak, MD, HCFA physician consultant, submitted a draft of proposed abstraction changes in May 1997 to an Internal Steering Committee workgroup designated to address abstraction and resampling issues. The workgroup reviewed the abstraction set to determine which variables were useful, reliable, and relevant. For guidance, the workgroup relied heavily on the 1996 American College of Cardiology (ACC)/American Heart Association (AHA) revised AMI guidelines and the ACC standard database.

The committee workgroup established that each proposed change had to contribute to research or abstraction. Additions and deletions also had to be compatible with previous data elements in order to allow for ongoing analyses.

After incorporating revisions into the draft, the workgroup asked the Clinical Data Abstraction Centers (CDACs) to review the proposed changes and comment on their feasibility.

The average abstraction time should increase minimally as a result, Dr. Marciniak said. "A slight increase is acceptable if the payback is large," he noted.

Deletions

The workgroup deleted variables if information gathered from abstractions was not used in any study. Thirteen core variables were deleted, including pneumonia and decubitus ulcer, because they had been collected for all projects but never used in CCP analyses.

The workgroup also deleted variables that collected information of limited value. For instance, the "transmural (new Q-wave) MI" variable was deleted because the "subendocardial infarction" variable is a better predictor of short-term mortality.

Relevancy of variables was also a factor in deletion. Deep vein thrombosis in AMI patients is no longer as critical an issue as in the past because of early ambulation policies. As recommended by the ACC, the workgroup decided to drop the variable "heparin for DVT prophylaxis." CCP pilot studies used the heparin variable, although national samples did not.

Additions

Additions to the variable set reflect the ACC/AHA 1996 revised guidelines for AMI care. New variables collect the starting times and dates for beta blocker administration. Other variables measure cholesterol and triglyceride levels.

Changes to the abstraction set also include four new variables for tropinin I and T levels in order to reflect the changing procedures for enzymatic confirmation of AMI.

Some changes expand or clarify existing variables. For instance, the original "chest pain and other MI symptoms" variable presented difficulties to abstractors. Instead of listing the exact time, abstractors had to choose from six-hour intervals; also, only one time was recorded for all symptoms. The new abstraction set includes two variables to record the exact time and date of AMI chest pain, and two to record

Abstraction Changes... cont'd on page 7

Hospital Perspectives: CCP Success Stories

Hospitals across the country work with PROs to develop and implement improvement plans. Many hospitals discover innovative ways to improve the quality of AMI care in their facilities.

"Hospital Perspectives" spotlights three hospitals from different geographical areas.

- **Connecticut**: A large hospital improves delivery time of thrombolytics by addressing three roadblocks.
- **South Dakota**: Small hospitals in this rural state focus their improvement plans on decreasing delays in transferring patients with AMIs to tertiary facilities.
- **Louisiana**: An urban hospital designs a data collection tool for cardiologists as a means of improving performance on CCP quality indicators.

Connecticut Hospital Meets Gold Standard

A 420-bed teaching hospital in Connecticut was able to improve its delivery time of thrombolytics to AMI patients from 97 minutes to 24 minutes through continuous quality improvement (CQI) efforts in the emergency department.

This hospital, which is neither suburban nor inner city, serves a working-class population. The facility has cardiac catheterization capabilities, but transfers patients needing angioplasties or cardiac surgeries to an affiliated hospital. Its emergency department treats 45,000 patients per year, with 10 patients per month receiving thrombolytics.

Hospital emergency department data collected in 1991 showed a need to improve the timing of thrombolytics. At that time, the emergency department's CQI committee developed a subgroup composed of medical and nursing leaders to study this issue. The group identified three major roadblocks to timely administration of thrombolytics: delay to EKG, delay to cardiologist involvement, and lack of drug accessibility. After targeting these areas of concern, the team worked with the staff to discover ways to reduce the time to delivery of thrombolytics.

By analyzing and modifying the process of obtaining an EKG, the emergency department developed and implemented a protocol that allows staff to complete an EKG within the five-minute national gold standard. When a patient arrives in the emergency department with a complaint of chest pain, fainting, syncope, or increased heart rate, the triage nurse immediately takes the patient to a treatment room, bypassing nursing assessment protocol. The nurse then pages a technician within the department, who performs an EKG and shows the EKG to a physician. If the physician suspects an AMI, he or she immediately examines that patient.

The new process of prioritizing EKGs took about one year for the staff to fully

Connecticut… cont'd on page 9

South Dakota Hospitals Focus on Transfer

South Dakota is a rural state in which only three of 55 acute-care hospitals have the capabilities to offer invasive cardiac procedures. In a state where many towns have just one or two physicians, cardiologists are a rarity. Five cardiology groups are currently in practice, three of which are affiliated with South Dakota's tertiary care centers.

