

afar

**Paul B. Beeson**  
Career Development Awards  
in Aging Research Program

2014 REPORT FEATURING THE 2012 SCHOLARS



## About Paul B. Beeson, MD (1908-2006)

Dr. Paul B. Beeson, a renowned physician, researcher, and teacher, was the inspiration behind the creation of the Paul B. Beeson Career Development Awards in Aging Research Program. It was his vision to increase the number of physicians with a combined clinical, academic, and scientific expertise to care for a growing older population.

At the time of his death, Dr. Beeson was professor emeritus of medicine at the University of Washington. Although "retired," he remained active in the field of aging research, attending meetings and advising many Beeson Scholars. In his long and distinguished career, he profoundly influenced the career paths of many physician-scientists and was stalwart in his concern for the care and dignity of patients.

To date, 200 scholars supported by the Beeson program have become leaders in geriatric medicine and aging research throughout the United States and the Island of Ireland. The careers of these remarkable Scholars serve as a lasting testament to Dr. Beeson's enduring legacy as they seek to provide the best possible care for older adults and train the next generation of leaders in aging research and geriatrics.

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# Letter from Thomas Gill, MD

Chair of the Program Advisory Committee

Aging research is a complex field with few simple solutions. Whether at the lab bench or in clinical practice, physician-scientists must confront problems with multiple contributing factors—even as the nation's population of older citizens continues to rapidly expand. This complexity presents a great challenge, but also a tremendous opportunity to be embraced by the best and brightest minds in medicine.

As a Beeson Scholar from the class of 1997, I had the good fortune this year to accept the baton from Edward Koo, MD, as Chair of the Beeson Program Advisory Committee. I'm excited about the committee's charge to continue identifying and training future leaders in geriatrics and aging research while facilitating cross-fertilization across disciplines and research areas, from basic to applied science.

Our annual meetings serve as a forum for intensive career development, training and networking, introducing awardees not only to fellow scholars but also to committed mentors. The meeting is a wonderful venue for bringing together talented researchers who have common interests but are looking at the same problem from different perspectives.

From discussions begun at one of our annual meetings, 2005 Scholar and geriatric oncologist Arti Hurria, MD, now at City of Hope Comprehensive Cancer Center, teamed up with 2004 Scholar and general internist Cary Gross, MD, at Yale School of Medicine. Together, they developed a cancer and aging research network that includes more than two-dozen researchers from multiple institutions. It's that kind of initiative that illustrates the Beeson Program's ability to foster leadership and collaborative partnerships.

The newly combined Beeson Scholars/Change AGEnts Action Fund, generously supported by the John A. Hartford Foundation, will further promote the kind of interdisciplinary work that can transform our field. I fully expect that our Beeson Scholars will benefit greatly from this effort to improve geriatric care. 2014 also marks the 10th year of the Beeson Program's successful public-private partnership, with critical support from the National Institute on Aging.

We're proud to introduce the 2012 Beeson Scholars. Our charge now is to nurture this new generation of leaders so that when we pass the baton on to them, they'll be in prime position to lead the charge toward enhancing the quality and impact of aging research for decades to come.



Thomas Gill, MD





# Program Overview

Over the past two decades, the Paul Beeson Career Development Awards in Aging Research Program has recognized 200 investigators as Beeson Scholars. Collectively, our awardees' research covers a wide range of aging-related topics in basic, clinical, behavioral, social, epidemiological, and health services sciences.

In 2004, the program's funders established a strategic public-private partnership to address the evolving challenges of biomedical research in the 21st century. An alliance forged by the National Institute on Aging (NIA), The John A. Hartford Foundation, Atlantic Philanthropies, The Starr Foundation, and AFAR began jointly funding and administering the Beeson Program. This dynamic partnership has greatly strengthened the Program in multiple ways.

For example, the Program benefits from the rigorous peer-review process of the National Institutes of Health (NIH), and the Program's inclusion in the NIH system has also raised awareness and attracted a more diverse pool of applicants. Combined public-private support, meanwhile, has enabled the Program to offer larger awards and draw top candidates. And thanks to the continued private support which has greater financial flexibility, the Program can sustain its unique networking and mentoring aspects.

The partnership supports other initiatives as well, such as an annual meeting for Beeson Scholars and alumni, field-building activities in aging policy and advocacy, and efforts to raise the profile of aging research in other areas of medicine.

