CENTER ON AGING
THE UNIVERSITY OF UTAH

2010 – 2014 Progress Report
December 2014

The CoA began operating as an independent, free-standing center in December 2005. This progress report summarizes the Center on Aging's (CoA) accomplishments during the past five years – from July 2010 to present – to support a request for its next five year operational budget (FY16-20). The progress related to the CoA's primary objective – to enhance the visibility and support for aging-related research at the University of Utah – will be summarized with respect to three specific aims that were subsequently formulated for the K07 Geriatric Academic Leadership Award – an NIA infrastructure grant funded from 2007-2013 (Mark Supiano, PI) that supported the CoA's strategic goals.

Specific Aim 1. Expand the number of investigators with aging-related research interests.

There has been substantial growth within the Utah Center on Aging (CoA) program in the following metrics: its faculty membership (inclusive of new faculty recruitment) and aging-related grant funding – both in number of funded investigators and direct cost funding levels.

- Members:

There are now approximately 160 University of Utah CoA faculty members – there were five in October 2005. These faculty members represent eleven schools and colleges from across the entire University campus – about 75% are from the five Health Sciences colleges (Dentistry, Health, Medicine, Nursing and Pharmacy) and 25% from six main campus colleges. There are an additional 22 student and 5 faculty affiliate members. Details regarding current CoA membership including current research interests are found in the Members directory section of the CoA web site, www.aging.utah.edu

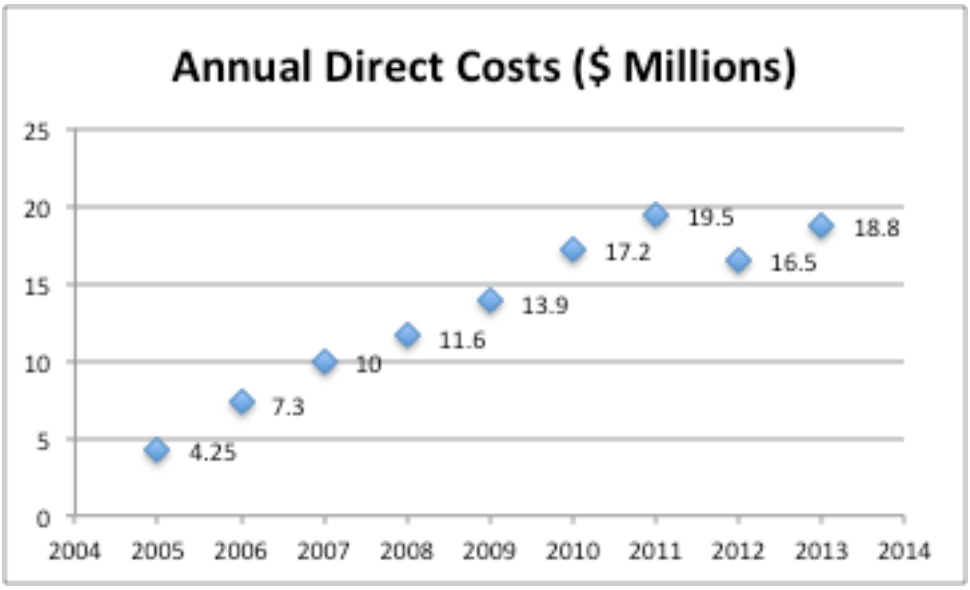
- Faculty recruitment and development:

Of note, much of the growth in CoA membership can be attributed to new faculty members who were recruited to join the University. The other source of new faculty members are "internal" recruitments who have graduated from our own training programs and are now faculty members.

- Aging-related grant funding:

In 2005, 14 University of Utah faculty investigators reported aging-related grants with annual direct costs of $3 million. As of July 2014, the number of funded investigators with aging-related research grant funding has grown to 47 funded faculty investigators with annual direct costs of $18 million with funding from NIA and other NIH institutes and from VA Research and Development. Illustrated in the figure below, this represents a more than four-fold increase in annual direct cost funding compared to the 2005 values. Detailed information concerning these grants is provided in **Appendix A**. The

breakdown by funding source is: NIA, $5.8 M; other NIH, $8.1 M; Foundation and other federal, $1.1 M; and VA $2.9 M.



New programs and centers awarded in this timeframe include – two awards funded by the Donald W. Reynolds Foundation, a John A. Hartford Geriatric Nursing Center of Excellence, and several new VA centers. In addition, Dr. Supiano together with other CoA investigators are co-investigators for two current national clinical trials with clinical sites in Utah: the NIA U01 Partnership for Anemia: Clinical and Translational Trials in the Elderly and the NHLBI Systolic Blood Pressure Intervention Trial (SPRINT). The critical programmatic support provided by several of these key awards are listed below.

