Geriatric Oncology Program

Lineberger Comprehensive Cancer Center

University of North Carolina – Chapel Hill

October 1, 2017

I. INTRODUCTION

Cancer is a disease of aging with incidence and mortality rates that rise dramatically with increasing age. Right now the average age at a cancer diagnosis in the U.S. is 67 years. Of the 1,685,000 new cancer patients estimated in 2016, more than 50% will be 65 years and older and the vast majority who die of cancer will be even older. These numbers coupled with the increasing age of the population portend a tsunami of older cancer patients in the years to come.

The vast majority of cancer survivors are older than 65 years and how to best care for them, even after successful treatment of their cancer, remains a major challenge. Cancer treatment in the older population is complicated by factors related to other diseases and conditions they may have, other medicines they take, and psychosocial issues related to aging. Unfortunately, we are not equipped to deal with these challenges. A shortage of geriatricians to team with oncologists, inadequate geriatrics training of oncologists, and extensive prior research that has focused on younger patients with little data on elders, continues to challenge our ability to provide personalized and appropriate cancer care to elders. The challenge of treating older patients is how to account for and manage other major medical illnesses that are frequently present at the time of a cancer diagnosis, especially when such illness is associated with loss of physical and/or cognitive function.

The **UNC Geriatric Oncology Program** was founded in 2009 with the recruitment of Hyman B. Muss, MD (http://unclineberger.org/people/hyman-muss), an expert in breast cancer in older women, to the Lineberger Comprehensive Cancer Center and the Division of Hematology and Oncology. Dr. Muss is Mary Jones Hudson Distinguished Professor of Geriatric Oncology. Together with Jan Busby-Whitehead, MD, Mary and Thomas Hudson Distinguished Professor of Medicine, (http://www.med.unc.edu/aging/fellowship/our-fellows/faculty-and-staff/dr.-jan-busby-whitehead), Chief of the Division of Geriatric Medicine and the UNC Center for Aging and Health (http://www.med.unc.edu/aging) in the School of Medicine, and with both realizing the national importance of cancer in older Americans, they created a multidisciplinary geriatric oncology program focusing on the education of fellows and faculty, research directed at assessing older patients for treatment and maintaining function during and after treatment, and establishing a Geriatric Oncology Clinic for UNC Healthcare. They are joined by Dr. Trevor Jolly, the Associate Director of the Clinical Program and Dr. Kirsten Nyrop, the Deputy Director for Research.

The **mission of the UNC Geriatric Oncology Program** is to educate medical professionals on issues concerning older patients with cancer, to optimize treatment of older cancer patients, and to conduct research focusing on improving cancer outcomes. Although only 7 years old, this program has already become a success and has drawn together a multidisciplinary faculty from many disciplines and has sparked aging research spanning many different cancer types and topics.

II. CLINICAL CARE

Through the UNC Geriatric Oncology Program, older patients can be seen by both an expert in their type of cancer as well as a geriatric oncologist to maximize the quality of care for each individual. Our goal is to give personalized care to the older cancer patient – the right treatment to the right patient.

To make an appointment (http://unclineberger.org/patientcare/programs/geriatric/make-an-appointment).

Cancer treatment in the older population is frequently complicated by factors related to other diseases that are present at the time of a cancer diagnosis, as well as psychosocial issues related to aging. Also, in cancer survivors, new non-cancer illness may compound any prior toxicity related to cancer treatment. Our geriatric oncology clinic allows older patients with cancer to be seen by both an expert in their type of cancer as well as a geriatric oncologist to maximize the quality of care for each individual. This personalized care is essential for optimizing outcomes of care. There are also opportunities for patients to be evaluated by our team of social workers, psychologists/psychiatrists with the Cancer Patient Support Program, pharmacists, physical and occupational therapists, and other experts so as to provide for optimal care.

Clinicians: Clinical care in the Geriatric Oncology Program is led by Hyman B. Muss, MD (http://unclineberger.org/people/hyman-muss) and Trevor Jolly, MD (http://www.med.unc.edu/aging/directory/trevor-

jolly-mbb. Depending on their type of cancer, older cancer patients will be seen by a wide variety of clinicians trained in oncology, surgery and radiology.

Geriatric Assessment: A key component of quality care for our older cancer patients is a comprehensive geriatric assessment. During this assessment, the clinician will assess the patient's functional status, cognition, and physical function. The patient will complete a questionnaire to self-report their ability to do activities of daily living, number of daily medications, comorbidities, mental health, social activities, social support, and nutrition. The assessment provides essential information for determining the patient's physical and psychosocial readiness for various cancer treatment options, including the need to address identified deficits prior to, during and after cancer treatment.

Other Resources: Other programs directly related to the care of older patients are available at UNC.

- The UNC Center for Aging and Health is a leading geriatric clinical, research, education, and training site.
- The Palliative Care Consult Service, a clinical program at UNC Hospitals, provides care and support for patients with life-limiting illnesses such as cancer.
- The Supportive Care Consultation Service and Clinic faculty and staff work with patients to manage pain, symptoms, and treatment side effects.

III. EDUCATION & TRAINING

Fellowship Education Program. In 2011, the UNC Center for Aging and Health/Division of Geriatric Medicine received its second four-year $1.5 million grant from the Donald W. Reynolds Foundation to develop a program entitled "Next Steps in Physicians' Training in Geriatrics." Drs. Busby-Whitehead and Muss were Co-Principal Investigators for this highly competitive grant – one of only 10 awarded nationally in 2010. Through the support of this grant, all current and future Hematology/Oncology fellows now receive training in the basic principles of geriatric care and participate in interactive case presentations with faculty.

Geriatrics-Medical Oncology Fellowship Program. Since 2009, we have recruited 4 fellows eligible for board certification in both Medical Oncology and Geriatrics -- a 3-year program. Our initial fellow, Dr. Trevor Jolly, excelled in this program and is now a junior faculty member in the Divisions of Geriatric Medicine and Hematology/Oncology. He is currently leading the Geriatric Oncology Clinic with Dr. Muss and is involved in cutting edge research in geriatric assessment. He has received the John A. Hartford Center of Excellence Scholar at UNC. Our fellowship program, is one of only a few successful programs of its type in the U.S. and has a designated slot for applicants interested in combining Geriatrics and Medical Oncology specialty training.
Graduates of this program and their current status include:

- Trevor Jolly MD, 2014 – Assistant Professor of Medicine (University of North Carolina, Chapel-Hill)
- Emily Guerard MD, 2016 – Assistant Professor of Medicine (University of Wisconsin)
- Grant Williams MD, 2016 – Assistant Professor of Medicine (University of Alabama)
- Mackenzie Pergolotti PhD, 2016 – Assistant Professor of Physical/Occupational Therapy (University of Colorado)
- Tomohiro Nishijima MD, 2017 – Fellow in Geriatrics, NYU

Division of Hematology/Oncology Fellowship Program. Fellows in the Division of Hematology/Oncology also have opportunities to enhance their clinical knowledge and research interests with older cancer patients **http://www.med.unc.edu/hemonc/fellowship-program.**

Special Training Programs: In addition to the above, we offer special training programs for physicians and post-doctoral students with interests in geriatric oncology. Graduates of this program include:

- Caroline Mariano MD, 2014 – now developing a Geriatric Oncology Program in Vancouver, British Columbia.
- Shlomit Strulov Shachar, 2106 – now developing geriatric oncology programs in Haifa, Israel

Core Lectures in Geriatrics. The Alliance for Geriatric Education in Specialties ("AGES") Curriculum was developed through a grant to UNC-Chapel Hill from the Donald W. Reynolds Foundation (Las Vegas, NV). Presentations focus on such topics as delirium, dementia, geriatric assessment, physiology of aging, iatrogenic injuries, medication use in the older patient, and transitional care. Sit to Stand and Stand to Walk videos are also available. View all education and training materials.

