

Department of Epidemiology

University of Iowa College of Public Health



College of
Public Health

The facilities and resources available to faculty at the University of Iowa College of Public Health include rich and unique resources to facilitate extramurally funded research

The Cancer Epidemiology Program within the UI Holden Comprehensive Cancer Center is an intellectual and collaborative environment of cancer researchers and clinicians focused on cancer prevention and control



The Department of Epidemiology



Elizabeth Chrischilles, MS, PhD

Professor and Head Department of Epidemiology,
Pomerantz Chair in Public Health,
Director, Health Effectiveness Research Center

- ▶ An academic and public resource for assessment and improvement of human health
- ▶ Has maintained a multi-emphasis graduate degree program with faculty who have expertise in a variety of areas, with emphasis on those with public health importance to rural America
- ▶ The academic programs of the Department include:
 - ▶ MS, MPH or PhD in Epidemiology
 - ▶ MS in Clinical Epidemiology

The Department of Epidemiology Primary Faculty



Wei Bao, MD, PhD
Assistant Professor



Ryan Carnahan,
PharmD, MS, BCPP
Associate Professor
Director, Graduate
Studies



Mary Charlton, PhD
Associate Professor
Associate Director,
Iowa Cancer Registry



Maggie Choraży,
MPH, PhD
Clinical Associate
Professor
Director, Undergraduate
Programs



Anjali Deshpande,
PhD, MPH
Clinical Associate
Professor
Director,
MPH Program



Cara Hamann,
MPH, PhD
Clinical Assistant
Professor



Charles Lynch,
MD, MS, PhD
Professor and Medical
Director & PI of the
Iowa Cancer Registry



Aaron Miller, PhD
Assistant Professor



Michael O'Rourke,
PhD, BSc(Hons)
PGCHET (FHEA)
Assistant Professor



Michael Pentella,
PhD, D(ABMM)
Clinical Professor



Christine Petersen,
DVM, PhD
Professor
and Director,
Center for Emerging
Infectious Diseases



Jennifer Robinson,
MD, MPH
Professor and Director,
Preventive Intervention
Center



Paul Romitti, PhD
Professor



Kelli Ryckman, PhD
Associate Professor
and Director,
Iowa Perinatal
Health Research
Collaborative



Linda Snetselaar,
RD, PhD
Professor and Chair,
Preventive Nutrition
Education and Director,
Nutrition Center and
Associate Provost,
Outreach and Engagement

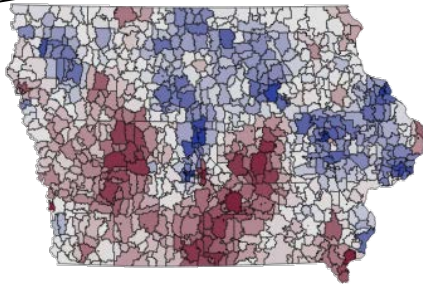
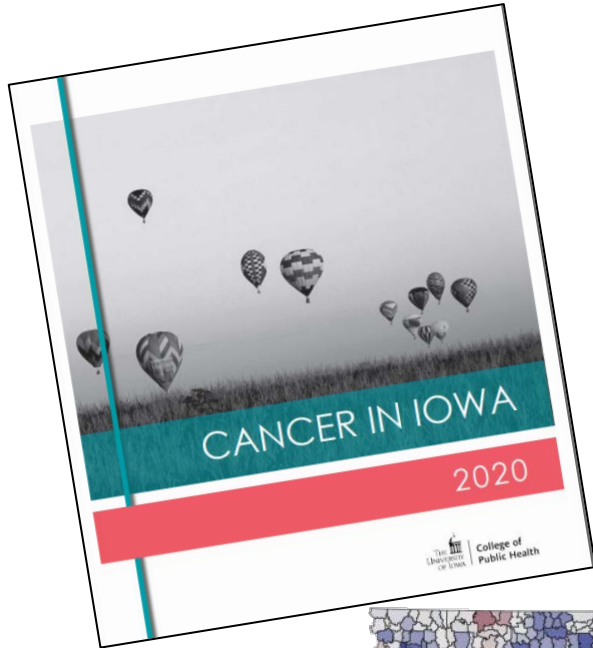