- D.W. Reynolds Foundation.

The University of Utah School of Medicine was awarded a four year $2 million grant in 2006 (M. Supiano, PI) to help address one of the most urgent needs in U.S. health care: competent medical treatment for the nation's growing elderly population. The four-year, $2.0 million grant, "Comprehensive Program to Strengthen Physicians' Training in Geriatrics," was funded by the Donald W. Reynolds Foundation. Based on the success of this initial project, we successfully competed for the Foundation's "Next Steps" award. Our project titled "Quality, Safety and Value: What Utah GME trainees will learn from Geriatrics," (a four year $1 million total cost award) began July 1, 2013.

- Utah Governor's Commission on Aging

In 2005, the Utah legislature created the Commission within the Governor's office to address how state government and the private sector can prepare for the wave of aging individuals that began in 2006 when the oldest baby boomers turn 60. Its initial two-year appropriation was renewed for second two-year term when the Commission moved to the University of Utah to join the CoA. The Commission on Aging continues to receive support from the legislature – it was awarded a $100K annual budget for five years beginning in 2012. In October 2009 the Commission on Aging entered into a cooperative agreement with the Administration on Aging (AoA), now Administration for Community Living, to make it easier for people in Utah to learn about and access the full

array of long-term care options that are available in their communities. This Aging and Disability Resource Center Award was funded until 2014.

- John A. Hartford Geriatric Nursing Center of Excellence

The University of Utah was awarded a Hartford Center for Geriatric Nursing Excellence in 2007. It is designed to increase the number of faculty qualified to teach geriatric nursing through national and regional strategies. This five-year, $1 million dollar award will be augmented with significant investment in geriatric education by the University of Utah. Along with funding support comes the prestige of being affiliated with this nationally-recognized leader in the advancement of geriatric care and education.

- VA Programmatic Growth

The CoA program receives substantial support from VA aging-related research and centers. The VA Salt Lake City Geriatric Research, Education and Clinical Center (GRECC; $1.6 M annual budget) was successfully reviewed and its program renewed in December 2013 by the VA's Geriatrics and Gerontology Advisory Committee. GRECC faculty collaborate with other key SLC VA Centers in health services research, informatics and rural health. These centers are not listed in the above total of aging specific grants. Two of these centers are led by GRECC faculty – Drs. Bair and Nebeker. Together, these VA centers awarded in the past year have combined annual funding in excess of $5 million.

- The VA Western Region Rural Health Resource Center directed by Byron Bair, MD focuses on health care access and technology; the targeted populations are Native American and Geriatric. ($2.0 M annual budget). In addition, the VA Office of Rural Health has provided funding to GRECC faculty for four projects.
- A HSR&D Research Enhancement Award Program, the Informatics, Decision Enhancement, And Surveillance (IDEAS) Center led by Matt Samore, MD continues to be funded as a Center of Innovation – COIN ($250K annual budget)
- Veterans' Informatics, iNformation, and Computing Infrastructure (VINCI) led by Jonathan Nebeker, MD. ($2.85 M annual budget)

Specific Aim 2. Foster the development of new interdisciplinary collaborations in aging research.

The Center's visibility continues to grow through the following activities.

- Communications:
  - Center's web presence (www.aging.utah.edu)
  - monthly e-newsletter (with past issues archived on the web site)
  - University of Utah-wide web-based events calendar link
- Pilot grant program

The CoA began its pilot grant program in 2006 to promote the development of aging research at the University of Utah. The goal of this program is to encourage the development of new investigators, attract established investigators to aging research, and stimulate interdisciplinary research collaborations ultimately leading to new externally funded research. A total of $1.0 M has been invested in this program (from

2006 to 2013) – $250,000 derived from the K07 and the balance from commitments from the Senior Vice Presidents' offices. From the 39 pilot grant applications that have been funded to date, 14 have already led to 15 new (on pilot has supported two new grants) externally funded grants detailed in the table below. The total direct cost funding for these new grants – 8 R01s, 4 R21s, 1 R03, a K23/Beeson Award and 1 K08 – is nearly $17 M. **Moreover, the total indirect costs generated from these new awards – $4.8 M – represents a 4.8-to-1 return on investment (ROI) in the pilot grant program.**