Electives – We have developed a Geriatric Oncology Elective in Medical Oncology for both Medical Students and Residents (Dr. Trevor Jolly, Director). To date several students have completed the elective giving it excellent reviews.

Mentoring and Collaborations with other UNC Institutions. Graduate and post-graduate students from the UNC Gillings School of Global Public Health and UNC School of Nursing have been mentored and collaborated on numerous research projects. Past student mentoring relationships have included Ashley Leak Bryant PhD, while she was pursuing her doctorate in the School of Nursing, and who is now an Assistant Professor in the School of Nursing, and Mackenzi Pergolotti who completed a PhD and a post-doctoral fellowship in Cancer Outcomes and lead trials of interventions in cancer patients that have functional deficits that might benefit from physical and occupational therapy. Dr. Pergolotti is now Assistant Professor of Physical/Occupational Therapy (Colorado State University). Jennifer Lund PHD, Assistant Professor of Epidemiology, a current member of the team, has research interests focusing on polypharmacy, the effectiveness and safety of cancer treatments, and the quality of cancer care. Dr. vanderWalde received mentorship from our program that led to protocols involving functional changes in older adults receiving radiation.

MSTAR students (Medical Students Training in Aging Research). This special program focusing on Medical Students interested in aging research has attracted several students who have engaged in cancer oriented geriatric research.

- Jimmy Broughman 2014 (body composition in colorectal cancer)
- Brittany-Belle Gordon 2015 (Smoking and Alcohol Use in older cancer patients)
- Marc Weinberg, 2016 (Body Composition in breast cancer)
- Franklin Jones 2016, 2017 (Walking Intervention Studies)

IV. RESEARCH

Since its inception, more than 2000 patients have participated in Lineberger-UNC geriatric oncology research studies. Kirsten A. Nyrop, PhD serves as Deputy Director of the Geriatric Oncology Research Program. Many of these trials are "translational" in that they include biochemical markers of aging as predictors of treatment outcome, geriatric assessment, and interventions that include treatment or encourage physical activity. The research team meets at least twice monthly to discuss on-going and planned studies. In addition, there is a monthly conference with invited speakers who have major expertise in aging and cancer research, and which is attended by faculty from multiple disciplines and open to all UNC students, fellows and faculty. In addition, we have held annual Geriatric Oncology Retreats open to all at UNC and the community that have focused on research challenges and opportunities. Detailed information on the status of our trials is shown in Appendix 1.

We are active and successful in receiving outside support – such as a 4-year grant from the Kay Yow and Jimmy V Foundation, support from the Breast Cancer Research Foundation of New York, and an NIH funded R01 grant for studying biomarkers of cancer. We also receive essential support from the University Cancer Research Fund at the University of North Carolina - Chapel Hill.

On-going Studies

Geriatric Assessment and related studies

- **Carolina Senior Registry (LCCC0916):** In 2009, we launched the Carolina Seniors Registry to recruit cancer patients age 65 and older to undergo a validated brief geriatric assessment. To date, the Registry has accrued almost 1700 patients and includes those seen at the NC Cancer Hospital in Chapel Hill as well as UNC Cancer Network sites including Nash,

New Bern, Marion Shepherd, Rex Healthcare, Asheville, Seby B. Jones, Dare County, and Rex Wakefield. The Registry has become a rich source of data for manuscripts in leading oncology publications.

- **Related Studies**: The LCCC0916 geriatric assessment tool has been used in numerous other studies of older cancer patients -- on-going R01 collaboration with City of Hope (LCCC1127), studies of ovarian cancer patients (LCCC1015 and LCCC1203), after cystectomy (LCCC1206), during lung chemotherapy (LCCC1210), during AML Lenalidomide (LCCC1111), during leukemia induction (LCCC1234), radiation treatment (LCCC1224), and GYN radiation (LCCC1321). In addition this database has been used for other research focused on geriatric assessment, frailty, and body composition and treatment outcomes.

Walking Trials

Walk with Ease: We are using a physical activity program that is evidence-based for adults with arthritis and are testing the benefits of regular exercise for moderating increases in $p16^{INK4a}$ (novel biomarker of aging) and managing fatigue and other patient-reported symptoms in breast cancer patients receiving chemotherapy (LCCC1334, LCCC1410), with funding support through the Kay Yow and Jimmy V Foundation and the Breast Cancer Foundation of New York. We are also evaluating the benefits of this highly scalable intervention in colorectal cancer patients during chemotherapy (LCCC1324) with funding support from the Hartford Foundation. A former Hematology/Oncology Fellow who is now at the University of Tennessee – Noam Vanderwalde MD – has received a Young Investigator grant to evaluate the walking program in breast cancer patients receiving radiation therapy. A new trial will explore the role of a resistance intervention added to our walking intervention in women less than 65 who will be receiving chemotherapy for early breast cancer. The genesis of the walking intervention was collaborative studies with the UNC Thurston Arthritis Research Program evaluating the potential for regular walking to reduce aromatase inhibitor-associated joint pain (arthralgia) (LCCC1215, LCCC1312). A detailed table of the status of our walking trials is shown below.