James Torner,
PhD, MS
Professor

The Department of Epidemiology Research Centers

- ▶ Center for Emerging Infectious Diseases: Focuses on research and training in emerging zoonotic infectious diseases
- ▶ Health Effectiveness Research Center: Focuses on comparing which health treatments and strategies work best and whether this varies by factors such as severity or number of health conditions
- ▶ Iowa Registry for Congenital and Inherited Disorders: Maintains statewide surveillance for collecting information on selected congenital and inherited disorders in Iowa
- ▶ Nutrition Center: Provides nutrition counseling and dietary assessment, and engages in projects designed to improve quality of life through chronic disease prevention
- ▶ Iowa Cancer Registry: A population-based cancer registry that has served the State of Iowa since 1973

Iowa Cancer Registry



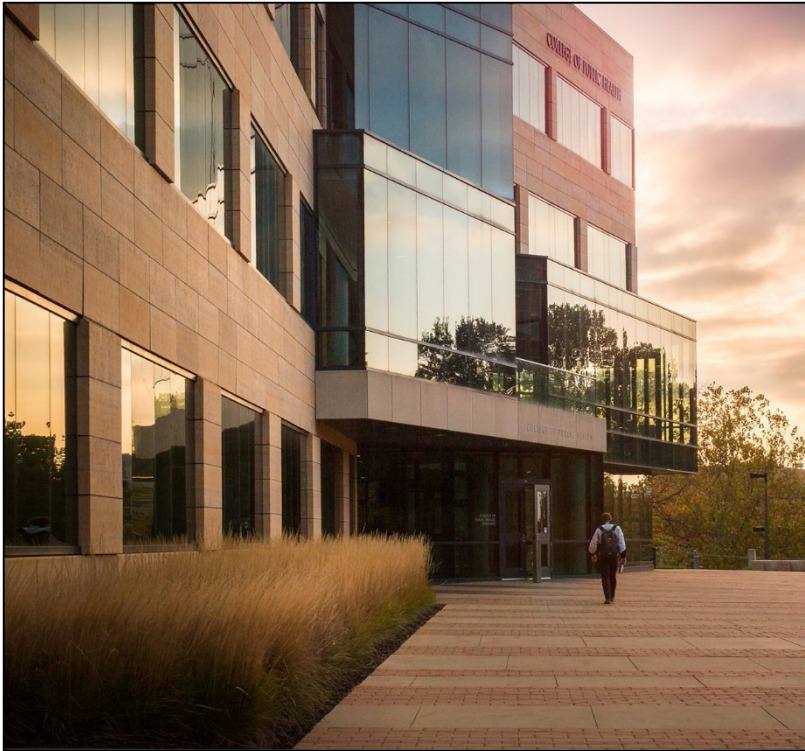
- ▶ A member of the National Cancer Institute (NCI) Surveillance, Epidemiology and End Results (SEER) Program since 1973
- ▶ The SEER Program's broad scope and rigorous standards make it the most authoritative source of cancer statistics in the U.S.
- ▶ Represents and provides data on the rural, agricultural, and Midwestern population
- ▶ This national and international resource provides a measure of progress toward cancer prevention and control and helps guide a vast array of research, prevention, diagnosis, treatment, and planning efforts
- ▶ The existence of the Registry within the Department of Epidemiology allows for the study of the cancer experience of Iowans and focuses national attention and research dollars on this issue
- ▶ Dedicated staff who regularly assist and participate in numerous ongoing studies that involve
 - ▶ Electronic linkages
 - ▶ Contact with physicians or patients
 - ▶ Medical record review
 - ▶ Tumor or non-tumor tissue acquisition

