Who says high-quality, well-coordinated healthcare for elderly patients has to come at a higher cost? This past July, the federal Centers for Medicare and Medicaid Services, or CMS, announced the first results from a demonstration project showing this doesn’t have to be the case. U-M was a key player in this project, and faculty from the Division of Geriatric Medicine led the University’s participation.

In a nutshell, the project showed that U-M physicians were able to significantly improve both the quality and efficiency of care that Medicare beneficiaries with diabetes received at U-M hospitals and health centers—while also saving the Medicare system millions of dollars.

While patients with all types of chronic conditions benefited from UMHS’s redesigned care coordination from its inception, only data from beneficiaries with diabetes were used in the calculation of quality and savings for the first year.

The results come from a project that was initially scheduled to run through March 2008, but has now been extended even further because of its success.

And if the project continues to be successful, it could become a model for physician groups, hospitals, and health systems nationwide.

Besides U-M’s Faculty Group Practice (FGP), which includes more than 1,200 physicians who provide clinical services to patients within the University of Michigan Health System, the Medicare project included nine other large physician groups across the country.

Formally called the Physician Group Practice Medicare Demonstration Project, it is the first-ever Medicare Physician Pay-for-Performance demonstration. All of the physician groups were chosen for their already-demonstrated success in chronic care management, diabetes care quality, and organizational structure.

In the first year, all 10 physician groups improved quality of care for Medicare beneficiaries who have diabetes, by achieving nationally recognized benchmarks for diabetes care quality, such as helping patients keep their average blood sugar levels down, and performing regular exams to spot early signs of diabetes-related foot and eye problems.

U-M doctors saved Medicare $3.5 million in costs in just the first year.

But the U-M Faculty Group Practice did better than most

Not only did U-M doctors achieve 95 percent of the targets for providing specific, proven treatments and preventive measures to people with diabetes, but they also saved Medicare $3.5 million in costs for all participants in just the first performance year, from April 1, 2005 to March 31, 2006. Most of that savings was from avoiding hospitalizations.

Since the CMS project was designed to share savings with physician groups that surpassed a certain threshold of efficiency, U-M will be able to keep nearly $2.7 million of the $3.5 million.

Besides improving care for Medicare participants who have diabetes, U-M improved care for Medicare patients who have other chronic diseases, especially those who may have more than one disease, by redesigning care to enhance coordination and efficiency.

“We proved that you don’t have to reduce the quality of care to cut Medicare costs. We actually added services at no cost to patients or payers,” says Caroline Blaum, MD (right), the U-M geriatrician who leads the project. “For our many Medicare patients with diabetes, we have scientific, evidence-based quality indicators that demonstrate the high quality of care provided by the U-M FGP.”

Dr. Blaum, the associate chief of the division of Geriatric Medicine, led the team that designed and implemented the project, with intensive involvement of project manager Cheryl Grositic, Steve Bernstein, MD, of General Medicine, Vinita Bahl, DMD, MPP, of Clinical Information & Decision Support Services; and Kathy Ward of the Medical Management Center.

The project’s Planning and Steering Committee includes all of those members, as well as John Billi, MD, General Medicine; Rick Bluhm, JD, Geriatric Medicine; Christine Cigolle, MD, Family Medicine; Scott Flanders, MD, General Medicine; Donna Fox of the Medical Management Center; Tim Laing, MD, Rheumatology; Sam Silver, MD, PhD, Hematology/Oncology and Faculty Group Practice; David Spahlinger, MD, General Medicine and FGP; David Wesorick, MD, General Medicine; Charles Whiting, of the Medical Management Center; Brent Williams, MD, MPH, General Medicine; and Christopher Wise of the Medical Management Center.

Other key members of the team also include Jean Shlafer, MSA, BSN, RN, of Nursing, and Kathy O’Dell, ADN, of the Cardiovascular Center’s nursing leadership.
Several programs were redesigned, enhanced, or created for the first year of the project (see left). Other initiatives have been launched since that first year concluded, and their impact will be seen in the data from subsequent years that will be released in the future. As data emerge from the second and third years of the project, Medicare will analyze U-M’s care for patients with heart failure, coronary artery disease, and hypertension. It will also assess how well U-M physicians provide certain preventive services for all patients covered by Medicare.

A total of 20,505 Medicare beneficiaries who receive most of their healthcare at the UMHS were “assigned” to U-M as part of the demonstration project during the first performance year. Approximately 20 percent of those patients have diabetes. Because U-M is a tertiary referral center, nearly 20,000 other Medicare patients were seen only for referral, so they were not considered part of the Medicare Demonstration Project.

In all, the U-M’s participation in this landmark project signals our national leadership in the care of older Americans, and the development of new approaches to providing high-quality care at a lower cost. As the project goes forward, the division will continue to lead the way in innovating—and in demonstrating—the impact of innovations on the well-being of our patients who receive care at U-M.