According to **South Dakota Foundation for Medical Care (SDFMC)**, the South Dakota PRO, physicians diagnosed 1,593 Medicare beneficiaries with AMIs in South Dakota during 1996. Rural hospitals provided initial treatment to 593 patients. Of these patients, approximately 50 percent were stabilized and transferred to one of the three tertiary facilities.

At that time, because of the great distances to the tertiary centers and severe winter weather conditions, rural hospitals utilized an air transport system to avoid ground transportation delays. All hospitals in the state had access to helicopter or airplane services. Most hospitals had heli-pads, and two or three of the hospitals had airstrips for fixed-wing air ambulance transfer.

These hospitals needed to transfer many patients; therefore, the majority of CCP improvement plans submitted from rural hospitals dealt with prompt identification of AMI and timing issues related to treating and stabilizing patients before transfer.

SDFMC and hospitals hoped to reduce delays from the start of symptoms to arrival at rural hospitals by educating Medicare beneficiaries about the signs of AMI. SDFMC produced newspaper

South Dakota… cont'd on page 7

An idea that works

One Connecticut hospital has set up a protocol to administer aspirin to all chest pain patients who qualify. The staff screens patients for aspirin allergies, bleeding disorders, and ulcers. If none of these conditions exist, the patients receive aspirin under standing orders in the emergency department.

The 1992-93 data collected before the implementation showed that 76 percent of AMI patients received aspirin in the emergency department. In the 1995-96 data, that number increased to 88 percent.

Louisiana Hospital Develops Data Collection Tool for Physicians

A large Louisiana hospital felt that participating in CCP would boost its efforts to improve care for AMI patients. The facility believed that CCP would provide an interdisciplinary and outcomes-driven approach to improving care.

The facility decided that CCP would mesh well with improvement efforts it had made since 1994 through the National Registry of Myocardial Infarction study. Some of the improvements for AMI patients included shortening "door to data" time by cross-training respiratory therapists to perform EKGs, and improving aspirin usage by adding "ASA Yes/No" to Coronary Care Unit admission orders.

When it joined CCP, this large urban hospital formed an interdisciplinary AMI team including physicians, nurses, laboratory personnel, and quality management staff to oversee the project. The team also contacted cardiologists and asked for their participation in the project.

One of the most important aspects of the hospital's project was the development and implementation of a physician data collection tool. Cardiologists completed this simple checklist and placed it on charts of patients with suspected or confirmed AMIs (*see form at right*).

The team designed the tool to involve physicians in a prospective assessment of current therapies. By getting information from those closest to the process, the team felt able to address actual barriers to the use of recommended therapies.

The hospital used the form for quality improvement purposes only, and did not include it as a permanent part of the medical record. Because of this, the team was able to elicit information about why physicians chose whether or not to follow certain quality indicators. The team shared physician-specific data with cardiologists so they could analyze their own practice patterns.

The hospital plans to monitor care on an ongoing basis, with results analyzed and reported quarterly.

Patient Checklist

Chest Pain/Acute Myocardial Infarction

Place in Progress Notes for patients presenting with chest pain w/in 48 hrs. prior to/on arrival, ***or*** EKG with ST↑ in 2 consecutive leads, new Q waves, or new BBB.

To be completed concurrently by cardiologist - Please complete (x) responses

PRESENTATION

ASPIRIN AT PRESENTATION

- ☐ **Yes**, given within 24 hours of presentation
- ☐ **No, reason**:
  - ☐ Contraindication, absolute
    - Significant bleeding on admit
    - Hx of significant bleeding
    - Upper GI bleed
    - Coagulopathy: INR>2 or PT>15
    - Platelets < 75,000 mm^3
  - ☐ Contraindication, relative
    - Warfarin prior to/on admit
    - Chronic liver disease
    - Serum creatinine > 3 mg/dl
  - ☐ Concern about GI side effects
  - ☐ AMI not suspected at admission (e.g., atypical presentation)
  - ☐ Admission EKG non-diagnostic
  - ☐ Taken prior to presentation
  - ☐ Inadvertently overlooked
  - ☐ Patient NPO (on ventilator)
  - ☐ Patient unstable. ASA not a priority
  - ☐ System problem (e.g., order not executed)
  - ☐ Other - describe _____

REPERFUSION INTENT

- ☐ **Yes, IV thrombolysis** started
- ☐ **Yes, taken to cath lab** with intent of primary PTCA if cath demonstrated indication
- ☐ **No attempt at reperfusion, reason:**
  - ☐ Exclusions
    - Chronic liver disease
    - Peptic ulcer disease
    - Surgery in last month
    - Coagulopathy
    - History of stroke
    - History of bleeding
    - Evidence of bleeding
    - Recent trauma
    - Recent CPR
    - Warfarin on admit
    - Age > 80 years
  - ☐ Late presentation
  - ☐ Lack of ST↑ in 2 consecutive leads
  - ☐ AMI not suspected at presentation (atypical presentation)
  - ☐ Received prior to presentation
  - ☐ Unstable (arrest or cardiogenic shock)
  - ☐ Patient age
  - ☐ Patient functional/physical status
  - ☐ System problem (e.g., order not executed)
  - ☐ Other - describe _____

