More than one in four elderly Americans lacked the capacity to make their own medical care decisions at the end-of-life, according to a recent study led by University of Michigan physicians.

And those numbers illustrate the reason physicians should start the sometimes awkward and difficult conversations about end-of-life planning with their patients, says Maria J. Silveira, M.D., M.P.H., assistant professor of Internal Medicine.

“I’ve seen advance directives primarily benefit the family because the time that they come into place is a time where folks are dealing with change and grieving,” says Silveira. “One of the most difficult things to put upon the shoulders of a grieving family is the responsibility to make a decision as serious as what to do about life-sustaining treatment.”

But she adds, “When an advance directive is in place it often is a relief to the family, particularly with regards to the living will, if they have a guide that can help them make decisions for the patient.”

Silveira’s research, which was published April 1 in the New England Journal of Medicine, showed that those patients who had advance directives — including living wills or durable powers of attorney for health care — received the care they wanted most of the time.

“Prior to our study, no one knew how many elderly adults might need others to make complex medical decisions on their behalf at the end-of-life,” says Silveira, who also is a physician scientist at the VA Ann Arbor Healthcare System’s Center for Clinical Management Research.

“Our research shows that a substantial number of older adults need someone else to make decisions about whether aggressive, limited or comfort care should be provided at the end-of-life.”

“End-of-life discussions should be a part of a physician’s treatment plan to help family members and patients recognize the importance of end-of-life planning,” says Silveira.

The study is based on data from 3,746 people.

Advance directives usually document patients’ wishes for life-sustaining treatment in a living will, as well as their choice of a proxy decision-maker in a durable power of attorney for health care. Advance directives are sanctioned in all 50 states and can be completed for free without the aid of an attorney.

“However, there is a lot of myth and misunderstanding about advance directives,” Silveira says.

For example, many people do not understand that advance directives are used only when patients can’t make medical care decisions for themselves, and that they can be revoked by the patient at any time, either in writing or orally.

continued on back page
New national clinical guidelines spearheaded by the American College of Cardiology and the American Heart Association offer new recommendations for the diagnosis and management of thoracic aortic disease — and deliver a powerful message to physicians and patients: early diagnosis and treatment can save lives.

Three University of Michigan Health System physicians were members of the 12-person writing group that crafted the new national guidelines: Kim A. Eagle, M.D., clinical director of the U-M Cardiovascular Center; Ella A. Kazerooni, M.D., director of the Division of Cardiothoracic Radiology and associate chair for Clinical Affairs; and David M. Williams, M.D., professor of Interventional Radiology.

The guideline-writing effort was spearheaded by the American College of Cardiology with participation and sponsorship from the American Heart Association, the American College of Radiology, the Society for Interventional Radiology and others.

Early detection and treatment of stable aortic disease provides the opportunity to select patients for surgical or endovascular repair when the patient is stable, according to the task force. The results of treatment for stable disease are far better than for acute — and often catastrophic — aortic rupture or dissection.

Recent scientific diagnostic and clinical care advances were important in the decision of America’s top cardiovascular societies to create guidelines that aid physicians in the diagnosis and management of aortic dissection, aortic aneurysm and other forms of TAD, Eagle explains.

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Risk factors for TAD include poorly controlled high blood pressure, advancing age, male gender, atherosclerosis, inflammatory diseases that damage the blood vessels, and certain genetic conditions that weaken connective tissue, such as Marfan syndrome. In addition, people with a bicuspid aortic valve are at increased risk for an aortic aneurysm. Pregnancy, intense weight lifting and cocaine use increase the risk of aortic dissection.

One of the most important messages in the guidelines is that TAD often runs in families. As a result, family history is a critical tool for uncovering undiagnosed cases of TAD.
“Family history is very important,” Eagle said. “Sudden cardiovascular collapse could have been a heart attack, but it could also have been sudden catastrophic aortic dissection. When we find familial aortic aneurysms, we have a rare opportunity to help first degree relatives get screened.”

The new guidelines appear on Web sites of the ACC and the AHA. Additional highlights from the TAD guidelines include:

- Imaging of the thoracic aorta by computed tomography (CT) is the fastest and most accessible way to detect TAD and determine future risk, though magnetic resonance imaging (MRI) or, in some cases, echocardiography may also be used. A chest x-ray alone is not sufficient.

- Patients with genetic conditions that increase the risk of TAD should have aortic imaging at the time of diagnosis to establish the size of the aorta, with periodic follow-up imaging thereafter.

- All patients with a bicuspid aortic valve should be evaluated to determine whether the aorta is dilating, or widening.

- The symptoms of acute aortic dissection, which can mimic those of a myocardial infarction or another cause of chest pain, often make it difficult to arrive at a prompt diagnosis and may delay life-saving treatment. Physicians should keep aortic dissection in mind during patient exams when asking questions about medical history, family history, and the type and pattern of pain.