LCCC	**1226**	**1334**	**1410**	**1320**	**1324**	**1402**	**1215**	**1312**
Status	Completed	Completed	On-going	Completed	On-going	Closed	Completed	Completed
Funding	**BCRF-1**	**BCRF-2**	**Yow**	**LCCC UCRF**	**Hartford (Williams)**	**LCCC S-PACT**	**IOA (Nyrop)**	**R21 (Callahan)**
Cancer Site	Potentially curable	Breast	Breast	Prostate	Colorectal	Potentially curable	Breast	Breast
Age	≥60	<65	≥65	≥60	≥65	≥65	≥65	>21
Gender	M & F	F	F	M	M & F	M & F	F	F
Treatment	During chemo	During chemo	During chemo	Any treatment	During chemo	Post chemo	On AI	On AI
Pilot/ feasibility	yes			Yes	Yes		yes	
Partners			*Rex HC MD And. Ohio St*		*Rex HC*	*Rex HC NC Cancer Network*		
P16	yes	Yes	yes		Yes			
GA	yes	Yes	yes	Yes	Yes	yes		
FitBit		Yes	yes					
CTCAE, PRSM		Yes	yes					
Sarcopenia			yes		yes			
Fatigue	yes	Yes	yes	Yes	yes	yes		
Pain	yes			Yes	yes	yes	yes	yes
FACT	yes	Yes	yes	Yes	yes	yes	yes	yes
SPPB		Yes	yes		yes	yes		

Additional Geriatric Oncology Activities:

1. **Trevor Jolly** received a Hartford grant – GA Assessment in Real Time; inpatient cancer patients
2. **Grant Williams** received a K12 award (LCCC1526) – Markers of functional age and quality of life in older adults with cancer: the FAQ Study
3. **Marc Weinberg** is an MSTAR student – The impact of sarcopenia in older and younger patients; analyze CT scans to identify sarcopenic breast cancer patients
4. **Mackenzi Pergolotti** is a Post-Doc in Cancer Outcomes – *Care Study*: GA identifies deficits, patients are randomized to receive OT/PT counseling or not → she and Grant are working with UNC Health Care Quality Improvement Initiative to expand this study
5. **Visiting physician/scholar Shlomit Strulov Shachar** – Impact of sarcopenia in metastatic breast cancer patients on (1) toxicity, (2) progression free survival and (3) overall survival → UNC Metastatic Breast Cancer Clinical Database, review of CT scans per Marc Weinberg, Epic data
6. **Tomo Funakoshi** – using Ga data to predict chemotherapy toxicity in cancer patients age 65+

Contact us:

For more information about Geriatric Oncology clinical trials at UNC, call 919-966-4432. For more information about Geriatric Oncology clinical trials offered offsite, call 919-966-7359.

V. MEMBERS

a. Faculty and Investigators

- Hyman B Muss, MD – Professor of Medicine, Division of Hematology and Oncology; Director, Geriatric Oncology Program (http://unclineberger.org/people/hyman-muss)
- Jan Busby-Whitehead, MD – Professor and Chief, Division of Geriatric Medicine, Director UNC Center for Aging and Health (http://www.med.unc.edu/aging/directory/jan-busby-whitehead)
- Claudio L. Battaglini, PhD – Associate Professor, Dept. of Exercise and Sport Science (http://unclineberger.org/people/claudio-battaglini)
- Stephen A. Bernard, MD FACP – Professor of Medicine, Co-Director/Palliative Care Program, Physician in Charge/Supportive Care Consultation Service and Clinic (http://unclineberger.org/people/stephen-a.-bernard)
- Ashley Leak Bryant, PhD RN-BC OCN – Assistant Professor, School of Nursing (http://unclineberger.org/people/ashley-leak-bryant)
- Allison Deal, MS – Biostatistician, Biostatistics and Clinical Data Management Core, UNC Lineberger Comprehensive Cancer Center (http://cancer.unc.edu/biostatistics/bio_amd.asp)
- Laura C. Hanson, MD – Associate Professor, Geriatric Medicine, Co-Director/Palliative Care Program (http://unclineberger.org/people/laura-c-hanson)
- Trevor A Jolly, MBBS -- Professor of Medicine, Division of Hematology and Oncology and Division of Geriatrics (http://findadoc.unchealthcare.org/directory/profile.asp?dbase=main&setsize=10&last=jolly&pict_id=4733697)
- Jennifer Lund, PhD – Assistant Professor, Dept. of Epidemiology, Gillings School of Global Public Health (http://unclineberger.org/people/jennifer-lund)
- Deborah K. Mayer, PhD RN AOCN FAAN – Professor, School of Nursing; Director/Cancer Survivorship/Lineberger Comprehensive Cancer Center (http://unclineberger.org/people/deborah-mayer)
- Kirsten A Nyrop, PhD – Research Assistant Professor of Medicine, Division of Hematology and Oncology; Assistant Director for Research: Geriatric Oncology (http://www.med.unc.edu/hemonc/facultystaff/faculty)
- Ellen Roberts, PhD MPH – Research Associate Professor of Medicine, Division of Geriatric Medicine, Center for Aging and Health (http://www.med.unc.edu/aging/directory/ellen-roberts-phd-mph)
- William A Wood Jr., MD – Assistant Professor of Medicine, Division of Hematology and Oncology (http://unclineberger.org/people/william-a.-wood)

b. Residents, Fellows, Post-Doctoral Students, Medical Students, Doctoral Students

- Jimmy Broughman – 2013 MSTAR student
- Brittaney-Belle Gordon - 2014 MSTAR student
- Marc Weinberg PhD – 2015 MSTAR student
- Tomohiro Nishijima MD – 3rd year Hematology/Oncology Fellow

c. Research Staff

- Amy L. Garrett – Director, Office of Clinical/Translational Research (OCTR), Lineberger Comprehensive Cancer Center
- Emily Bell, Research Assistant

d. Patient Advocate

- Jack Hyer

e. Administrative Support

- Erin Laurie

f. Alumni

- Trevor Jolly, MD – now faculty (see above)
- Caroline Mariano, MD – former Geriatrics Fellow; now Medical Oncologist, Royal Columbian Hospital, New Westminster, BC, Canada; Clinical Assistant Professor, University of British Columbia
- Noam Vanderwalde, MD – former Radiation Oncology Resident; now Assistant Professor, Dept. of Radiation Oncology, University of Tennessee West Cancer Center, Methodist University Hospital (https://academic.uthsc.edu/faculty/facepage.php?netID=nvanderw&personnel_id=328575)
- Emily Guerard, MD – former Geriatric Oncology Fellow; now Assistant Professor, University of Wisconsin School of Medicine and Public Health; UW Health, Madision, WI
- Mackenzi Pergolotti, PhD – Post-Doctoral Fellow, UNC Cancer Care Quality Training Program, UNC Gillings School of Global Public Health; now Assistant Professor, Colorado State University, CO
- Grant R Williams, MD – former combined Geriatrics and Oncology Fellow; now Assistant Professor, Divisions of Hematology/Oncology & Gerontology, Geriatrics, and Palliative Care; Institute of Cancer Outcomes and Survivorship, The University of Alabama at Birmingham
- Shlomit Strulov Shachar MD – former 5th year visiting fellow Geriatrics/Breast Oncology; now Division of Oncology, Rambam Health Care Campus, Haifa, Israel

VI. BIBLIOGRAPHY (2014-2017)

2017

Williams GR, Deal AM, Muss HB, Weinberg MS, Sanoff HK, Guerard EJ, Nyrop KA, Pergolotti M, Shachar SS. Frailty and skeletal muscle in older adults with cancer. J Geriatr Oncol. 2017 Aug 24. pii: S1879-4068(17)30149-2. doi: 10.1016/j.jgo.2017.08.002. [Epub ahead of print]. PMID: 28844849.