Admitting cardiologist: _____

At least two of the three criteria have been met: 1) Symptoms of ischemia; 2) MB ≥ 2x nl (≥ 13 ng/ml); 3) ST↑ in 2 consecutive leads or new Q waves

☐ No, stop here ☐ Yes, see discharge questions

DISCHARGE

ASPIRIN AT DISCHARGE

- ☐ **Yes**, given at discharge
- ☐ **No, reason**:
  - ☐ Contraindication, absolute
    - Hx of significant bleeding
    - Upper GI bleed
    - Coagulopathy: INR > 2 or PT > 15
    - Platelets < 75,000 mm^3
  - ☐ Contraindication, relative
    - Warfarin prior to/on admit
    - Chronic liver disease
    - Serum creatinine > 3 mg/dl
  - ☐ Concern about GI side-effects
  - ☐ Inadvertently overlooked
  - ☐ Other - describe _____

BETA BLOCKER AT DISCHARGE

- ☐ **Yes**, given at discharge
- ☐ **No, reason**:
  - ☐ Contraindication, absolute
    - SBP < 100 at discharge
    - Bradycardia < 50
    - Second or third degree heart block
    - LVEF < 35%
    - Pulmonary edema
    - CHF
  - ☐ Contraindication, relative
    - Treatment with insulin
    - History of COPD
  - ☐ "Small" or inferior MI
  - ☐ Concern about side effects
  - ☐ Inadvertently overlooked
  - ☐ Other - describe _____

ACE INHIBITOR AT DISCHARGE

- ☐ **Yes**, given at discharge
- ☐ **No, reason**:
  - ☐ Contraindication, absolute
    - Hx angioneurotic edema from ACE inhibitor
  - ☐ Contraindication, relative
    - Aortic stenosis
    - Creatinine > 2 mg/dl
    - Systolic BP < 100 mm/Hg
  - ☐ EF > 40%
  - ☐ Other - describe _____

Discharging cardiologist: _____

Data to be used for Quality Improvement as part of the CCP (Cooperative Cardiovascular Project), protected as Medical Staff QM data. REMOVE FROM CHART AT DISCHARGE. Medical Records: PLEASE FORWARD TO QM - ATT: AMI PRACTICE TEAM.

Mountain States Research Network: AMI Project for Rural Hospitals

CCP remeasurement data released in 1997 showed demonstrable improvement in AMI care. However, the increase in quality of care cannot be attributed solely to CCP. Other efforts and projects, such as the **Mountain States Research Network (MSRN)**, may have contributed to these improvements.

For MSRN's AMI project, "Initial Treatment of Acute Myocardial Infarction Among Rural Medicare Patients," PROs abstracted data from over 3,500 AMI cases in 194 rural hospitals. PROs representing 12 states with large rural populations (*see map*) participated in this cooperative project, which began in 1993 during the pilot stage of CCP.

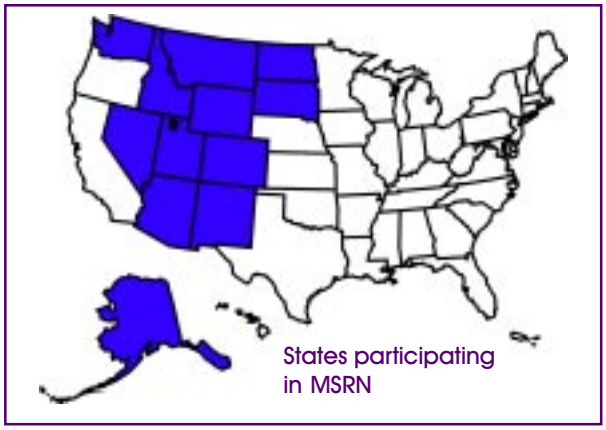
Many rural hospitals have few inpatient AMI admissions because these patients usually receive initial treatment in the emergency department as outpatients, then are transferred to larger hospitals for admission and care. Since CCP did not collect outpatient data, PROs in the MSRN states developed a project that evaluated emergency department data from small rural hospitals in order to meet the needs of this patient group.

To focus on rural hospitals' AMI care, the MSRN AMI project used outpatient data collected from emergency department records as well as inpatient data. Quality indicators targeted rural hospitals' timely and appropriate administration of aspirin and thrombolytics.

As with CCP, PROs worked with hospitals to provide feedback and develop improvement plans. In most states, hospitals received their own facility-specific data, statewide and project-wide data, and data organized by peer group.

In Colorado, participating hospitals also received copies of a self-directed Continuing Medical Education (CME) program developed by **Colorado Foundation for Medical Care (CFMC)** that included a monograph, video, clinical questionnaire, and application for CME credit.

CFMC is one of three PROs that retained the MSRN initiative in their states and now run rural AMI projects simultaneously with CCP. These PROs use MSRN data collection techniques to help rural hospitals improve AMI care, while also providing CCP data and improvement activities.