This joint venture has paid off handsomely. More than half of the Scholars now hold leadership positions ranging from Center Director, Department Chair, Division Chief to Director of Fellowship Program. Many have received the coveted R01 research award, which bestows upon its recipients a considerable level of prestige as independent investigators. Those numbers will certainly rise as the Scholars in the most recent cohorts advance further along their career trajectories. The Beeson Program has proven critical to developing their careers and establishing them in the field of aging research. Together, these results have strengthened our conviction that the Beeson Program remains an unqualified success, providing vital financial, networking, and mentoring support to physician-scientists at a decisive juncture in their careers.







## Beeson Scholars / Change AGENTS Action Fund

In 2011, AFAR established the Beeson Outreach Fund, with support from the John A. Hartford Foundation. The fund was set up to build leadership skills and support the career development and research of Beeson Scholars and alumni, to raise awareness about aging research and geriatrics in the broader academic medicine community, and to promote the Program.

In 2014, the Outreach Fund shifted focus and transitioned to the Beeson Scholars/Change AGENTS Action Fund. The Fund now supports projects by Beeson Scholars that align with the new Hartford Change AGENTS Initiative, an effort that is focused on practice change and inter-professional collaboration.

The combined Action Fund is designed to promote Beeson Scholar engagement in the Change AGENTS community through projects that incorporate geriatrics expertise in improving health care delivery. The Action Fund is meant to connect scholars who have received Beeson support—or those who have participated as advisors, mentors, or supporters—with each other or with other Hartford-funded scholars from nursing, social work, and other disciplines.

As part of its small grants program, the Action Fund will provide at least \$100,000 over the next two years to support five to ten projects, with grants ranging from \$5,000 to \$20,000 each. Thus far, the fund has supported a symposium to define the state of the art and research priorities for the use of implantable cardioverter-defibrillators, and will support a series of short, easily digestible teaching videos on the use of prognosis in clinical decision-making.

Other activities that the Action Fund could potentially support include the convening of stakeholders at the state or federal level to address policy barriers to improved geriatric care, projects that would help providers implement an evidence-based or best-practice intervention, or the training of teams to conduct process evaluation and quality improvement.

Whatever the project proposal, the Action Fund encourages both creativity and conversation with AFAR, the Change AGENTS leadership team, and Hartford Foundation staff to aid in the development process.

To learn more about this program, please visit [www.ChangeAGENTS365.org](http://www.ChangeAGENTS365.org).

## Letter from Richard Besdine, MD

AFAR Medical Officer

In 1994, with high hopes, a group of foundations and nonprofit organizations launched the Paul B. Beeson Physician Faculty Scholars in Aging Research Program, now known as the Paul B. Beeson Career Development Awards in Aging Research Program. This group created a large award and named the program after one of medicine's leading physician-scientists. The intent was to create a cadre of dynamic physician-scientists capable of developing breakthrough research, committed to mentoring and teaching the next generation of physicians about the care of older adults, and willing to provide needed leadership for the field. Ten years ago, the National Institute on Aging joined the partnership and became a powerful and strategic partner in advancing the goals of the program.

Now, in 2014, we celebrate the 20th year of the program. The Beeson program has been part of the growing interest in aging research and geriatric medicine, and is contributing to advances in nearly every area of age-related science. This award is recognized as one of the most prestigious and competitive in the field. We take enormous pride in the accomplishments of the Beeson Scholars, and are grateful to our public and private partners for helping produce leaders in academic medicine, research, and clinical practice.

I am proud to introduce the 2012 Scholars, who are developing new research insights, and provide leadership in a range of academic, medical, and healthcare settings. They are advancing knowledge that is enhancing the health of millions of older adults. We hope you will get to know these Beeson scholars, learn about and follow their research, and find ways to participate in and support this critically needed program.



Richard W. Besdine, MD

**“We take enormous pride in the accomplishments of the Beeson Scholars, and are grateful to our public and private partners for helping produce leaders in academic medicine, research, and clinical practice.”**



# S. Duke Han, PhD

Associate Professor of Behavioral Sciences  
Rush University Medical Center

Mentor: David Bennett, MD



Recent studies suggest that as we age, we can become increasingly impaired in our decision-making about financial and healthcare considerations. The phenomenon is particularly problematic for older adults, who are often faced with difficult questions about how to handle intergenerational transfers of wealth, pension and retirement funds, and other important matters. "If there is impaired decision-making, that could have a huge impact on older adults' wellbeing and ability to maintain independence, which can in turn affect not only older adults but also family members, care providers, and society at large," says S. Duke Han, PhD.