Iowa Residual Tissue Repository



- ▶ The College of American Pathologists recommends a minimum of 10 years for the retention requirement of paraffin tissue blocks
 - ▶ After that time has passed some labs destroy their tissue blocks
- ▶ The Registry works with pathology labs serving Iowans to preserve these blocks where cancer was involved, so they are not destroyed and can be made available to researchers
- ▶ These tissue blocks and their accompanying pathology reports compose the Residual Tissue Repository (RTR) and are stored at the Registry's offices at the University of Iowa
- ▶ Other tissue blocks, slides, and pathology reports can be requested by the Registry directly from their originating pathology labs, and these pathology materials make up the Virtual Tissue Repository (VTR)
- ▶ As of June 15, 2020, the Iowa RTR contained 573,246 tissue blocks representing 69,874 malignant tumors from 98,220 pathology reports for 66,581 cancer patients. The Iowa VTR contains tissue for an additional estimated 386,500 tumors (dx 1973-2018).
- ▶ These tissue blocks are paraffin-embedded and can be used for molecular, DNA, and RNA analyses
 - ▶ Can be linked to the demographic, tumor, first course therapy, and follow-up information
 - ▶ Creates a powerful resource that can be used for population-based analyses

The College of Public Health (CPH)



- ▶ Formed in 1999 and is the newest College on the University of Iowa campus
- ▶ Composed of 5 departments:
 - ▶ Biostatistics
 - ▶ Community and Behavioral Health
 - ▶ Epidemiology
 - ▶ Health Management and Policy
 - ▶ Occupational and Environmental Health
- ▶ 70 primary faculty and a strong infrastructure of research, technological, outreach, and facilities resources
- ▶ Housed in a new state-of-the art, Platinum LEED (Leadership in Energy and Environmental Design) building
- ▶ 3 Areas of Collective Excellence in interdisciplinary and collaborative research, teaching, and service:
 - ▶ Rural Health
 - ▶ Comparative Effectiveness Research
 - ▶ Community Engagement

The Holden Comprehensive Cancer Center (HCCC)



- ▶ Iowa's only NCI-designated comprehensive cancer center
 - ▶ Received designation in 2000 and a \$25 million gift from the Holden family of Williamsburg, IA
- ▶ Matrix Cancer Center that benefits from the broad base of research taking place at the University of Iowa
- ▶ Comprised of 170 Full/Associate members from 7 colleges and 36 departments who conduct cancer research, secure over \$30 million annually in direct costs for cancer research and related research training



Current HCCC shared research facilities include:

- Provides high quality epidemiology support that promotes strong observational study designs and data collection/curation methods

- Staff includes computer programmers, database analysts, and research scientists

Population Research Core



- Provides administrative services and data management to support clinical studies to answer specific scientific questions about new ways to prevent, diagnose, detect, and treat cancer

- Composed of dedicated staff with expertise in protocol management and study coordination

Cancer Clinical Research Services



- Provides statistical support for HCCC investigators in the design, analysis, and reporting of cancer research projects

Biostatistics Core



- Provides bioinformatics support for HCCC investigators in the design, data collection/archiving, and analysis of high-throughput genomics assays in cancer research projects

Molecular Epidemiology Resources Core



- Provides research infrastructure in the form of a well-characterized bank of frozen and routinely processed neoplastic and normal tissues suitable for molecular genetic, biochemical, and pathological studies

- Facilitates the use of Formalin Fixed, Paraffin Embedded (FFPE) tissue from UIHC archives or from the SEER repository

Tissue Procurement Core



- Central Microscopy Research Facilities
- Flow Cytometry Core
- Genomics Core
- High-Throughput Screening Core
- Imaging Core
- Radiation and Free Radical Research Core
- Viral Vector Core
- Proteomics Core