Colorado's baseline MSRN sample included 217 Medicare AMI patients from 1993. For remeasurement, the PRO sampled data from 145 Medicare AMI patients discharged between July and December 1996.

Aggregate remeasurement results for MSRN in Colorado showed significant improvement in several aspects of care. Improvement included an increase in aspirin administration from 74 percent to 89 percent and a drop in the median time to aspirin administration from 2 hours, 8 minutes to 1 hour, 25 minutes.

The Colorado PRO will evaluate remeasurement data sets for CCP and for MSRN as soon as both are available. CFMC will then develop a plan for providing feedback to the eight rural hospitals participating in MSRN.

New Mexico Medical Review Association (NMMRA), the PRO for New Mexico, is also performing MSRN AMI project remeasurement. All New Mexico hospitals participating in the original MSRN sample chose to continue with the project, which the PRO runs simultaneously with CCP. NMMRA plans to share remeasurement feedback with these hospitals in early 1998.

In North Dakota, the small number of AMI admissions prompted **North Dakota Health Care Review, Inc. (NDHCRI)** to collect data for all 1993 AMI cases from 37 participating rural hospitals. The PRO then included only Medicare beneficiaries for MSRN analysis.

In 1996-97, NDHCRI performed remeasurement using records from 1995 and 1996 AMI admissions. A total of 33 hospitals participated in both baseline and remeasurement phases of the project. Significant improvement occurred for many of the quality indicators between baseline and remeasurement samples.

Thrombolytic administration for eligible patients in all age groups increased from 28.3 to 44.3 percent. In the 90-year-old and above age group, however, thrombolytic administration increased from 0 percent to 40 percent, demonstrating a change in the extent to which age influenced the decision for thrombolytic administration.

In addition, overall use of beta blockers increased significantly for rural North Dakota hospitals, from 32.5 percent in the baseline data to 47.5 percent at remeasurement. Median time to administration of thrombolytics decreased from 68 to 55 minutes. For aspirin administration, the median time decreased significantly from 177 minutes to 35 minutes.

Not every PRO in the 12-state group opted to continue the MSRN AMI project after hospitals received baseline data and CCP became a nationwide project. Arizona, Idaho, and South Dakota PROs merged MSRN efforts with CCP by adding outpatient elements to standard CCP activities in order to assist rural hospitals.

Although some of the PROs involved in MSRN discontinued the regional project entirely, these PROs still assist rural hospitals through CCP and other cooperative projects. For instance, PRO-West focuses CCP improvement activities in Alaska on small hospitals. Other PROs also integrate elements of MSRN into other cooperative projects, such as the Rural AMI Project in Texas (*see sidebar on next page*).

MSRN + CCP = Rural AMI Project

Texas Medical Foundation (TMF) decided to combine elements from both the MSRN and CCP projects in order to create the Rural AMI Project, designed to improve care for Medicare beneficiaries living in small Texas towns.

Over 100 rural hospitals in Texas treat AMI patients in their emergency departments, then transfer many of them to receiving hospitals. Through the Rural AMI Project, TMF focuses on patterns of care in rural-area clusters of hospitals. Each "cluster" includes one or two large receiving hospitals in one of four medium-sized cities and several rural transferring hospitals in surrounding towns.

The Rural AMI Project evaluates care in the emergency departments of rural hospitals as well as subsequent admissions to either the rural hospital or the large facility.

Quality indicators for the rural hospitals include timely evaluation, stabilization, administration of aspirin, and use of thrombolytic drugs in the emergency department of the rural hospital. Indicators for the receiving hospital include timely administration of thrombolytics or reperfusion when not provided in the rural emergency department. For both types of hospitals, indicators include lipid profile monitoring and beta blocker administration.

After identifying AMI patients from Medicare Part A and B claims data, TMF staff will perform abstraction and analyses. Feedback meetings for each cluster will be conducted by TMF in the cluster's receiving hospital.

Receiving hospitals will be asked to develop improvement plans for their own processes of care and will work with transferring hospitals to improve overall care for rural AMI patients.

South Dakota… continued from page 4

advertisements, public service announcements, and brochures describing signs and symptoms of heart attacks. The materials informed beneficiaries that the sooner they reached their local hospitals, the sooner they could be transferred to larger facilities if necessary.

When patients reached rural hospitals, many facilities improved time to AMI diagnosis by reducing time to first EKG. In many rural hospitals, EKG technicians were not on-site 24 hours a day, and had to be called in from home. This caused delays of up to 45 minutes until first EKG. To reduce this delay, nurses learned to perform EKGs. Hospitals also changed standing orders and staffing in emergency departments to assure prompt EKGs.

After AMIs were diagnosed, hospitals focused on initial treatment and stabilization of patients, including administration of aspirin and thrombolytics. Thirty-eight improvement plans received by SDFMC included timing of aspirin and 23 improvement plans included timing of thrombolytics.