To understand this decline, Dr. Han is using neuroimaging tools to see how the brain changes with age. "The better we understand what's happening in the brain, the better we can develop intervention strategies, to shore up some of the potentially failing brain networks that may be associated with impaired decision-making," he says.

For one part of his Beeson research, Dr. Han is studying participants in other studies designed to measure various decision-making behaviors. Study participants might be asked to pick the best mutual fund from a list of options, for example, or one HMO plan among many based on approval ratings. Through neuroimaging, Dr. Han may be able to make correlations between an individual's performance on these tasks and the brain regions that play key roles in decision-making.

Eventually, Dr. Han hopes to look in real-time at what is happening in the brain regions during the decision-making process. By doing so, the research could point to specific mechanisms of action and identify targets for potential interventions. Advanced brain imaging, in turn, could help clinicians develop and track the success of experimental interventions.

Dr. Han is also studying the effects of cognition, or thinking ability, on decision-making. "Clearly, poor cognition can reflect on poor decision-making," he says, but the two do not always work in tandem. As a clinician, he has administered dozens of neurocognitive tests to older adults brought in by a family member worried about the relative's questionable choices—suddenly giving large monetary gifts to casual acquaintances, for instance. For many of these patients, however, the test results suggest normal cognitive function. "So there's a clear decline in decision-making because there's a change in behavior that's being recorded by the family member," he says, "but cognition-wise, they're checking out just fine, and this is another reason why I became interested in this question."

His research might help provide an early warning of slipping decision-making abilities, he says, leading to additional protective measures such as increased family involvement or better financial safeguards. Ultimately, he hopes the work may lead to some kind of intervention, whether a training class or exercise that can aid decision-making in old age.

"I think the Beeson Award has been incredibly beneficial to my career," Dr. Han says. The annual meeting, he adds, has been a particularly good source of inspiration, support and collaborative opportunities. "I think the Beeson Program offers a platform to put someone's research on a much higher and more visible stage so that it has a greater potential impact on society as a whole," Dr. Han says.



**Neural correlates of impaired financial and health-care decision-making in old age**





# Amy Steves Kelley, MD, MSHS

Assistant Professor of Geriatrics and Palliative Medicine  
Icahn School of Medicine at Mount Sinai

Mentor: Sean Morrison, MD



**Improving  
care for  
older  
adults  
with  
serious  
illness**

Caring for older patients as a clinician had a strong and lasting influence on the research trajectory of Amy Steves Kelley, MD. "During my medical training, I encountered older patients who were admitted to the hospital, sometimes readmitted multiple times," Dr. Kelley says. "And they would have very complicated medical conditions, but often social issues too or functional problems—things that we really weren't addressing well in a holistic manner in the healthcare system."

Most importantly, she says, some of the care seemed to conflict with patients' goals and wishes. "I felt we were not necessarily doing the best job for that individual patient."

When examining the care of older, chronically ill adults in their last few years of life, research projects like the Dartmouth Atlas of Health Care, have found vast differences across the United States in costs, length of stay in hospitals, and other measures of medical practice. "In my own research, I wanted to take those big national patterns and see if I could drill down into more of the human level of it," Dr. Kelley says.

For her Beeson-sponsored project, she hopes to identify and help resolve the triggers of unnecessary or unwanted hospitalization among older adults with serious illness. In particular, Dr. Kelley aims to elucidate which patients may benefit most from new models of care that focus on quality of life and patient satisfaction, such as home-based palliative care services or programs that support caregivers. Eventually, she says, her work could lead to strategies for redesigning Medicare and other healthcare benefits to better meet the needs and preferences of seriously ill older adults.

So far, her research suggests that higher costs and hospitalization rates correlate more strongly with a patient's physical decline than with any particular medical condition. Other factors, ranging from nearby family support to regional patterns of care, also seem to influence variations in how patients are treated.