- Aortic dissection involving the ascending aorta is a life-threatening emergency that should be treated surgically.

- Aortic dissection involving the descending thoracic aorta may often be managed with medications that control the blood pressure and heart rate, unless life-threatening complications develop. Additional medical therapy may include statins to lower elevated blood cholesterol levels.

- Minimally invasive endovascular techniques are an option in some patients with aneurysm or dissection of the descending thoracic aorta.

- All immediate relatives of a patient with thoracic aortic aneurysm or dissection, or a bicuspid aortic valve, should be evaluated by a cardiovascular physician and when appropriate, undergo aortic imaging to measure the size of the aorta and identify asymptomatic disease.

According to death certificate data compiled by the Centers for Disease Control and Prevention, diseases of the aorta and its branches account for 43,000 to 47,000 deaths annually in the United States. The precise number of deaths attributable to thoracic aortic diseases is unclear.

However, autopsy studies suggest that the presentation of thoracic aortic disease is often due to aortic dissection and rupture, and these deaths account for twice as many deaths as attributed to ruptured abdominal aortic aneurysm. The diagnosis of acute thoracic dissection or rupture is often difficult and delayed, and errors in diagnosis may account for deaths otherwise attributed to cardiac arrhythmia, myocardial infarction, pulmonary embolism and mesenteric ischemia.

The goal of the guideline is to improve the health outcomes and quality of life for all patients with aortic disease.

The organization of the guidelines is meant to be less of a textbook presentation of the various topics but rather a more clinically oriented document applicable to a variety of disciplines.

FOR MORE INFORMATION
Read the full TAD guidelines, and access an executive summary and pocket guide at content.onlinejacc.org/cgi/content/full/j. jacc.2010.02.015.

The site also contains a full list of the guidelines sponsors, which include a number of professional societies.

CME OPPORTUNITIES
SPRING/SUMMER 2010

June 8 - 9
Pain and Musculoskeletal Disorders: Translating Scientific Advances into Practice

June 11 - 12
What Do We Need to Answer in Glaucoma? 33rd Midwest Glaucoma Symposium

June 21 - 25
46th Annual Northern Michigan Summer Conference: An Update on Common Clinical Concerns in Primary Care

June 25 - 26
Advanced Trauma Life Support (Student Course – Limited Enrollment)

June 26
Interpreting Clinical Data: Highlights from ASCO 2010

July 9 - 11
Cancer Update 2010: Highlighting Recent Advances in the Prevention, Diagnosis and Treatment of Cancer

July 9 - 11
Management of Infectious Diseases

July 16 - 18
Northern Michigan DDW Wrap-Up

July 24
Heart and Art: An Update on Common Cardiovascular Disorders

July 30 – August 1
28th Internal Medicine Update

August 13 - 15
23rd Annual Cardiology Update

August 29 - September 3
24th Annual Pediatric Board Review

TO REGISTER
For more information (including a downloadable brochure) visit cme.med.umich.edu or call 800-800-0666.
It is common for patients 65 and older to receive potentially inappropriate medications when treated in an emergency department, according to a University of Michigan study recently published in *Academic Emergency Medicine*.

Certain pain relievers and antihistamines are among the most common drugs used in emergency visits, in spite of known risks to those over age 65. Medications on the Beers Criteria list have more side effects than alternative medicines in the same class.

Researchers examined a nationwide sample of emergency visits using data from the National Hospital Ambulatory Medical Care Survey to see how many patients aged 65 and older were administered or prescribed potentially inappropriate medications in the ED.

Nearly 19.5 million older patients, or 16.8 percent of eligible emergency visits from 2000-2006, received one or more potentially inappropriate medications, or PIMs. The large sample of approximately 470,000 ED and outpatient clinic visits, corresponding to a national estimate of about 1.5 billion total visits, allowed the researchers to determine the extent of the problem nationwide. Past research had identified that this has been a major problem in outpatient clinics.

“There are certain medications that probably are not good to give to older adults because the potential benefits are outweighed by potential problems,” says lead author, William J. Meurer, M.D., assistant professor, U-M Departments of Emergency Medicine and Neurology.

Ten medications accounted for 86.5 percent of PIMs used in the ED. The five most common ones were promethazine, ketorolac, propoxyphene, meperidine and diphenhydramine; and two of these — promethazine and ketorolac — accounted for nearly 40 percent.

Meurer’s study only included medications that were considered potentially inappropriate regardless of coexisting conditions or diagnosis; the Beers Criteria has a separate category for medications to be avoided in certain conditions (i.e., NSAIDS in patients with congestive heart failure).

Meurer suggested that further efforts are needed to educate physicians and patients about the suitability of certain medications for older adults. Preferences among patients and some physicians who may be familiar with the older, potentially less ideal medications may drive these types of prescriptions.