To emphasize timeliness of administration of aspirin and thrombolytics, many hospitals used the revised 1996 *Guidelines for the Management of Patients with Acute Myocardial Infarction*. In addition, SDFMC provided each hospital that included aspirin as part of its improvement plan with a copy of an American Hospital Association article focusing on the importance of prompt administration of aspirin. Each hospital distributed copies of the article to medical and nursing staff.

In addition to CCP quality indicators, hospitals monitored timing of aspirin from the time patients arrive in emergency departments to the exact time aspirin is given. SDFMC developed a modified abstraction tool that examines this specific aspirin timing issue as well as the national CCP quality indicators.

Abstraction Changes… continued from page 3

the time and date of other symptoms. This separation of variables may be easier and more reliable.

Additions also cover situations not adequately addressed by previous variables. New directions allow more flexibility in recording the timing of percutaneous transluminal coronary angioplasty (PTCA). The original variable recorded only "wire" time, which about 30 percent of records did not document. A new variable allows for the reporting of an estimate of PTCA start time even in the absence of wire time.

Five new variables collect information about the coronary anatomy as determined at cardiac catheterization. They verify the percent of stenosis for the left main, proximal left anterior descending (LAD), other LAD, right, and circumflex coronary arteries. These variables provide valuable data for evaluating PTCA and coronary artery bypass graft (CABG) results and for determining risk stratification.

Additions to the variable set also reflect current trends in demographic data collection. The revised instrument contains a new category separating ethnicity from race. This category allows the collection of Hispanic background data as a distinct variable in order to improve demographic data.

"Abstraction changes for 1998 show the evolutionary approach we have taken with CCP," Dr. Marciniak said. "They will permit us to define and address important care improvements, such as lipid management and invasive procedure use, that we did not emphasize in the baseline feedback efforts."

CCP Conference… cont'd from front page

During this session, two individual hospitals also shared their own effective intervention strategies with conference attendees. Representatives from a small hospital in Colorado, Mt. San Rafael, and a large hospital in New Jersey, Overlook Hospital, joined with staff from their respective PROs to describe their facilities' continuous quality improvement (CQI) efforts related to CCP.

"The hospital experiences that were shared were great. CCP has made a difference in patient care," was one of many positive evaluations for the hospital presentations, Ms. Kessler said.

Another session that participants evaluated as valuable was "The CCP Scientific Experience." Dr. Marciniak moderated this presentation of five abstracts covering CCP-related topics.

"Effectiveness of Enhanced Feedback"
Kurt Elward, MD, MPH, Virginia Health Quality Center (VHQC)
VHQC studied the effects of furnishing hospitals and physicians with additional CQI information. The PRO designed and distributed a "Quality Improvement Tool Kit," containing CCP resource materials, to a randomly selected group of Virginia hospitals. When compared to those receiving standard feedback, hospitals in the enhanced feedback group were more likely to complete self-remeasurement and showed greater improvements in care.

"The Effects of ACE Inhibitors in High and Low Risk Subgroups Following AMI"
Stephen Gottlieb, MD, University of Maryland and Delmarva Foundation for Medical Care, Inc.
This study used CCP data to determine which patients benefit from ACE inhibitor administration by comparing 30-day mortality rates of patients who received ACE inhibitors with those who did not. Results suggested that ACE inhibitors should be administered to post-AMI patients with low or high blood pressure, high creatinine, and advanced age (over 85 years), but not to post-AMI patients with normal ejection fractions and a low risk for mortality.

Panelists discuss "CCP and Managed Care" during a breakout session at the CCP Liaison Conference. From left to right: Richard Hughes, MD, American Medical Association; Simeon Rubenstein, MD, Group Health Cooperative of Puget Sound; Joseph W. Thompson, MD, MPH, National Committee on Quality Assurance; panel chair Robert Vogel, MD, University of Maryland; and moderator Jeff Kang, MD, Center for Health Plans and Providers.

"The Relation Between Sulfonylurea Therapy, Complications, and Outcome for Elderly AMI Patients"
James Jollis, MD, Duke University and Medical Review of North Carolina, Inc.
This project examined in-hospital mortality and complication rates for Medicare AMI patients with diabetes. Results showed that adverse outcomes did not occur more frequently for patients treated with sulfonylurea.

"Geographic Variation In Treatment of AMI"
Gerald T. O'Connor, PhD, DSc, Dartmouth University and Northeast Health Care Quality Foundation
A Dartmouth Medical School research group worked with the New Hampshire PRO to construct hospital regions by geographic area, studying them for variations in AMI care. The project focused on care related to CCP quality indicators, including the use of invasive cardiac procedures. Researchers found substantial geographic variation in treatments for AMI patients, including those in the ideal category.