"I think what this work has really taught me is that the healthcare system, as it currently exists—traditional Medicare in particular – pays out a lot of money but is not necessarily providing the services that meet the needs of older adults," she says. "And we're seeing people admitted to the hospital often because there's no other option." That shortcoming, she says, is symptomatic of a system that's ill equipped to provide high quality care on patients' own terms.

Doctors, nurses and other clinicians, she says, are seldom trained to talk with patients to solicit their personal preferences and goals. "And because of that lack of training, patients are often swept through an algorithm that may or may not be consistent with their own desires for their care," she says. As part of her broader research, Dr. Kelley directs a communication course, Geritalk, that teaches physicians and nurse practitioners to have those conversations with older adults and their families.

Dr. Kelley cites the award's encouragement of independent thinking and the community of Beeson scholars as vital benefits. "Getting to share my work with colleagues who are an exceptional group of brilliant thinkers, getting feedback on it, making it better based on their input, and building new collaborative relationships—all of that has come out of the Beeson community," she says. "And that's invaluable for someone who's starting their career."

# Geoffrey Kerchner, MD, PhD

Assistant Professor of Neurology and Neurological Sciences  
Stanford University School of Medicine

Mentor: Anthony Wagner, PhD



In the first stages of Alzheimer's disease, patients may have only subtle symptoms or none at all. In the background, however, profound changes are taking shape within the brain. Geoffrey Kerchner, MD, PhD, is zeroing in on this early phase of a disease that accounts for roughly two-thirds of all cases of cognitive decline in older adults. "It's a huge problem, and as doctors we aren't doing a good job at all," he says. "We don't have effective therapies and there's a lot missing from our basic understanding of how the disease progresses in the first place."

As Dr. Kerchner sees it, the field's future success rests on two main pillars: developing better drugs and devising better diagnostic strategies so that early-stage patients can be identified and enrolled in clinical trials of those drugs. To get to that point, however, researchers need to understand the basis of early Alzheimer's-linked changes within the brain.

"Doctors and scientists have known for a long time that the ability to form new short-term memories is one of the very first things to go wrong in most—not all but most—cases of Alzheimer's disease," Dr. Kerchner says. "And this problem localizes to a part of the brain called the hippocampus." The hippocampus may not be needed to remember your wedding 50 years ago, but it's critical for remembering what happened five minutes ago.

In big brain banks around the world, scientists have discovered pre-clinical signs of Alzheimer's in the hippocampus of people who died of unrelated causes. "I don't want to wait until autopsy to be able to diagnose somebody," Dr. Kerchner says. His solution is to focus on advanced, high-resolution techniques based on magnetic resonance imaging, or MRI.

For his Beeson research, Dr. Kerchner is using two techniques: 7 Tesla MRI and high-resolution functional MRI. "I'm able to visualize things down to about a fifth of a millimeter," he says. That level of resolution is critical for spotting the first signs of atrophy within the hippocampus, such as in a tiny region called the CA1 apical neuropil, typically less than one millimeter wide.

With the 7 Tesla MRI, Dr. Kerchner has indeed detected atrophy within that region in patients with Alzheimer's disease. His research also suggests a strong relationship between the amount of healthy brain tissue remaining in the CA1 apical neuropil and a patient's performance on challenging memory tests.

Dr. Kerchner is also using high-resolution functional MRI to examine the activity of neurons, within the hippocampus when patients are first learning an unfamiliar face and a name and then later asked to correctly match the two. By analyzing the activity patterns of different neurons, he and his colleagues can see what's happening during both learning and recall, and how that activity might change during faulty recall. "Maybe one day, those imaging techniques could be used routinely on patients to identify early signs of hippocampal dysfunction that portend a future decline," he says.

With the support of the Beeson award, Dr. Kerchner has developed his research program and set up a close working relationship with a mentor who was invaluable in teaching him about functional MRI techniques. The annual Beeson meetings, Dr. Kerchner says, have further enhanced his career. "They are really focused on providing mentorship, career advice, easy access to role models and a good opportunity to interact with other people around the country who are at my same stage of training," he says.



**Hippocampal  
structure  
and function  
in cognitive  
impairment**



## Gerardo Moreno, MD, MSHS

Assistant Professor of Family Medicine  
David Geffen School of Medicine at the  
University of California, Los Angeles

Mentors: Carol M. Mangione, MD, MSPH; Patrick Dowling,  
MD, MPH; Catherine Sarkisian, MD, MSHS



Older patients with multiple chronic conditions can take up to 8-12 medications. That number hints at the complicated thicket of issues related to polypharmacy, or the prescription and use of multiple drugs to treat a disease or coexisting conditions.