**Diabetes Quality Program:** This program uses the UMHS electronic medical record system to provide individual physician/provider feedback on the quality of care for their patients with diabetes, often at the point of service. This allows the physician and patient to quickly see where there is a quality problem and correct it.

**Transitional Care Call-back Program:** Nurses, dubbed by some as “care traffic controllers,” call patients and caregivers within 24 hours of a patient’s discharge from the emergency department and hospital, helping them to understand post-discharge instructions and to solve problems such as keeping the next appointment, understanding medications, getting a test or procedure, or finding transportation. This program also provides short-term care coordination with linkages to visiting-nurse and community services, and coordination with primary care and specialty clinics.

**Chronic Care Coordination:** Social workers and nurses work with physicians to assist patients who have multiple risks, multiple chronic diseases, and complex health status.

**Pharmacy-Facilitated Discharge:** A clinical pharmacist visits patients before they’re discharged from the hospital to coordinate their in-hospital medications with the medications they were taking before hospitalization, and to teach them about individual medications and their benefits and side-effects.

**Heart Failure Telemanagement Program:** Nurses work closely with patients and cardiologists from the Division of Cardiovascular Medicine to teach patients to manage their heart failure by modifying lifestyle and adhering to complex medical regimens.
Why does older mean sicker?

70 is the new 49, they say, as today’s senior citizens pursue more active lives than ever. And most of us can still expect to see a dozen or more birthdays even after we hit 75.

But with every candle that’s added to our cake, the chance that we’ll suffer a serious illness in the year to come increases quite a bit. Whether it’s a heart attack, a cancerous tumor, Type 2 diabetes, an arthritis-inflamed joint, or a trip to the hospital for an infection that a younger person might fight off, most human diseases are more common in older people.

But why? What is it about aging that makes us more prone to these illnesses? And whatever it is, what can we do to stop, or at least slow it?

For Raymond Yung, MD, and his colleagues in Geriatric Medicine and other areas of U-M, the search for answers is in full swing. That search is leading them into the field of epigenetics, an ultra-hot specialty of biomedical research that looks at variations in gene expression—rather than mutations—in the gene sequence we’re born with.

The Human Genome Project was the tip of the iceberg, Yung says. Epigenetics is the iceberg. And among other things, epigenetics research may help explain why older humans are prone to so many diseases at once.

One aspect of epigenetics that Yung and his former advisor, Bruce Richardson, MD, PhD, of Rheumatology, have explored is DNA methylation. This process, which results in methyl molecules being attached to DNA, keeps the genes in the immediate area from being expressed—a phenomenon known as “gene silencing”—that can help in some cases and hurt in others.

This year, Yung and his team published findings on another epigenetic phenomenon: the expression of genes related to one of the key functions of the immune system. Specifically, they looked at the impact of age on the cells that respond to invading viruses and newly developed cancers.

Called CD8+ T-cells, these cells are triggered by small proteins called chemokines to respond to an infection or a tumor. This process is made possible by receptors on the surface of the T-cells, to which chemokines can bind.

Yung and his team have found that older mice have higher levels of some of these receptors than younger mice, except for one type of receptor called CCR7, which was present at much lower levels in older mice. These higher levels appeared to result in a round-the-clock state of low-grade immune response—which could promote inflammation of the kind often seen in the atherosclerosis that causes clogged arteries, heart attacks, and strokes.

But the levels of CCR7 receptor in younger mice, they found, could be preserved over time if the mice were fed a calorie-restricted diet. This echoes other studies in animals that have shown longer life and better health to be associated with a lower-calorie diet.

In addition to studying chemokine receptors, Yung and his colleagues, including Annabelle Grolleau-Julius, PhD, have been looking at dendritic cells and their response as an animal ages.

These immune system cells help control the rest of the body’s immune response, and they have been seen as a potential therapy for cancer because they can be taught to recognize tumors as foreign, even when the body does not. But clinical trials of dendritic cells haven’t gone as well as many have hoped they would, and Yung and Richardson think they may understand why: epigenetic effects cause these cells to lose their potency.

In other words, Yung says, as scientists work to translate results of cellular and molecular research into clinical trials in human volunteers, they must take age into account just as much as they do other factors.

As his team continues its investigations of the epigenetic effects involved in the diseases of aging, they will have a speedy new tool to aid them. Called a pyrosequencer, it’s a rapid DNA-sequencing machine that greatly accelerates the rate of discovery. The machine will allow them to look for epigenetic effects in heart disease and rheumatoid arthritis, among other diseases, and to work toward human clinical trials of factors that might boost the immune systems of older people or decrease chronic inflammation. And that could mean more healthy birthdays for everyone.