The study did not explore the possibility of medication interactions, so it is possible that the potential harm by medications is underestimated.

**FOR MORE INFORMATION**

View the Beers Criteria list at [www.dcri.duke.edu/ccge/curtis/beers.html](http://www.dcri.duke.edu/ccge/curtis/beers.html).

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“*There are certain medications that probably are not good to give to older adults because the potential benefits are outweighed by potential problems.*”

William J. Meurer, M.D., assistant professor, Emergency Medicine and Neurology

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**KEY POINTS REGARDING OLDER PATIENTS AND MEDICATIONS:**

1. Encourage your patients to follow up with their primary care physician soon after an ED visit to review treatment and check the medication list.

2. Be sure your patients have an accurate and up-to-date medication list with them whenever they visit an ED or another physician.

3. Encourage patients to always use the same pharmacy so the pharmacist is aware of all their medications. This also provides another point where the list can be checked for possible interactions or new warnings.

4. Make sure your patients know why they have been prescribed each medicine.

5. Be proactive. Medications such as propoxyphene have increasingly worrisome cognitive effects in older adults. Even if your older patients like using these medications, discuss why alternative medications are potentially safer and better for them. If possible, be sure to eliminate medications that are no longer needed and try to limit prescriptions to what is necessary to improve health.
Clinical trials show that rTMS is an effective and safe treatment for depression. The University of Michigan participated in an international study of over 300 patients who failed to receive satisfactory improvement from prior antidepressant treatment, either due to poor efficacy or low tolerance for the medications. Over 10,000 treatments were safely performed with no medication-like side effects. The most common adverse event was mild-to-moderate pain or discomfort on the scalp at the stimulation site during active treatments, which resolved when treatment concluded. There was a less than 5 percent discontinuation rate due to adverse events.

Overall, rTMS can be considered as a viable alternative to medication therapy, particularly for patients who have trouble tolerating medications.

FOR MORE INFORMATION
Visit the U-M Psychiatric Neuromodulation Program at www.psych.med.umich.edu/neuromodulation.

Currently, there are more than a half-dozen methods in use or development employing devices to modulate brain activity, often referred to as ‘neuromodulation.’

This includes one of the oldest treatments in psychiatry — electroconvulsive therapy (ECT) — as well as new, FDA-approved options: Transcranial Magnetic Stimulation (TMS) and Vagus Nerve Stimulation (VNS).

Deep Brain Stimulation (DBS) is another promising form of neuromodulation currently being studied by teams around the world, including those from U-M Psychiatry in conjunction with the U-M Department of Neurosurgery.

A CLOSER LOOK AT rTMS
Repetitive Transcranial Magnetic Stimulation (rTMS), a non-systemic, non-invasive form of neuromodulation, delivers focused, pulsed magnetic energy to stimulate nerve cells in an area of the brain linked to depression.

The treatment is a 40-minute outpatient procedure, prescribed by a psychiatrist. It does not require anesthesia or sedation, and patients remain awake and alert. The treatment is typically administered daily for four to six weeks.

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Gregory W. Dalack, M.D., associate professor of psychiatry, has been appointed chair of the Department of Psychiatry. He had served as interim chair of Psychiatry since Sept. 1, 2007, and as associate chair for education and academic affairs since 2005.

A devoted educator and clinician, his interests include schizophrenia and mood disorders, and his research interests include the treatment of schizophrenic illness and the co-morbidity of nicotine addiction and schizophrenia.

He will lead a department with 182 faculty, 54 residents and fellows and 364 staff.

“The research activities of our talented faculty span the study of the basic neurobiology of psychiatric disorders, to the development of treatment interventions for those affected as well as those at risk, to the implementation of those interventions in the community as quickly and effectively as possible. I look forward to facilitating the growth of that translational science continuum, and see it naturally enhancing our training programs for the next generation of clinicians and investigators,” he says.

The department offers a full range of psychiatric services, including adult and pediatric/adolescent inpatient units; a psychiatric emergency department; outpatient addiction treatment; comprehensive outpatient care for adults, adolescents and children; neuromodulation treatment including ECT; and neuropsychological testing. The department is home to the nation’s first comprehensive Depression Center and the Molecular and Behavioral Neurosciences Institute.
U-M’s Medical Innovation Center and James D. Geiger, M.D., were recently awarded a two-year, $2 million grant from the Food and Drug Administration to develop new pediatric medical devices — a field that the FDA has identified for additional funding to the nonprofit sector due to concerns over the slow pace of commercialization.

Now, the U-M team is reaching out to get input about which pediatric device needs they should tackle.

“Overall eating patterns appear to be more important for cancer prevention than intakes of specific nutrients or foods. We hope this study will give us an indication of the benefits that a person’s diet can have on reducing colon cancer risk,” says Zora Djuric, Ph.D., research professor of family medicine at the U-M Medical School and principal investigator of the Healthy Eating for Colon Cancer Prevention study.