"Some medications are needed, some are not. The biggest challenge is trying to get the patients on the right set of medications," says Gerardo Moreno, MD. For his Beeson project, Dr. Moreno is studying prescription drug practices among older patients at Los Angeles-area community health centers and using feedback from patients and their providers to develop a prototype for a better medication management plan.

Beyond being merely unnecessary, some drugs are outright dangerous for certain people or interact poorly with other medications. A few diabetes medications, for example, can reduce a patient's ability to sense low blood sugar and have been linked to higher rates of hospitalization and emergency room visits. On the other hand, some drugs with solid evidence-base aren't being taken frequently enough, often because patients don't understand their prescriptions.

Getting the balance right is further complicated in older patients, many who have memory and decision-making trouble that interferes with their ability to take drugs when they should, take them in the right combination, or remember why a medication was changed or prescribed. Dr. Moreno also recalls seeing patients who had been discharged from a hospital but given little information about their prescriptions. "For some of them, it was clear that they had no clue why they were taking certain medications," he says. "It was just really frustrating."

Fortunately, most health systems are now implementing electronic medical records to link individual practices, health centers, hospitals and other providers into larger networks. This system will allow physicians to identify drugs that might be dangerous for certain older adults. Dr. Moreno has assembled a multi-disciplinary geriatrics task force to help design and test an electronic tool that can be seamlessly integrated into the daily practice of providers for polypharmacy management.

Health information technology likely won't resolve all complications on its own, however. Some patients may be serially admitted to hospitals using different information systems, or may be taking over-the-counter medications that are not accounted for in their electronic medical records. To help fill in the blanks, Dr. Moreno's research team includes a clinical pharmacist who excels in reconciling medications when patients are discharged from a hospital—and again after discharge for higher-risk patients. Pharmacists, he says, can go beyond reconciliation to identify potentially harmful drug-drug or drug-disease interactions.

The Beeson award has linked Dr. Moreno to researchers and mentors at UCLA and around the country who have helped him fine-tune his strategy on how to best approach polypharmacy in older adults. "The support from the Beeson program and AFAR has made a big difference in trying to improve the lives of these vulnerable populations."

So far, his multidisciplinary approach is paying off. Among the promising signs: significant reduction in cardiovascular risk factors among patients with diabetes. Preliminary results, he says, also suggest that the intervention might be reducing subsequent hospitalizations and emergency department visits by patients at Los Angeles-area community health centers. "We'll see when the results become a little bit more final," he says, "but it's exciting."

Health IT  
decision  
support  
to improve  
medication  
management  
safety and  
quality



# Alexander Panda, MD, PhD, MPH

Assistant Professor of Medicine

Human Nutrition Center on Aging/Tufts Medical Center

Mentors: Simin Nikbin Meydani, DVM, PhD; Albert Shaw MD, PhD



Every year in the United States, nearly two million older adults are hospitalized with an infectious disease. A likely contributing factor, according to Dr. Alexander Panda, is a major decline in a key part of our immune defenses. Older people, Dr. Panda says, are more susceptible to infectious diseases such as pneumonia and upper respiratory infections. They also take longer to recover and respond less well to preventive vaccines.

Research has increasingly implicated the role of dendritic cells, among the most potent of the body's immune cells. Each dendritic cell is studded with proteins called receptors, which recognize pathogens such as bacteria and viruses and send signals that trigger a full-scale immune response. "One of those is called the Toll-like receptor, or TLR," Dr. Panda says, "and we found that in older people, those Toll-like receptors do not work as well as they do in young people." In other words, the receptors seem to have an age-dependent defect.

A native of Germany, Dr. Panda initially trained in the geriatrics ward of a university hospital where he saw many older patients struggling with infectious diseases. During his subsequent clinical training in infectious disease and pulmonary critical care medicine in the U.S., he realized that the majority of people he regularly saw in critical care units were older patients. Dr. Panda knew then that he wanted to dedicate his research career to infectious-related issues in older adults.