Other Cores



Cancer Epidemiology & Population Science

- Cancer etiology
- Cancer health services and outcomes
- Cancer prevention and control

Cancer Genes & Pathways

- Genome organization, regulation and cancer gene expression
- Cellular proliferation and survival and transformation
- Tumor Immunosurveillance

HCCC Research Programs

Experimental Therapeutics

- Therapeutic targets and lead discovery
- Novel drug delivery approaches
- Clinical therapeutics

Free Radical Metabolism & Imaging

- Free radical biology
- Redox-based therapeutics
- Patient outcome and molecular imaging
- Novel approaches to diagnostic imaging



HCCC Cancer Epidemiology and Population Science (CEPS) Program

- ▶ The program's goal is to increase our understanding of cancer etiology, morbidity, and mortality in order to develop interventions for decreasing cancer incidence and mortality rates and improving quality of life for cancer survivors. The CEPS program is divided into 3 major interactive research themes that serve as the specific aims for the program:
 - ▶ Cancer Etiology, Cancer Prevention and Control, and Cancer Health Services and Outcomes
- ▶ Research in each theme is highly collaborative and supports the overall mission of the program

Theme 1 Cancer Etiology

Studies exploring genetic and/or environmental and lifestyle factors at the population level that impact lymphoma, breast cancer, and solid organ transplant recipients and potential risk factors such as statins and PCBs

Theme 2 Cancer Prevention and Control

Research includes efforts focused on lung, prostate, and colorectal cancer screening, tobacco use and cessation, HPV vaccine uptake, and findings of the USPSTF

Theme 3 Cancer Health Services and Outcomes

Research involves breast cancer, lymphoma, head and neck cancer, sarcoma, and ovarian cancer as they relate to biobehavioral factors, patterns of care and treatment delivery, treatment decision making, prognostic factors, and rurality



HCCC CEPS Program

- ▶ Consists of 28 full members and 9 associate members from 17 departments across 5 University of Iowa colleges (additionally there are 29 affiliate members)
- ▶ CEPS members frequently perform research in more than one of the thematic areas and are highly collaborative
- ▶ From January through mid-November 2019, members have co-authored 111 cancer-related peer-reviewed publications