Hopkins JO, Allred J, Hurria A, Jatoi A, Lafky JM, Cohen H, Hudis C, Winer E, Mandelblatt J, Partridge A, Carey L, Muss HB. Lymphedema, musculoskeletal events and arm function in older patients receiving adjuvant chemotherapy for breast cancer (Alliance A171302). Breast Cancer Res Treat. 2017 Aug 20. doi: 10.1007/s10549-017-4454-7. [Epub ahead of print]. PMID: 28825227.

Lund JL, Meyer AM, Deal AM, Choi BJ, Chang Y, Williams GR, Pergolotti M, Guerard EJ, Muss HB, Sanoff HK. Data Linkage to Improve Geriatric Oncology Research: A Feasibility Study. Oncologist. 2017 Aug;22(8):1002-1005. doi: 10.1634/theoncologist.2016-0418. Epub 2017 Apr 13. PMID: 28408619.

Shachar SS, Deal AM, Weinberg M, Williams GR, Nyrop KA, Popuri K, Choi SK, Muss HB. Body Composition as a Predictor of Toxicity in Patients Receiving Anthracycline and Taxane-Based Chemotherapy for Early-Stage Breast Cancer. Clin Cancer Res. 2017 Jul 15;23(14):3537-3543. doi: 10.1158/1078-0432.CCR-16-2266. Epub 2017 Jan 31. PMID: 28143874.

VanderWalde NA, Deal AM, Comitz E, Stravers L, Muss H, Reeve BB, Basch E, Tepper J, Chera B. Geriatric Assessment as a Predictor of Tolerance, Quality of Life, and Outcomes in Older Patients With Head and Neck Cancers and Lung Cancers Receiving Radiation Therapy. Int J Radiat Oncol Biol Phys. 2017 Jul 15;98(4):850-857. doi: 10.1016/j.ijrobp.2016.11.048. Epub 2016 Dec 2. PMID: 28258889.

Foster JC, Le-Rademacher JG, Feliciano JL, Gajra A, Seisler DK, DeMatteo R, Lafky JM, Hurria A, Muss HB, Cohen HJ, Jatoi A. Comparative "nocebo effects" in older patients enrolled in cancer therapeutic trials: Observations from a 446-patient cohort. Cancer. 2017 Jul 12. doi: 10.1002/cncr.30867. [Epub ahead of print]. PMID: 28700816.

Mandelblatt JS, Cai L, Luta G, Kimmick G, Clapp J, Isaacs C, Pitcher B, Barry W, Winer E, Sugarman S, Hudis C, Muss H, Cohen HJ, Hurria A. Frailty and long-term mortality of older breast cancer patients: CALGB 369901 (Alliance). Breast Cancer Res Treat. 2017 Jul;164(1):107-117. doi: 10.1007/s10549-017-4222-8. Epub 2017 Mar 31. PMID: 28364214.

Mariano C, Lund JL, Peacock Hinton S, Htoo P, Muss H, Reeder-Hayes KE. Evaluating the association between adjuvant chemotherapy and function-related adverse events among older patients with early stage breast cancer. J Geriatr Oncol. 2017 Jul;8(4):242-248. doi: 10.1016/j.jgo.2017.05.005. Epub 2017 Jun 7. PMID: 28601373.

Pergolotti M, Deal AM, Williams GR, Bryant AL, Bensen JT, Muss HB, Reeve BB. Activities, function, and health-related quality of life (HRQOL) of older adults with cancer. J Geriatr Oncol. 2017 Jul;8(4):249-254. doi: 10.1016/j.jgo.2017.02.009. Epub 2017 Mar 9. PMID: 28285980.

Guerard EJ, Deal AM, Chang Y, Williams GR, Nyrop KA, Pergolotti M, Muss HB, Sanoff HK, Lund JL. Frailty Index Developed From a Cancer-Specific Geriatric Assessment and the Association With Mortality Among Older Adults With Cancer. J Natl Compr Canc Netw. 2017 Jul;15(7):894-902. doi: 10.6004/jnccn.2017.0122. PMID: 28687577.

Garry EM, Buse JB, Lund JL, Pate V, Stürmer T. Comparative safety of pioglitazone versus clinically meaningful treatment alternatives concerning the risk of bladder cancer in older US adults with type 2 diabetes. Diabetes Obes Metab. 2017 Jun 29. doi: 10.1111/dom.13049. [Epub ahead of print]. PMID: 28661561.

Hong JL, Henderson LM, Jonsson Funk M, Lund JL, Buse JB, Pate V, Stürmer T. Differential Use of Screening Mammography in Older Women Initiating Metformin versus Sulfonylurea. Pharmacoepidemiol Drug Saf. 2017 Jun;26(6):666-675. doi: 10.1002/pds.4195. Epub 2017 Mar 29. PMID: 28370798.

Kimmick GG, Major B, Clapp J, Sloan J, Pitcher B, Ballman K, Barginear M, Freedman RA, Artz A, Klepin HD, Lafky JM, Hopkins J, Winer E, Hudis C, Muss H, Cohen H, Jatoi A, Hurria A, Mandelblatt J. Using ePrognosis to estimate 2-year all-cause mortality in older women with breast cancer: Cancer and Leukemia Group B (CALGB) 49907 and 369901 (Alliance A151503). Breast Cancer Res Treat. 2017 Jun;163(2):391-398. doi: 10.1007/s10549-017-4188-6. Epub 2017 Mar 10. PMID: 28283904.

Murphy CC, Sandler RS, Sanoff HK, Yang YC, Lund JL, Baron JA. Decrease in Incidence of Colorectal Cancer Among Individuals 50 Years or Older After Recommendations for Population-based Screening. Clin Gastroenterol Hepatol. 2017 Jun;15(6):903-909.e6. doi: 10.1016/j.cgh.2016.08.037. Epub 2016 Sep 5. PMID: 27609707.

Williams GR, Deal AM, Muss HB, Weinberg MS, Sanoff HK, Nyrop KA, Pergolotti M, Shachar SS. Skeletal muscle measures and physical function in older adults with cancer: sarcopenia or myopenia? Oncotarget. 2017 May 16;8(20):33658-33665. doi: 10.18632/oncotarget.16866. PMID: 28431396.

Hong JL, Jonsson Funk M, Buse JB, Henderson LM, Lund JL, Pate V, Stürmer T. Comparative Effect of Initiating Metformin Versus Sulfonylureas on Breast Cancer Risk in Older Women. Epidemiology. 2017 May;28(3):446-454. doi: 10.1097/EDE.0000000000000635. PMID: 28166101.

Nishijima TF, Deal AM, Williams GR, Guerard EJ, Nyrop KA, Muss HB. Frailty and inflammatory markers in older adults with cancer. Aging (Albany NY). 2017 Mar 8;9(3):650-664. doi: 10.18632/aging.101162. PMID: 28273043.