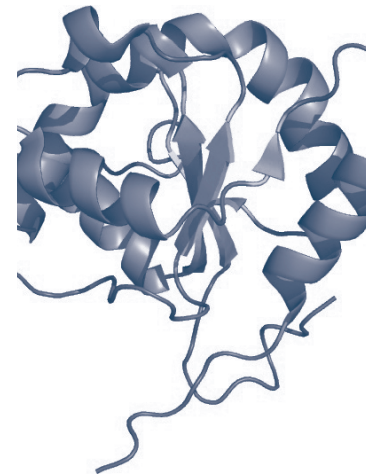
Eventually, he joined the lab of a researcher studying why older people tended to respond poorly to the influenza vaccine. "For me, this was the perfect combination of all the things I had done in the past, so I took on the adventure," he says. Dr. Panda now conducts research on human dendritic cells isolated from the blood of older and younger volunteers recruited from flu vaccine clinics. By measuring the antibodies before and after vaccination, he and his colleagues discovered the TLR defect in older people and found that this deficiency correlated well with a very poor antibody response to the vaccine.

What's behind this phenomenon? One clue has come from a close TLR associate known as a chaperone protein, which helps to ensure that the receptor is properly assembled and delivered to the cell's surface. Dr. Panda's research suggests that one particular chaperone, abbreviated PRAT4A, is dysfunctional in older people. He has hypothesized that the activity of PRAT4A decreases with age, making it a potential target for therapeutic interventions.

In a laboratory setting, he has found that free radicals, harmful byproducts of a cell's normal metabolism, can render the chaperone protein non-functional. By neutralizing these free radicals with other compounds known as scavengers, however, he and his colleagues restored PRAT4A's function within dendritic cells. By doing so, the researchers also restored the normal function of the TLR, demonstrating the potential for future treatment strategies.

"Without winning the award, my career would be at an end," Dr. Panda says. It came at exactly the right time, giving him the necessary funding and connecting him to a network of "excellent" scholars who have served as his mentors and role models.

He hopes that his work will help explain why immunity deteriorates in older adults, and how new treatments and vaccines might be designed for these patients. "If I personally could make a difference in coming up with a vaccine working for older adults," he says, "I think it would make me very satisfied. And if it ultimately helps to prolong healthy lives, then I would be very happy."



**Age  
associated  
defects in  
localization  
and  
trafficking  
of toll-like  
receptor 1**



## Steven J. Prior, PhD

Assistant Professor of Medicine  
University of Maryland School of Medicine

Mentor: Andrew Goldberg, MD



### Effects of aerobic exercise on EPCs and vascular dysfunction in aging and T2DM

Steven J. Prior, PhD, has always had a strong interest in cardiovascular diseases, a preoccupation that he says is likely due to a history of coronary artery disease within his own family. Early in his career, Dr. Prior also worked in a cardiac rehabilitation program, reinforcing his inquisitiveness toward cardiovascular disease risk factors, type 2 diabetes, and the vascular system.

Doctors often see reduced vascular function in older adults and diabetic patients, whether due to an inability of larger arteries to accommodate normal blood flow or dysfunction in how blood passes through our much smaller capillary vessels to the body's tissues and organs. Dr. Prior is focusing on this decline at the capillary level, which can contribute to conditions ranging from insulin resistance in diabetes to a progressive loss of muscle mass.

Emerging evidence suggests that cardiovascular complications among older patients and people with type 2 diabetes may be due, in part, to abnormalities in cells that play a key role in the growth and repair of our blood vessels. These endothelial progenitor cells, or EPCs, originate in the bone marrow and eventually become the cells that line our blood vessels. Studies of relatively young and healthy people suggest that aerobic exercise increases the formation and development of capillary blood vessels and improves the function of EPCs. As people age or develop type 2 diabetes, however, these cells seem to diminish in both number and function within the circulatory system.

For his Beeson research, Dr. Prior is examining the link between reduced EPC activity and impaired vascular function and whether the differing abilities of aerobic exercise to improve the cells' function are indeed age-related. By identifying the mechanisms and consequences of dysfunction with the cells and the body's blood vessels, he may be able to point out targets for therapeutic interventions that can help lower the risk for cardiovascular complications among older adults. And if his research confirms that the exercise response is suppressed with age, his work may help doctors identify strategies to restore its beneficial effects.