Award	Pilot Grant Date	Award Dates	Total Costs	Total Direct Costs	Total Indirect Costs
NIDCD R01 (Lucero)	2007	2009-2011	358,527	238,224	120,303
AHRQ K08 (LaFleur)	2008	2009-2014	786,584	729,356	57,228
NEI R21 (Vetter)	2007	2010-2011	411,125	275,000	136,125
NIA R21 (Zimmer)	2008	2010-2013	362,539	277,990	84,549
NIA K23 Beeson (King)	2011	2011-2015	774,000	712,900	61,920
NIA R21 (Zick)	2009	2011-2014	373,665	249,943	123,722
NIA R01 (Donato)	2011	2012-2017	1,868,750	1,250,000	618,750
NHLBI R01 (Wray)	2010	2013-2018	1,868,750	1,250,000	618,750
NHLBI R01 (Amann)	2012	2013-2018	1,864,065	1,250,000	614,065
NHLBI R01 (Soorappan)	2009	2013-2018	1,820,410	1,217,665	602,745
NIA R21 (Donato)	2011	2013-2018	411,125	275,000	136,125
NIA R01 (Duff)	2011	2014-2019	2,199,096	1,513,787	685,309
NLM R01 (del Fiol)	2011	2013-2017	1,326,193	1,326,193	308,918
NIA R03 (Drummond)	2012	2014-2016	149,000	100,000	49,000
NIA R01 (Rondina)	2013	2014-2019	2,370,457	1,813,914	556,000
Totals			**16,944,286**	**12,479,972**	**4,773,509**

- Research Retreat:

The Center inaugurated its research retreat in March 2007. Retreat activities include a welcome reception and poster session for CoA faculty and trainees the afternoon of the first day. The poster session has averaged about 50 poster presentations each year. The following day's morning session includes oral presentations from the currently funded pilot grant recipients and a keynote address from a prominent external gerontologist. The keynote presenters have been:

Year	Keynote Speaker(s)
2007	Robert (MD) and Rosalie Kane (PhD); University of Minnesota
2008	Jeffery Halter, MD; University of Michigan

2009	John Wilmoth, PhD; UC- Berkley
2010	Tim Smeeding, PhD; University of Wisconsin
2011	Steven Counsell, M.D.; Indiana University and Robyn Golden, LCSW; Rush University Medical Center
2012	Jeanne Wei, M.D., Ph.D.; University of Arkansas
2014	Diana Kuh, PhD.; Director of the MRC Unit for Lifelong Health and Ageing and of the MRC National Survey of Health and Development

- Research Infrastructure support:

The K07 award supported the creation of an infrastructure to support aging-related research with a long range goal of developing these components into cores that will support program project and/or center grant applications. The creation of a Research Participant Registry (RPR) from the Utah Population Database (UPDB) has been initiated. The primary goal of the RPR is to link people in the community, who would like to participate in research, to aging-related studies at the University of Utah. Researchers conducting patient-oriented aging research may wish to contact individuals of all ages who may be interested in participating in aging-related research and determine if they qualify to enter their research studies. The Registry is a process for matching people to research projects.

The Research Participant Registry is a partnership between the Center on Aging, the Resource for Genetic and Epidemiologic Research (RGE), the Utah Population Database (UPDB), and the Center for Clinical and Translational Sciences (CCTS). Individuals from the UPDB are contacted by the RGE and invited to become members of the RPR. Respondents sign a consent form and are sent a medical questionnaire survey to complete that provides information about their health history, functional status, current medications and other factors that might inform investigators about the type of study the participant would be interested in hearing about. The survey information is entered into the CCTS Red-cap server such that this information may be queried by CoA administrative staff. Investigators then submit requests to identify subjects in the RPR who may qualify for their IRB-approved study. The intent is to provide CoA investigators with a pool of potential research subjects whom they may contact who are pre-screened to be likely to meet the study's entry criteria.

To date, 107 subjects have been enrolled in the registry with another 75 in process. Our goal is to exceed 1,000 subjects in the next 12 months.

Specific Aim 3. Develop a multidisciplinary research training program in aging for pre- and post-doctoral trainees.

In parallel with the first two aims, substantial progress was made in expanding opportunities for research training for individuals from multiple disciplines and at several levels of training. Within the School of Medicine, a Student Chapter of the American Geriatrics Society was created and has been used to advertise the availability of

summer research experiences for first year medical students through the NIA T35 Medical Student Training in Aging Research (MSTAR) program. Since 2008, sixteen first year medical students have participated in the MSTAR program.

The Geriatric Medicine fellowship program has graduated nine fellows since 2008. We obtained permission from the RRC to add a third fellow position and have three fellows currently enrolled. In addition, we have been very successful in identifying and filling our allotted VA Fellowship in Advanced Geriatrics positions that provide two years of additional training beyond the clinical year to promote academic career development. Two graduates from this program have received a VA Research Career Development Awards and are now in academic research positions.