"Adequacy of Inpatient Monitoring and Treatment of High Blood Cholesterol Among Medicare AMI Patients"
Peter Pendergrass, MD, MPH, Texas Medical Foundation (TMF)
TMF abstracted Texas AMI patient data to assess the adequacy of cholesterol monitoring and treatment of inpatient Medicare beneficiaries with a discharge diagnosis of AMI. The PRO developed a special abstraction tool that assessed the management of high serum cholesterol. Results showed that cholesterol monitoring and treatment are underutilized in acute-care hospitals.

The conference also included a poster display that highlighted statewide and regional studies including CCP-related research, HCFA/PRO special studies, and non-CCP cooperative projects.

Conference attendees participated in one of five concurrent sessions that focused on different aspects of CCP application.

"CCP and Quality Improvement"
Chair: Martha Hill, RN, PhD, Johns Hopkins University

"CCP and Special Populations"
Chair: Jeroan Allison, MD, University of Alabama

"CCP and Research"
Chair: Barbara McNeil, MD, PhD, Harvard University

"CCP and Managed Care"
Chair: Robert Vogel, MD, University of Maryland

"CCP and Other Databases"
Chair: William Weintraub, MD, Emory University

After the breakout sessions concluded, each session's chairperson presented a summary of comments and recommendations to the entire conference. The Internal Steering Committee plans to compile these comments into a document that can be used by HCFA to guide future CCP activities. The document will receive top priority from HCFA, Dr. Clauser said.

External Organizations

CCP Liaison Conference attendees included representatives from these organizations:

- Agency for Health Care Policy and Research
- American Academy of Family Physicians
- American Association of Critical Care Nurses
- American Association of Health Plans
- American Association of Retired Persons
- American College of Cardiology
- American College of Clinical Pharmacy
- American College of Emergency Physicians
- American College of Physicians
- American College of Preventive Medicine
- American Health Quality Association
- American Heart Association
- American Heart Association, Council on Cardiovascular Nursing
- American Hospital Association
- American Medical Association
- American Nurses Association
- American Osteopathic Association
- American Society of Health System Pharmacists
- Association of Black Cardiologists, Inc.
- Center for Clinical Quality Evaluation
- Centers for Disease Control and Prevention/National Center for Chronic Disease Prevention and Health Promotion
- Dartmouth-Hitchcock Medical Center
- Duke University Medical Center
- DynKePRO
- Emergency Nurses Association
- FMAS Corporation
- Genentech
- Group Health Cooperative of Puget Sound
- Harvard Medical School
- Healthcare Education and Research Foundation
- Howard University Hospital
- Joint Commission on Accreditation of Healthcare Organizations
- Mt. San Rafael Hospital, Trinidad, Colorado
- National Association of EMS Physicians
- National Association of EMTs
- National Black Nurses Association
- National Coalition of Hispanic Health and Human Services Organizations
- National Committee for Quality Assurance
- National Heart, Lung and Blood Institute
- Overlook Hospital, Summit, New Jersey
- Shores and Lee Law Firm
- Society of Thoracic Surgeons
- Stanford University
- University of Alabama
- University of Maryland
- Volunteer Hospital Association, Inc.
- Yale University School of Medicine

Connecticut… cont'd from page 4

integrate. To foster acceptance of this protocol, the CQI committee provided monthly feedback to nurses and physicians through staff meetings. During these meetings, the committee reinforced the urgency of immediate EKGs and presented the staff with new time-data. Through these CQI efforts, the staff was able to decrease the average time to EKG from 14 minutes to 5 minutes, thereby reaching the hospital's goal.

The second major roadblock to giving thrombolytics involved cardiology consultation. Under the previous system, the emergency department physician waited to consult a cardiologist before starting thrombolytics. This process took an average of 20 minutes. To eliminate this delay, cardiologists and emergency department physicians developed and approved a checklist for administering the drug. Now, if a patient meets the criteria for thrombolysis, and the cardiologist does not answer in a timely fashion (within 10 minutes), the emergency department physician orders the drug before consultation.

The third roadblock was the storage of thrombolytics away from the emergency department. Working with the pharmacy, the emergency department developed a thrombolytic cart and stored the drug in this cart. When a patient needs a thrombolytic agent, the cart is rolled into the room. This convenience further decreases the door-to-drug delivery time.

Through cooperative endeavors of cardiologists, pharmacists, emergency department physicians, nurses, and ancillary staff, this Connecticut hospital has made tremendous strides in improving time to thrombolytics. In 1991, the mean time to administration of thrombolytics was 97 minutes and the median was 93 minutes. Those times now stand at 23 minutes and 20 minutes respectively.

The emergency department continues to track the timing of thrombolytics and EKGs, reporting back to the staff monthly.

Regional Perspectives

"Regional Perspectives" is a recurring feature in *National Perspective*. Each issue profiles several PROs to illustrate various approaches to CCP.

The PROs featured in this issue demonstrate how organizations adapt their CCP projects to meet the needs of Medicare beneficiaries in their states.