"I think that there is a lot left to be done determine the best exercise prescription for people," he emphasizes. And once research has pointed the way to better treatments, another big challenge awaits: translating those findings to community settings ranging from senior centers to assisted care and nursing home facilities. If a new therapy restored the ability of exercise to boost EPC function in older adults, for example, the strategy would likely work only if doctors helped their patients find an optimal exercise program and stick to it.

"The ultimate goal for me, as an exercise physiologist, is to use a lifestyle intervention such as exercise, and see how it translates into improvements in metabolism, cardiovascular disease risk factors, and muscle mass," he says.

The Beeson Award, Dr. Prior says, brought him solidly into the realm of aging research. And by gathering together so many likeminded scientists, he says, the organization has helped him identify multiple areas of potential collaboration. "It's a good group of people to interact with," he says, "and I think the annual meetings are extremely helpful in terms of getting us together in a concentrated place and exchanging ideas and really promoting the science and study of aging."

# Alexander Smith, MD, MPH

Associate Professor of Medicine

University of California, San Francisco School of Medicine

Mentor: Kenneth Covinsky, MD, MPH



Over the next few decades, the number of older Americans living with a disability is expected to soar. Late-life disability often leads to a loss of independence and reliance on others for dressing, eating and other daily activities. And yet, says Alexander Smith, MD, MPH, the healthcare system can do a far better job of caring for these older adults and give them a good quality of life in their final years.

Dr. Smith has long been interested in both geriatrics and palliative care—a combined focus that he says is often overlooked. “Most people who die in this country are elderly, and yet palliative care primarily was developed in the cancer model in younger patients,” he says. “That doesn’t apply well in older populations; rather than having a single disease with a clear and predictable trajectory, older people nearing the end of their life often have multiple chronic conditions.”

They often have a disability, for example, and cognitive impairment or dementia that may contribute to far less predictable outcomes. Little research has focused on disability in the last years of life, however, with no good national estimates of how long older people may spend in a disabled state or how long they can expect to live.

Dr. Smith is working towards closing that knowledge gap. By analyzing the data from a large nationally representative study of people 50 and older, he and colleagues found that disability becomes more common in the last two years of life. And whereas about 28 percent of study participants were disabled two years before death, about half became disabled in their last month of life. This risk of disability also increased significantly with age.

In a small qualitative study of 65 diverse and disabled older adults living independently in San Francisco, the majority rated their quality of life in the middle range of the spectrum. These seniors were receiving support from a program called On Lok, which pioneered a model of care called the Program of All-Inclusive Care for the Elderly, or PACE. Through this program, people who want to live on their own in the community are brought to a senior center for the day to receive meals, social support and medical care. At night, they return home.

One of the goals for Dr. Smith’s Beeson project is to extend the quality-of-life research to other populations that may not have as much support, such as people who receive home-delivered meals and live in low-income housing but may not have caregivers. How do these people cope with late-life disability? What support structures can boost their quality of life?

From his research so far, he believes that being brought into a community setting may play a major role in improving quality of life. “Instead of being confined to their home, they’re part of a community, and they’re getting out of their house,” he says.

Fittingly, the “incredible” Beeson community has been a major source of support for Dr. Smith’s research career. “You go to these meetings and you see not just your co-scholars but also the alumni and faculty and just a terrific network of geriatrics and aging researchers across the country,” he says.

The award also has led to multiple collaborative opportunities. Working with two other Beeson scholars, Dr. Smith developed a website called *eprognosis.com*, which uses web-based calculators to estimate a patient’s life expectancy. The team also has developed an Internet application to help doctors with decision-making about which older patients to screen for cancer.



**Late life  
disability:  
epidemiology,  
symptoms,  
quality  
of life**



# BEESON SCHOLARS

## 2013

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Janey Peterson, EdD, MS, RN  
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## 2012

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## 2011

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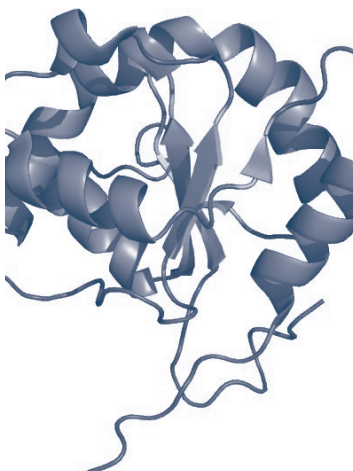
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## Credits

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