Freedman RA, Keating NL, Partridge AH, Muss HB, Hurria A, Winer EP. Surveillance Mammography in Older Patients With Breast Cancer-Can We Ever Stop?: A Review. JAMA Oncol. 2017 Mar 1;3(3):402-409. doi: 10.1001/jamaoncol.2016.3931. Review. PMID: 27892991.

Freedman RA, Foster JC, Seisler DK, Lafky JM, Muss HB, Cohen HJ, Mandelblatt J, Winer EP, Hudis CA, Partridge AH, Carey LA, Cirrincione C, Moreno-Aspitia A, Kimmick G, Jatoi A, Hurria A. Accrual of Older Patients With Breast Cancer to Alliance Systemic Therapy Trials Over Time: Protocol A151527. J Clin Oncol. 2017 Feb;35(4):421-431. doi: 10.1200/JCO.2016.69.4182. Epub 2016 Dec 19. PMID: 27992272.

Freedman RA, Seisler DK, Foster JC, Sloan JA, Lafky JM, Kimmick GG, Hurria A, Cohen HJ, Winer EP, Hudis CA, Partridge AH, Carey LA, Jatoi A, Klepin HD, Citron M, Berry DA, Shulman LN, Buzdar AU, Suman VJ, Muss HB. Risk of acute myeloid leukemia and myelodysplastic syndrome among older women receiving anthracycline-based adjuvant chemotherapy for breast cancer on Modern Cooperative Group Trials (Alliance A151511). Breast Cancer Res Treat. 2017 Jan;161(2):363-373. doi: 10.1007/s10549-016-4051-1. Epub 2016 Nov 19. PMID: 27866278.

2016

Park SI, Grover NS, Olajide O, Asch AS, Wall JG, Richards KL, Sobol AL, Deal AM, Ivanova A, Foster MC, Muss HB, Shea TC. A phase II trial of bendamustine in combination with rituximab in older patients with previously untreated diffuse large B-cell lymphoma. Br J Haematol. 2016 Oct;175(2):281-289. doi: 10.1111/bjh.14232. Epub 2016 Jul 22. PMID: 27448091.

Strulov Shachar S, Hurria A, Muss HB. Targeted Therapies in Older Adults With Breast Cancer: What Do We Know? J Clin Oncol. 2016 Oct 1;34(28):3486-8. doi: 10.1200/JCO.2016.68.8242. Epub 2016 Jul 18. No abstract available. PMID: 27432932.

Burhenn PS, Bryant AL, Mustian KM. Exercise Promotion in Geriatric Oncology. Curr Oncol Rep. 2016 Sep;18(9):58. doi: 10.1007/s11912-016-0538-5. Review. PMID: 27484061.

Mohile SG, Hurria A, Cohen HJ, Rowland JH, Leach CR, Arora NK, Canin B, Muss HB, Magnuson A, Flannery M, Lowenstein L, Allore HG, Mustian KM, Demark-Wahnefried W, Extermann M, Ferrell B, Inouye SK, Studenski SA, Dale W. Improving the quality of survivorship for older adults with cancer. Cancer. 2016 Aug 15;122(16):2459-568. doi: 10.1002/cncr.30053. Epub 2016 May 12. Review. PMID: 27172129.

Young JC, Stürmer T, Lund JL, Funk MJ. Predictors of prevalent statin use among older adults identified as statin initiators based on Medicare claims data. Pharmacoepidemiol Drug Saf. 2016 Jul;25(7):836-43. doi: 10.1002/pds.3991. Epub 2016 Mar 15. PMID: 26991151.

Gajra A, Loh KP, Hurria A, Muss H, Maggiore R, Dale W, Klepin HD, Magnuson A, Lichtman SM, Williams GR, Shahrokhni A, Mohile SG. Comprehensive Geriatric Assessment-Guided Therapy Does Improve Outcomes of Older Patients With Advanced Lung Cancer. J Clin Oncol. 2016 Aug 22. pii: JCO675926. [Epub ahead of print] No abstract available. PMID: 27551131.

Mohile SG, Hurria A, Cohen HJ, Rowland JH, Leach CR, Arora NK, Canin B, Muss HB, Magnuson A, Flannery M, Lowenstein L, Allore HG, Mustian KM, Demark-Wahnefried W, Extermann M, Ferrell B, Inouye SK, Studenski SA, Dale W. Improving the quality of survivorship for older adults with cancer. Cancer. 2016 Aug 15;122(16):2459-568. doi: 10.1002/cncr.30053. Epub 2016 May 12. Review. PMID: 27172129.

Mandelblatt JS, Clapp JD, Luta G, Faul LA, Tallarico MD, McClendon TD, Whitley JA, Cai L, Ahles TA, Stern RA, Jacobsen PB, Small BJ, Pitcher BN, Dura-Fernandis E, Muss HB, Hurria A, Cohen HJ, Isaacs C. Long-term trajectories of self-reported cognitive function in a cohort of older survivors of breast cancer: CALGB 369901 (Alliance). Cancer. 2016 Jul 22. doi: 10.1002/cncr.30208. [Epub ahead of print]. PMID: 27447359.

Hurria A, Mohile S, Gajra A, Klepin H, Muss H, Chapman A, Feng T, Smith D, Sun CL, De Glas N, Cohen HJ, Katheria V, Doan C, Zavala L, Levi A, Akiba C, Tew WP. Validation of a Prediction Tool for Chemotherapy Toxicity in Older Adults With Cancer. J Clin Oncol. 2016 Jul 10;34(20):2366-71. doi: 10.1200/JCO.2015.65.4327. Epub 2016 May 16. PMID: 27185838.

Lund JL, Sturmer T, Sanoff HK. Comparative effectiveness of postoperative chemotherapy among older patients with non-metastatic rectal cancer treated with preoperative chemoradiotherapy. J Geriatr Oncol. 2016 May;7(3):176-86. doi: 10.1016/j.jgo.2016.01.011. Epub 2016 Feb 23. PMID: 26926829.

Sparano JA, Muss H. Learning from big data: are we undertreating older women with high-risk breast cancer? NPJ Breast Cancer. 2016 Jun 8;2:16019. doi: 10.1038/npjbcancer.2016.19. eCollection 2016. No abstract available. PMID: 28721380.

Nishijima TF, Suzuki M, Muss HB. A comparison of toxicity profiles between the lower and standard dose capecitabine in breast cancer: a systematic review and meta-analysis. Breast Cancer Res Treat. 2016 Apr;156(2):227-36. doi: 10.1007/s10549-016-3756-5. Epub 2016 Mar 17. Review. PMID: 26988358.

Nishijima TF, Muss HB, Shachar SS, Moschos SJ. Comparison of efficacy of immune checkpoint inhibitors (ICIs) between younger and older patients: A systematic review and meta-analysis. Cancer Treat Rev. 2016 Apr;45:30-7. doi: 10.1016/j.ctrv.2016.02.006. Epub 2016 Mar 2. Review. PMID: 26946217.