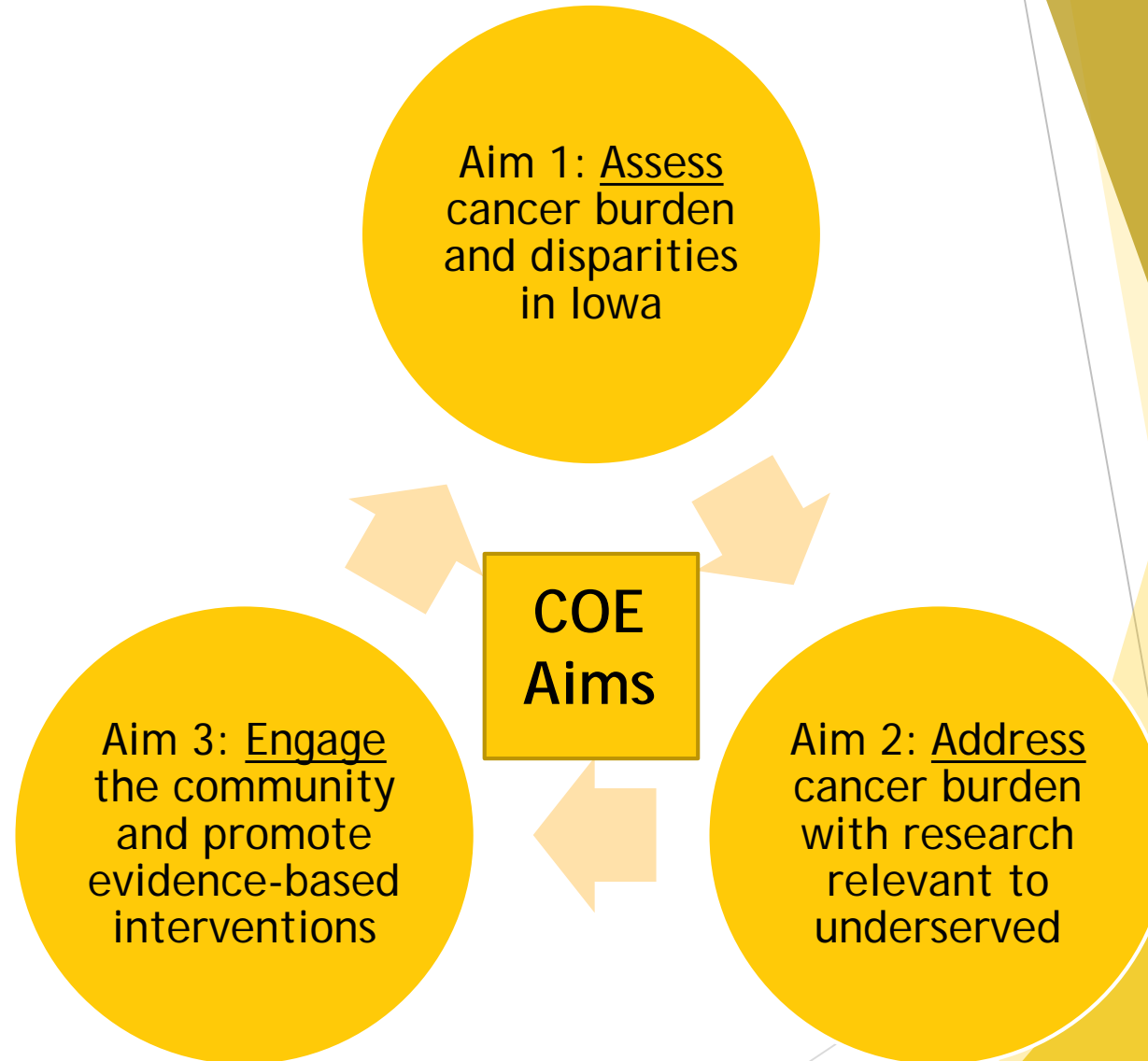
Selected Publications from Members:

- ▶ [Weeks, KS, Kahl, AR, Lynch, CF, Charlton, ME. Racial/ethnic differences in thyroid cancer incidence in the United States, 2007-2014. Cancer. 2018;124\(7\).](#)
- ▶ [Armer, JS, Clevenger, L, Davis, LZ, Cuneo, M, Thaker, PH, Goodheart, MJ, Bender, DP, Dahmouch, L, Sood, AK, Cole, SW, Slavich, GM, Lutgendorf, SK. Life stress as a risk factor for sustained anxiety and cortisol dysregulation during the first year of survivorship in ovarian cancer. Cancer. 2018;124\(16\).](#)
- ▶ [Leone, JP, Haraldsson, B, Mott, SL, McDowell, BD, Chrischilles, EA. Treatment Patterns and Survival of Elderly Patients With Breast Cancer Brain Metastases. American Journal of Clinical Oncology. 2019; 42\(1\).](#)
- ▶ [Lerro CC, Koutros S, Andreotti G, Sandler DP, Lynch CF, Louis LM, Blair A, Parks CG, Shrestha S, Lubin JH, Albert PS, Hofmann JN, Beane Freeman LE. Cancer incidence in the Agricultural Health Study after 20 years of follow-up. Cancer Causes and Control 2019 Apr;30\(4\):311-322.](#)
- ▶ [Sarkozy C, Maurer MJ, Link BK, Ghesquieres H, Nicolas E, Thompson CA, Traverse-Glehen A, Feldman AL, Allmer C, Slager SL, Ansell SM, Habermann TM, Bachy E, Cerhan JR, Salles G. Cause of Death in Follicular Lymphoma in the First Decade of the Rituximab Era: A Pooled Analysis of French and US Cohorts. Journal of Clinical Oncology. 2019 Jan 10;37\(2\):144-152](#)
- ▶ [D'Arcy ME, Coghil A, Lynch CF, Koch LA, Li J, Pawlish KS, Morris CR, Rao C, Engels EA. Survival after cancer diagnosis among solid organ transplant recipients in the United States. Cancer 2019 Mar 15;125:933-942.](#)