Career development of junior faculty who have interests in aging research has also been successful with the funding of many career development awards. Recent and currently funded CDAs are shown in the table below.

Junior Faculty Trainee	**Mentor**	**Career Development Award**	**Title**
Recent			
Markus Amann, PhD	Richardson	NHLBI K99/R00	Respiratory Muscle Work And Oxidative Stress In COPD: Impact On Leg Blood Flow
Lance Davidson, PhD	Hunt	Utah CCTS K-12	Mechanisms Of Surgically-Induced Diabetes Remission
Lisa Lesnewski, PhD	McClain	NIA K01	Aging; Western Diet And Physiological Dysfunction: Exercise And Inflammation
JoAnne LaFleur, PharmD	Nebeker	AHRQ CDA	Osteoporosis screening in men
Anthony Donato, PhD	Richardson	NIA K01	Mechanisms Of Improved Endothelial Function With Regular Exercise In Older Adult
Brian Sauer, PhD	Nebeker	VA CDA	Developing Explicit Methods for Drug Therapy Monitoring
Current			
Micah Drummond, PhD	LaStayo/ Supiano	NIA K01	Nutrient Regulation Amino Acid
Richard King, MD, PhD	Foster/Supiano	NIA K23 Beeson	Cortical Complexity Changes In Normal Aging And Alzheimer's Disease
John McDaniel, PhD	Richardson	VA CDA-2	Muscle Function And Vascular Health In The Elderly Population: The Role Of Chronic Antioxidant Supplementation
Matthew Rondina, MD	Weyrich/ Supiano	K23 and NIA GEMSTARR R03	The Regulation Of Inflammatory Gene Responses In Aging
Timothy Farrell, MD	Brunker	HRSA Geriatric Academic Career	Training in care transitions

		Award	
Shaida Talebreza-Brandon, MD	Supiano	HRSA Geriatric Academic Career Award	Geriatric end-of-life care
Joel Trinity, PhD	Richardson	VA CDA-2	Understanding the Exercise-Hypertension Paradox: Implication for Rehabilitation
Ashley Walker, PhD	Donato	NIA K01	Novel Mechanisms for Cerebral Artery Dysfunction With Aging

An NIA T32 training grant focused on training in vascular aging and mobility for pre- and post-doctoral trainees (T32AG041685) was submitted in 2011. Unfortunately, neither the initial nor A1 submission was funded. We anticipate submitting an aging-related training program with a different focus in the future.

Overall Summary of Progress and Future Directions

In summary, much progress has been made during the past five years in meeting the objective to enhance the visibility and support for aging-related research at the University of Utah. Institutional support from the Senior Vice Presidents' Offices supplemented by funding from NIH, VA, HRSA, Administration on Aging, and the State legislature has been crucial to the CoA success to date. In turn, the growth in aging-related research grants, especially that emanating from the pilot grant program, provide evidence for the return on the investment that the institution has made to date.

With ongoing support, continued growth in each of the three specific aims summarized in this progress report is expected. The next phase in the CoA's evolution is to mature around one or more of several emerging themes (e.g. exercise and mobility/ falls; vascular aging, neurocognitive aging, genetics of longevity) to develop multi-disciplinary training grants and research cores. These components will serve as the foundation to develop successful applications for training, program project and center grants. We initiated a strategic planning process in 2011 for a May 2012 application for NIA-funded Older Americans Independence (Pepper) Center at the University of Utah (P30AG044272). This initial application that focused on the causes and consequence of vascular aging was not funded. We intentionally delayed this application's resubmission until the necessary responses to the initial review were realized. The growth in vascular aging funded grants and new faculty recruitments have addressed many of the critiques from the first application and we plan to resubmit this application in response to the next Pepper Center RPA is expected to be released. In parallel with this, we – together with faculty from the Cardiology Division – are planning to prepare a related program project grant application that will focus on unique physiological characteristics of heart failure with preserved ejection fraction (HFpEF) – a cardiogeriatric syndrome.

A budget request to increase the current funding level for the CoA's operational expenses and pilot grant program for FY2016 through FY2020 is being submitted. With ongoing support, continued growth in each of the three specific aims summarized in this progress report is expected. An increase in administrative support is being requested to expand two specific activities believed to be critical to the next phase of the CoA: 1)

support the expansion of the Research Participant Registry to several thousand subjects such that it will serve as a research core for future program project awards, and 2) to support the submission of our planned Pepper Center and program project award applications. These components will greatly benefit our ability to develop successful applications for program project and center grants – ultimately to support establishing a NIA-funded Older Americans Independence (Pepper) Center at the University of Utah.