Jatoi A, Muss H, Allred JB, Cohen HJ, Ballman K, Hopkins JO, Gajra A, Lafky J, Wolff A, Kottschade L, Gralow J, Hurria A. Social support and its implications in older, early-stage breast cancer patients in CALGB 49907 (Alliance A171301). Psychooncology. 2016 Apr;25(4):441-6. doi: 10.1002/pon.3850. Epub 2015 May 20. PMID: 25994447.

Lichtman SM, Cirrincione CT, Hurria A, Jatoi A, Theodoulou M, Wolff AC, Gralow J, Morganstern DE, Magrinat G, Cohen HJ, Muss HB. Effect of Pretreatment Renal Function on Treatment and Clinical Outcomes in the Adjuvant Treatment of Older Women with Breast Cancer: Alliance A171201, an Ancillary Study of CALGB/CTSU 49907. J Clin Oncol. 2016 Mar 1;34(7):699-705. doi: 10.1200/JCO.2015.62.6341. Epub 2016 Jan 11. PMID: 26755510.

Karuturi M, VanderWalde N, Muss H. Approach and Management of Breast Cancer in the Elderly. Clin Geriatr Med. 2016 Feb;32(1):133-53. doi: 10.1016/j.cger.2015.08.011. Epub 2015 Oct 9. Review. PMID: 26614865.

Shachar SS, Hurria A, Muss HB. Breast Cancer in Women Older Than 80 Years. J Oncol Pract. 2016 Feb;12(2):123-32. doi: 10.1200/JOP.2015.010207. PMID: 26869650.

Guerard EJ, Tuchman SA. Monoclonal Gammopathy of Undetermined Significance and Multiple Myeloma in Older Adults. Clin Geriatr Med. 2016 Feb;32(1):191-205. doi: 10.1016/j.cger.2015.08.012. Epub 2015 Oct 9. Review. PMID: 26614868.

Hurria A, Jones L, Muss HB. Cancer Treatment as an Accelerated Aging Process: Assessment, Biomarkers, and Interventions. Am Soc Clin Oncol Educ Book. 2016;35:e516-22. doi: 10.14694/EDBK_156160. PMID: 27249761.

Broughman JR, Williams GR, Muss HB. Response to "Body composition analysis via single slice computed tomography analysis - The shortcomings." J Geriatr Oncol. 2016 Jan;7(1):55-6. doi: 10.1016/j.jgo.2015.11.006. Epub 2016 Jan 12. No abstract available. PMID: 26797669.

Mariano C, Hanson LC, Deal AM, Yang H, Bensen J, Hendrix L, Muss HB. Healthcare satisfaction in older and younger patients with cancer. J Geriatr Oncol. 2016 Jan;7(1):32-8. doi: 10.1016/j.jgo.2015.11.005. Epub 2016 Jan 7. PMID: 26774226.

Jolly TA, Williams GR, Bushan S, Pergolotti M, Nyrop KA, Jones EL, Muss HB. Adjuvant treatment for older women with invasive breast cancer. Womens Health (Lond Engl). 2016 Jan;12(1):129-46. doi: 10.2217/whe.15.92. PMID: 26767315.

2015

Hurria A, Levit LA, Dale W, Mohile SG, Muss HB, Fehrenbacher L, Magnuson A, Lichtman SM, Bruinooge SS, Soto-Perez-de-Celis E, Tew WP, Postow MA, Cohen HJ. Improving the Evidence Base for Treating Older Adults With Cancer: American

Society of Clinical Oncology Statement. J Clin Oncol. 2015 Nov 10;33(32):3826-33. doi: 10.1200/JCO.2015.63.0319. Epub 2015 Jul 20. PMID: 26195697.

Broughman JR, Williams GR, Deal AM, Yu H, Nyrop KA, Alston SM, Gordon BB, Sanoff HK, Muss HB. Prevalence of sarcopenia in older patients with colorectal cancer. J Geriatr Oncol. 2015 Nov;6(6):442-5. doi: 10.1016/j.jgo.2015.08.005. Epub 2015 Sep 11. PMID: 26365898.

Guerard EJ, Deal AM, Williams GR, Jolly TA, Nyrop KA, Muss HB. Falls in Older Adults with Cancer: Evaluation by Oncology Providers. J Oncol Pract. 2015 Nov;11(6):470-4. doi: 10.1200/JOP.2014.003517. Epub 2015 Jul 14. PMID: 26175532.

Pergolotti M, Deal AM, Williams GR, Bryant AL, Reeve BB, Muss HB. A randomized controlled trial of outpatient CAncer REhabilitation for older adults: The CARE Program. Contemp Clin Trials. 2015 Sep;44:89-94. doi: 10.1016/j.cct.2015.07.021. Epub 2015 Aug 4. PMID: 26253182.

Williams GR, Deal AM, Nyrop KA, Pergolotti M, Guerard EJ, Jolly TA, Muss HB. Geriatric assessment as an aide to understanding falls in older adults with cancer. Support Care Cancer. 2015 Aug;23(8):2273-80. doi: 10.1007/s00520-014-2598-0. Epub 2015 Jan 10. PMID: 25576434.

Mariano C, Williams G, Deal A, Alston S, Bryant AL, Jolly T, Muss HB. Geriatric Assessment of Older Adults with Cancer During Unplanned Hospitalizations: An Opportunity in Disguise. Oncologist. 2015 Jul;20(7):767-72. doi: 10.1634/theoncologist.2015-0023. Epub 2015 Jun 1. PMID: 26032136.

Williams GR, Nyrop KA, Deal AM, Muss HB, Sanoff HK. Self-directed physical activity intervention in older adults undergoing adjuvant chemotherapy for colorectal cancer: Design of a randomized controlled trial. Contemp Clin Trials. 2015 May;42:90-7. doi: 10.1016/j.cct.2015.03.008. Epub 2015 Mar 28. PMID: 25827253.

Pergolotti M, Deal AM, Lavery J, Reeve BB, Muss HB. The prevalence of potentially modifiable functional deficits and the subsequent use of occupational and physical therapy by older adults with cancer. J Geriatr Oncol. 2015 May;6(3):194-201. doi: 10.1016/j.jgo.2015.01.004. Epub 2015 Jan 19. PMID: 25614296.

Pergolotti M, Cutchin MP, Muss HB. Predicting participation in meaningful activity for older adults with cancer. Quality of Life Research.May 2015;24(5):1217-1222. doi:10.1007/s11136-014-0849-7. Epub 2014 Nov 8. PMID: 25381123.

Jolly TA, Deal AM, Nyrop KA, Williams GR, Pergolotti M, Wood WA, Alston SM, Gordon BB, Dixon SA, Moore SG, Taylor WC, Messino M, Muss HB. Geriatric Assessment-Identified Deficits in Older Cancer Patients with Normal Perfomance Status. Oncologist. 2015 Apr;20(4):379-85. doi: 10.1634/theoncologist.2014-0247. Epub 2015 Mar 12. PMID: 25765876.