- **Quality Improvement Professional Research Organization** organized its CCP feedback based on Puerto Rico's unique health-care system.
- **Mid-South Foundation for Medical Care, Inc.** focused on involving small Tennessee hospitals in CCP.
- **Iowa Foundation for Medical Care**, **The Sunderbruch Corporation-Nebraska**, and the **Illinois Foundation for Quality Health Care** adapted a successful project idea for CCP.

Puerto Rico Works With Hospitals To Improve Care

Quality Improvement Professional Research Organization (QIPRO), the Puerto Rico PRO, is collaborating with 28 acute-care hospitals as part of CCP. Even though this number represents only 57 percent of the hospitals in the Commonwealth, the participating hospitals cared for 72 percent of all AMI patients in Puerto Rico.

Six of the collaborating hospitals are public hospitals and the remaining 22 are private. Public hospitals care for medically indigent patients or Medicare beneficiaries who have Medicare Part A coverage only, as well as patients with private insurance.

During the 1960s, the Puerto Rican government set up the basis for the present system of public health care. At that time, it divided the 3500 square-mile island into five regions and created a four-tiered system of public health care. Patients received primary health care first in the towns where they lived. If they needed more complex care, the patients went to area hospitals. If they needed additional services, they were referred to a regional hospital, and finally, when necessary, to the Puerto Rico Medical Center in San Juan. At its peak, the government-owned hospital system comprised 10,000 acute-care hospital beds in facilities ranging from 25 to 600 beds. They provided care for 1.8 million medically indigent patients.

This system is still in effect today, although the government is shifting the care of medically indigent patients from the public sector to private health-care companies. In addition, private hospitals now flourish and represent a significant percentage of health-care providers.

At its peak, the government-owned hospital system comprised 10,000 acute-care hospital beds in facilities ranging from 25 to 600 beds. They provided care for 1.8 million medically indigent patients.

Because of Puerto Rico's unique health-care system, QIPRO created its own peer groups based on bed size and geographic area for feedback purposes. When developing bed-size criteria, QIPRO selected the number of beds currently in use rather than the number for which a facility was licensed. The PRO also divided peer groups by three geographic regions: rural, urban, and the San Juan metropolitan area. The last was designated as a separate peer group because this capital city, which boasts more than one million residents in its metropolitan area, has seven hospitals of more than 100 beds each.

In addition to bed size and geographic area, the PRO also created a peer group based on cardiovascular specialization. This final peer group included four hospitals that offered CABG surgery.

QIPRO presented peer-group and national CCP data to providers during face-to-face meetings. The Puerto Rico PRO then asked participating hospitals to submit improvement plans addressing CCP quality indicators chosen by the facilities. Most hospitals focused on use of aspirin during hospitalization, thrombolytics within one hour, and smoking cessation advice and counseling. By November 1997, 28 hospitals had submitted their improvement plans.

CCP in Puerto Rico is now in the monitoring stage. The PRO will remeasure six months after improvement plans are implemented, and will use its own project data collection tool. QIPRO anticipates completion of remeasurement by October or November 1998.

Tennessee Tailors CCP for Smaller Hospitals

Mid-South Foundation for Medical Care, Inc. (MSFMC), the Tennessee PRO, recognizes that participation of small hospitals in CCP is essential to improving care for AMI Medicare beneficiaries.

In Tennessee, up to half of AMI patients first present to small hospitals or community hospitals that do not provide on-site cardiology services. Patients with ischemic heart disease or AMIs receive urgent care, and then are transferred to regional referral centers. MSFMC felt that the involvement of small hospitals in CCP would be a crucial step toward decreasing morbidity and mortality associated with AMI.

Many small Tennessee hospitals were reluctant to join CCP. They felt that CCP project data was geared toward moderate and large-size hospitals with cardiology services. Many of the small community hospitals had few or no charts in the CCP national database while moderate and large hospitals had over 100 cases each. Those cases from small hospitals were generally patients with severe comorbidity, with delayed diagnoses of AMI, or who could not be transferred to other facilities.

Small community hospitals also did not feel the need to participate in CCP because they transferred most of their AMI patients to referral hospitals. Since the community hospitals did not discharge AMI patients, they rarely performed discharge planning. Five CCP quality indicators dealt with discharge planning.

MSFMC convinced many small hospitals to participate in CCP by meeting with hospital personnel in face-to-face conferences held either regionally or at individual hospitals. The PRO met with nurses, physicians, and quality improvement staff, and stressed their roles in improving care for AMI patients.

To increase participation of physicians in CCP, MSFMC obtained names and addresses of physicians who were involved in the care of AMI patients from small hospitals. The PRO then mailed postcards inviting physicians to regional meetings.

In addition, MSFMC designed a data collection tool that allowed transferring hospitals to participate in CCP and get comparative remeasurement data. The data collection tool focused on two quality indicators that reflected initial treatment: timing of aspirin and timing of thrombolytics.