The study is looking at adults who have had colon polyps, colon cancer or a family history of colon cancer. Participants are randomly asked to follow either the Mediterranean diet or the Healthy People 2010 diet for six months. The Mediterranean diet focuses on vegetables, fruits, fish and olive oil, with limits on other fats. The U.S. Health and Human Services’ Healthy People 2010 diet increases vegetables and fruits more modestly and limits saturated fat. Previous studies have linked the Mediterranean diet to reduced risks of heart disease, stroke and cancer.

FOR MORE INFORMATION
or to volunteer, call the Cancer AnswerLine at 800-865-1125.

Since funding began in the fall of 2009, the Pediatric Device Consortium was launched and has become involved in 28 innovation projects ranging in stage from concept to post-market surveillance. These include a bowel-lengthening device to address short bowel syndrome, developed by Dan Teitelbaum, M.D., and a neonate catheter developed by Robert Bartlett, M.D., both of U-M.

In July, four Innovation Fellows will join the pediatric device consortium for a one year Innovation Fellowship. The Innovation Fellows are post-graduates from the U-M schools of engineering, business and medicine participating in the center’s innovation curriculum.

FOR MORE INFORMATION
Visit www.med.umich.edu/ummic.
A new pulmonary valve for congenital heart patients is now available and can be placed without open-heart surgery. Recently, the first patient in Michigan received the valve during an interventional procedure at C.S. Mott Children’s Hospital. The Melody valve is implanted through a catheter that is inserted into the patient’s body. It is the first heart valve approved for sale in the United States that can be implanted without open-heart surgery.

The Melody valve is made by Medtronic. It was approved under the FDA's Humanitarian Device Exemption program, which allows approval of devices used to treat conditions affecting 4,000 or fewer United States patients a year.

Medtronic’s pulmonary valve was studied on patients born with a heart defect that disrupts the flow of blood from the heart’s right ventricle to the pulmonary artery leading to the lungs. Patients with such heart defects typically require several open-heart surgeries to replace heart valves.

**FOR MORE INFORMATION**

Visit [www.med.umich.edu/mott/chc](http://www.med.umich.edu/mott/chc).
Silveira says many patients expect their physicians to start the conversation about end-of-life care and advance directives, and that physicians should be supported in their attempts to do so. The recent effort to provide Medicare reimbursement for periodic end-of-life discussions was a good start, she says.

“The health care system should ensure that providers have the time, space and reimbursement to conduct the complex and time-consuming discussions necessary to plan appropriately for the end-of-life. Most elderly patients want and expect this,” she says.

“Advanced directives never will approximate the crystal ball, but having them provides some comfort in a very difficult situation.”

Co-authoring the study were Kenneth M. Langa, M.D., Ph.D., professor in the Department of Internal Medicine at U-M, core investigator with VA Ann Arbor Healthcare System’s Center for Clinical Management Research, and professor of Health Management and Policy in U-M’s School of Public Health; and Scott Y.H. Kim, M.D., Ph.D., associate professor of Psychiatry and an investigator in both the Bioethics Program and the Center for Behavioral and Decision Sciences in Medicine at U-M.

FOR MORE INFORMATION about end-of-life planning, visit www.caringinfo.org/PlanningAhead.htm www.med.umich.edu/1toolbar/Billing/legal.htm www.aarp.org/families/end_life familydoctor.org/online/famdocen/home/pat-advocacy/endoflife/003.printerview.html

Advance directives are frequently confused with wills and durable powers of attorney — neither of which have any bearing on medical care decisions.

Of the individuals studied by Silveira and her colleagues, 61 percent had advance directives. Of those, more than 90 percent requested either limited or comfort care at the end-of-life. Among those who needed decisions made, but couldn’t make them themselves, 83 percent who had requested limited care and 97 percent who had requested comfort care received the care that was in line with their wishes, Silveira says.

The study subjects were elderly Americans living at home or in facilities across the United States who died between 2000 and 2006 and participated in the Health and Retirement Study, a national longitudinal study conducted at the University of Michigan’s Institute for Social Research and funded by the National Institute on Aging.

“Folks with a living will or durable power of attorney for health care were less likely to die in a hospital or to get aggressive care — but that is what most of them wanted,” Silveira explains.

One interesting finding suggests the importance of having both a living will as well as an appointed surrogate decision-maker. The study showed that among the handful of subjects who indicated a preference for aggressive care, half did not receive it.

“Given this, some might conclude that advance directives are used to deny wanted health care, but our study showed that a preference for aggressive care had a very strong association with receiving such care, when compared to those who did not state a preference for it. It’s just that at the end-of-life, aggressive treatment is often not an option; limited care and comfort care are always an option,” Silveira says.