Quach C, Sanoff HK, Williams GR, Lyons JC, Reeve BB. Impact of colorectal cancer diagnosis and treatment on health-related quality of life among older Americans: a population-based, case-control study. Cancer. 2015 Mar 15;121(6):943-50. doi: 10.1002/cncr.29125. Epub 2014 Nov 6. PMID: 25377096.

Moye VA, Chandramouleeswaran S, Zhao N, Muss HB, Weissler MC, Hayes DN, Zavallos JP. Elderly Patients with Squamous Cell Carcinoma of the Head and Neck and the Benefit of Multimodality Therapy. Oncologist. 2015 Feb; 20(2):159-65. doi: 10.1634/theoncologist.2013-0325. Epub 2015 Jan 12. PMID: 25582139.

Hurria A, Muss H. Special Issues in Older Women with Breast Cancer. Adv Exp Med Biol. 2015;862:23-37. doi: 10.1007/978-3-319-16366-6_3. PMID: 26059927.

Punglia RS, Hughes KS, Muss HB. Management of older women with early-stage breast cancer. Am Soc Clin Oncol Educ Book. 2015:48-55. doi: 10.14694/EdBook_AM.2015.35.48. PMID: 25385179.

Feng MA, McMillan DT, Crowell K, Muss H, Nielsen ME, Smith AB. Geriatric Assessment in surgical oncology: A systematic review. J Surg Res. 2015 Jan; 193(1):265-72. doi: 10.1016/jss.2014.07.004. Epub 2014 Jul 5. PMID: 25091339.

2014

Chapman JW, Pritchard KI, Gross PE, Ingle JN, Muss HB, Dent SF, Vandenberg TA, Findlay B, Gelmon KA, Wilson CF, Shepherd LE, Pollak MN. Competing risks of death in younger and older postmenopausal breast cancer patients. World J Clin Oncol 2014 Dec 10; 5(5):1088-1096. doi: 10.5306/wjco.v5.i5.1088 PMID: 25493245. PMCID: PMC4259936.

Faul LA, Luta G, Sheppard V, Isaacs C, Cohen HJ, Muss HB, Yung R, Clapp JD, Winer E, Hudis C, Tallarico M, Wang J, Barry WT, Mandelblatt JS. Associations among survivorship care plans, experiences of survivorship care, and functioning in older breast cancer survivors: CALGB/Alliance 369901. J Cancer Surviv 2014 Dec ; 8 (4): 627-37. doi: 10.1007/s11764-014-0371-5. Epub 2014 Jun 11. PMID: 24917307. PMCID: PMC4386650.

Wheeler SB, Kohler RE, Reeder-Hayes KE, Goyal RK, Lich KH, Moore A, Smith TW, Melvin CL, Muss HB. Endocrine therapy initiation among Medicaid-insured breast cancer survivors with hormone receptor-positive tumors. J Cancer Surviv. 2014 Dec; 8(4): 603-10. doi: 10.1007/s11764-014-0365-3. Epub 2014 May 28. PMID: 24866922.

Lamont EB, Schilsky RL, He Y, Muss H, Cohen HJ, Hurra A, Meilleur A, Kindler HL, Venook A, Lilenbaum R, Neill H, Goldberg RM, Joffe S; Alliance for Clinical Trials in Oncology. Generalizability of Trial Results to Elderly Medicare Patients with Advanced Solid Tumors (Alliance 70802). J Natl Cancer Inst. 2014 Nov 27; 107(1):336. doi: 1093/jnci/dju336. Print 2015 Jan. PMID: 25432408.

Jenkins EO, Deal AM, Anders CK, Prat A, Perou C, Carey LA, Muss HB. Age-Specific Changes in Intrinstic Breast Cancer Subtypes: A Focus on Older Women. Oncologist. 2014 Oct; 19(10): 1076-83. doi: 10.1634/theoncologist.2014-0184. Epub 2014 Aug 20. PMID: 25142841. PMCID: PMC4200998.

Klepin HD, Pitcher BN, Ballman KV, Kornblith AB, Hurria A, Winer EP, Hudis C, Cohen HJ, Muss HB, Kimmick GG. Comorbidity, Chemotherapy Toxicity, and Outcomes Among Older Women Receiving Adjuvant Chemotherapy for Breast Cancer on a Clinical Trial: CALGB 49907 and CALGB 361004 (Alliance). J Oncol Pract. 2014 July 29 (epub ahead of print). PMID: 25074878.

Tew WP, Muss HB, Kimmick GG, Gruenigen VV, Lichtman SM. Ovarian and Breast Cancer in the Older Woman. J Clin Oncol. 2014 Aug 20; 32(24):2553-61. Review. PMID: 25071129.

Hurria A, Dale W, Mooney M, Rowland JH, Ballman KV, Cohen HJ, Muss HB, Schilsky RL, Ferrell B, Extermann M, Schmader KE, Mohile SG; Cancer and Aging Research Group. Designing Therapeutic Trials for Older Adults and Frail Adults with Cancer: U13 Conference Recommendations. J Clin Oncol. 2014 Aug 20;32(24): 2587-94. Review. PMID: 25071116.

Hubbard JM, Cohen HJ, Muss HB. Incorporating Biomarkers into Cancer and Aging Research. J Clin Oncol. 2014 August 20; 32(24):2611-2616. doi: 10.1200/JCO.2014.55.4261. Epub 2014 Jul 28. Review. PMID: 25071114.

Shulman LN, Berry DA, Cirrincione C, Becker HP, Perez EA, O'Regan R, Martino S, Shapiro CL, Schneider CJ, Kimmick G, Burstein HJ, Norton L, Muss HB, Hudis CA, Winer EP. Comparison of doxorubicin and cyclophosphamide (AC) versus single agent paclitaxel (T) as adjuvant therapy for breast cancer in women with 0-3 positive axillary nodes: CALGB 40101 (Alliance). J Clin Oncol 2014 Aug 1; 32(22): 2311-7. PMID: 24934787.

Sheppard VB, Faul LA, Luta G, Clapp JD, Yung RL, Wang JH, Kimmick GG, Isaacs C, Tallarico M, Barry WT, Pitcher B, Hudis C, Winer EP, Cohen HJ, Muss HB, Hurria A, Mandelblatt JS. Frailty and Adherence to Adjuvant Hormonal Therapy in Older Women with Breast Cancer: Cancer and Leukemia Group B Protocol #369901. J Clin Oncol 2014 Aug 1; 32(22):2318-2327. PMID: 24934786.

Barginear MF, Muss H, Kimmick GG, Owusu C, Mrozek E, Shahrokni A, Hurria A. Breast Cancer and Aging: Results of the U13 Conference Breast Cancer Panel. Breast Cancer Res Treat. 2014 July; 146(1): 1-6. doi: 10.1007/s10549-014-2994-7. Epub 2014 May 22. PMID: 24847891.