Some hospitals chose to add a variable that would measure transfer time (i.e., time from arrival to transfer). The small hospitals filled out the abstraction tool concurrently with patient visits in emergency departments. The hospitals used the results for their own outcome measurements, and made adjustments to improvement plans as needed. The hospitals sent copies of their data to MSFMC, which then aggregated the data for feedback to participating hospitals.

IFMC Facilitates Hospital Data Collection

Three PROs recently adapted a successful project idea for use in CCP follow-up activities. The **Iowa Foundation for Medical Care (IFMC)** and its departments, **The Sunderbruch Corporation-Nebraska**, and the **Illinois Foundation for Quality Health Care,** developed and released the AMI ***Project-in-a-Box*** for hospitals to use in measuring processes of care for patients with AMI.

The Project-in-a-Box concept began in 1996 with projects on blood transfusion practice and congestive heart failure. The PROs designed Project-in-a-Box to enable hospital abstractors to perform their own data collection. The positive results and hospital responses to these projects encouraged the PROs to develop other projects using the same tools.

The three PROs provided data collection tools, technical support, and training. In addition, they made analytic services available, including data analysis and reliability testing. The PROs also shared improvement ideas and tools with hospitals through a newsletter, teleconferences, and an Annual Quality Forum.

The AMI Project-in-a-Box revised and improved CCP to meet current hospital needs. During CCP, many rural Iowa, Nebraska, and Illinois acute-care hospitals indicated an interest in assessing emergency department care of AMI patients prior to transfer to a tertiary center. In response, the PROs added emergency department variables to the CCP data collection tool. For example, the adapted tool contains "documentation of EKG interpretation" and "timing of EKG" variables as well as general chest pain codes. The tool also enables hospitals to collect optional data elements at their discretion.

Project-in-a-Box

The Project-in-a-Box used by the three PROs included these items:

Data collection tools
- Software
- Paper version
- Data definitions
- Software user guides

Analytic services
- Feedback reports in presentation format, including graphs
- Data quality monitoring and education

Training
- Definitions of data elements
- Software
- Ongoing technical support

Communication
- Suggestions for improvement, offered by pilot facilities
- Intervention ideas
- Forms for reporting quality improvement efforts
- *Connections* newsletter
- Annual Quality Forum
- Quality improvement tools shared among hospitals
- User group calls

ACC Committee Assured of CCP Data Quality After CDAC Site Visit

The American College of Cardiology (ACC) retracted its request for an external audit of the Clinical Data Abstraction Centers (CDACs) after visiting one of the sites last August.

"Our entire committee was very impressed by the expertise, dedication, and thoroughness demonstrated by the abstraction center," wrote Robert A. Vogel, MD, chairman of the ACC's Health Care Quality Improvement Initiative Committee, in a September 15 letter to HCFA.

The ACC requested an independent audit after members expressed concerns about the accuracy of CCP data abstraction. Many ACC members were unfamiliar with the CDACs' role and did not understand how the organizations abstract and compile data. HCFA staff suggested the site visit as a first step toward allaying these concerns.

The ACC committee participated in the August 13 visit along with Thomas Marciniak, MD, physician consultant for HCFA. The CDAC site chosen for the visit was FMAS Corp., located in Columbia, Maryland.

The site visit included a presentation on CDAC processes, a tour of site operations, and a question-and-answer session involving CDAC management and abstractors.

"The site visit has significantly helped our understanding of the abstraction process and the committee feels more confident that documented patient management is being correctly abstracted," Dr. Vogel wrote.

Attention Peer Review Organizations: CCP Publishing Opportunity

National Perspective seeks input from PROs around the country. Appropriate submissions by PROs for upcoming issues would include:

- Stories/data related to successful CCP improvement plans;
- Updates on CCP special projects awarded to PROs by HCFA;
- CCP analyses performed on a statewide or regional basis.

Reports or text about CCP success stories can be sent on a 3.5" floppy diskette, or emailed to a Project Leader, in WordPerfect format. Data can be sent in Excel spreadsheet format. If these software applications are not available, an ASCII text file is acceptable. Please include a contact name and phone number in case further information is needed.

For PROs in the Dallas and Seattle regions, contact:

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For PROs in the Boston and Kansas City regions, contact:

Florida Medical Quality Assurance, Inc.
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Benchmarking Resources

These resources were used in researching the benchmarking article (*pages 2 and 3*) and provide excellent additional information:

- Camp, Robert C., and Arthur G. Tweet. "Benchmarking Applied to Health Care." *Journal on Quality Improvement* 20, no. 5 (May 1994): 229-38.
- Campbell, A. Bruce. "Benchmarking: A Performance Intervention Tool." *Journal on Quality Improvement* 20, no. 5 (May 1994): 225-8.
- Kiefe, Catarina et al. "Determining Benchmarks: A Data-Driven Search for the Best Achievable Performance." *Clinical Performance and Quality Health Care* 2, no. 4 (October-December 1994): 190-4.

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