Muss HB. Adjuvant Chemotherapy in Older Women With Breast Cancer: Who and What? J Clin Oncol 2014 Jul 1;32(19) 1996-2000. doi: 10.1200/JCO.2013.54.8586. Epub 2014 May 27. Review. PMID: 24868030.

Williams GR, Deal AM, Jolly TA, Alston SM, Gordon BE, Dixon SA, Olajide OA, Taylor WC, Messino MJ, Muss HB. Feasibility of Geriatric Assessment in Community Oncology Clinics. J Geriatr Oncol. 2014 Jul; 5(3): 245-51. Epub 2014 Apr 3. PMID: 24703978.

Lamont EB, Yu M, He Y, Saltz L, Muss HB, Zaslavsky AM; Alliance for Clinical Trials in Oncology. Hospital-Based Health Care Use Correlates with Incidence of Treatment-Related Adverse Events Among Elderly Medicare Patients Treated in Adjuvant Chemotherapy Trials (Alliance 70802). J Geriatr Oncol. 2014 Jul; 5(3)230-7. Epub 2014 Mar 1.PMID: 24594119. PMCID: PMC4119569.

Moy B, Flaig TW, Muss HB, Clark B, Tse W, Windham TC. Geriatric Oncology for the 21st Century: A Call for Action. J Oncol Pract 2014 Jul; 10(4):241-3.doi: 10.100/JOP.2013.001333. Epub 2014 Apr 29. PMID: 24781365.

Sorrentino JA, Sanoff HK, Sharpless NE. Defining the toxicology of aging. Trends Mol Med. 2014 Jul;20(7):375-84. doi: 10.1016/j.molmed.2014.04.004. Epub 2014 May 28. Review. PMID: 24880613.

Mariano C, Jolly T. Inherited cancer susceptibility in an elderly adult. J Am Geriatr Soc. 2014 Jul;62(7):1406-8. doi: 10.1111/jgs.12902. No abstract available. PMID: 25039523.

Stover AM, Mayer DK, Muss H, Wheeler SB, Lyons J, Reeve BB. Quality of Life Changes during the Pre- to Post-Diagnosis Period and Treatment-Related Recovery Time in Older Women with Breast Cancer. Cancer 2014 Jun 15; 120(12): 1881-1889. doi: 10.1002/cncr.28649. Epub 2014 Mar 19. PMID: 24647996. PMCID: PMC4047201.

Smith AB, Deal AM, Yu H, Boyd B, Matthews J, Wallen EM, Pruthi RS, Woods ME, Muss H, Nielsen ME. Sarcopenia as a predictor of complications and survival following radical cystectomy. J Urol. 2014 Jun;191(6):1714-20. doi: 10.1016/j.juro.2013.12.047. Epub 2014 Jan 11. PMID: 24423437.

Ballman KV, Mauer M, Wedding U, Mohile SG, Muss H, Extermann M, Luciani A, Cohen HJ, Hurria A, Lichtman SM, Curigliano G, Wildiers H. Reply to L.K. Mell et al. J Clin Oncol. 2014 Apr 1;32(10):1090-1. doi: 10.1200/JCO.2013.54.5236. Epub 2014 Feb 18. No abstract available. PMID: 24550420.

Nyrop KA, Muss HB, Hackney B, Cleveland R, Altpeter M, Callahan LF. Feasibility and promise of a 6-week program to encourage physical activity and reduce joint symptoms among elderly breast cancer survivors on aromatase inhibitor therapy. J.Geri. Oncol. 2014 Apr; 5(2): 144-55.Epub 2013 Dec 28.

Sanoff HK, Deal AM, Krishnamurthy J, Torrice C, Dillon P, Sorrentino J, Ibrahim JG, Jolly TA, Williams G, Carey LA, Drobish A, Gordon B, Alston S, Hurria A, Kleinhans K, Rudolph KL, Sharpless NE, Muss HB. Effect of Cytotoxic Chemotherapy on Markers of Molecular Age in Patients With Breast Cancer. J Natl Cancer Inst. 2014 Apr;106(4): dju057. doi: 10.1093/jnci/dju057. Epub 2014 Mar 28. PMID: 24681605.

Muss H, Cortes J, Vahdat LT, Cardoso F, Twelves C, Wanders J, Dutcus CE, Yang J, Seegobin S, O'Shaughnessy J. Eribulin Monotherapy in Patients Aged 70 Years and Older With Metastatic Breast Cancer. Oncologist 2014 Apr; 19(4): 318-27. doi: 10.1634/theoncologist.2013-0282. Epub 2014 Mar 28. PMID: 24682463. PMCID: PMC3983814.

Fortune-Greeley AK, Wheeler SB, Meyer AM, Reeder-Hayes KE, Biddle AK, Muss HB, Carpenter WR. Preoperative breast MRI and surgical outcomes in elderly women with invasive ductal and lobular carcinoma: a population-based study. Breast Cancer Res Treat. 2014 Jan;143(1):203-12. doi: 10.1007/s10549-013-2787-4. Epub 2013 Dec 4. PMID: 24305978. PMCID: PMC4093828.

Freedman RA, Muss HB. Managing metastatic human epidermal growth factor receptor 2 (HER2)-positive breast cancer in the older patient. J Geriatr Oncol. 2014 Jan;5(1):2-7. doi: 10.1016/j.jgo.2013.10.001. Epub 2013 Oct 30. Review. PMID: 24484711.

Appendix 1: Accrual

LCCC	Name	Location	Current Accrual	Target Accrual
WALKING INTERVENTIONS				
1324	Colorectal (Kirsten)	UNC UNC G.O. Network*	23	40
1410	Yow (>65 chemo)	UNC Rex/Rex Wakefield Rex/Cary Rex/Blue Ridge Duke OSU MD Anderson Maimonides	89	100
1537	Met BC (Shlomit) ***we will be re-opening this study!!***	UNC	41	40 ***20 more***
TBD	***BCRF Redux -- we will be submitting a new proposal to recruit N=100***			
OTHER STUDIES				
916	Carolina Senior	UNC	1681	2000
1527	CTRS (Tomo)	UNC	61	120
1630	Get Real & Heel	UNC	9	150
1538	GARRT (Trevor)	UNC	109	138
Closed to Accrual (but still open for data analysis)				
1334	BCRF age (<65 chemo)	UNC	127	150
1402	S-PACT	UNC UNC G.O. Network	43	150
Total Accrued				

Completed Studies			
LCCC1312	Callahan	AI	75
LCCC1215	Nyrop	AI	30
LCCC1320	Muss	prostate	13
LCCC1226	Muss	breast	29
LCCC1027	Muss	COH	140
COH 11127	Muss	COH	42
COH 10112	Muss	Muss	3
CALGB 369901		Muss/QOL	24
LCCC0924	Muss	p16 chemo	248
COH 6170		Muss/chemo tox	40
LCCC1011	Park	lymphoma	23
LCCC1409	Pergolotti	CARE	67
			734