HCCC Community Outreach & Engagement: Specific Aims

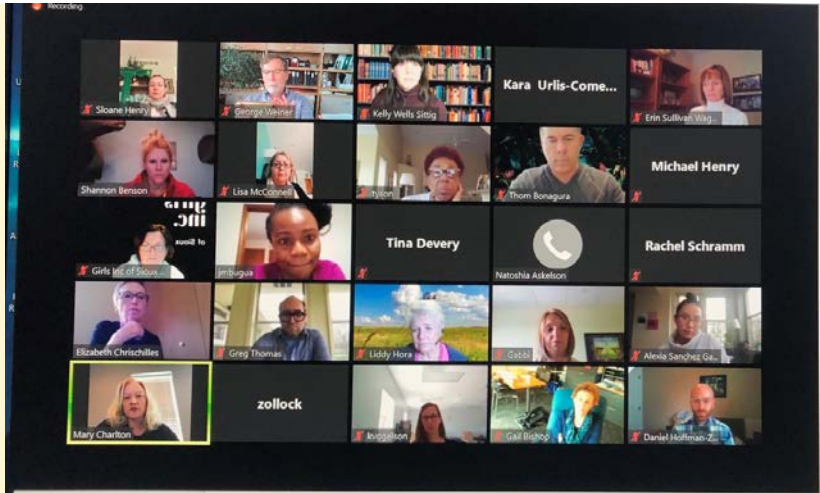
GOAL

Alleviate Iowans' cancer burden by activating researchers and the population in assessing and addressing community-aligned priorities



HCCC COE Leadership and Advisors

Community Advisory Board



George Weiner, MD
HCCC Director



Elizabeth
Chrischilles, PhD
Associate Director,
Pop Sci and COE



Sloane Henry,
Health
Educator



Brian
Gryzlak, MS
Program
Manager



Mary Charlton, PhD
Co-Leader,
Assessment
Research



Natoshia Askelson, PhD
Co-Leader,
Intervention Research



Kelly Sittig
Co-Leader,
Engaging
Populations



Amanda Kahl,
MPH
Data and
Surveillance



Brian Gryzlak, MS
Research Network
Engagement



Tessa Allred
Outreach Specialist



Rachel Schramm,
Outreach Specialist

Iowa Cancer Consortium



- ▶ Statewide coalition of over 400 health care providers, public health professionals, caregivers, researchers, cancer survivors, volunteers and advocates working together to reduce the burden of cancer in Iowa
- ▶ Since 2001, the Consortium has convened partners across Iowa to develop and implement the Iowa Cancer Plan, an evidence-based guide aimed at reducing the burden of cancer
- ▶ Provides grant funding and learning and networking opportunities to build capacity for cancer control work across the state
- ▶ Consortium staff members are trained and experienced in group facilitation and community outreach/engagement, and are frequent collaborators in UI cancer research projects

Cancer Prevention and Control Research Network (CPCRN) Collaborating Center



- ▶ Funded in September 2015; Dr. Natoshia Askelson, Assistant Professor in the UI College of Public Health, serves as the PI
- ▶ National network of academic, public health, and community partners who work together to reduce the burden of cancer, especially among those disproportionately affected
- ▶ Members conduct community-based participatory cancer research across eight institutions nationally, crossing academic affiliations and geographic boundaries
- ▶ Thematic research network of the Prevention Research Centers, which are the CDC's flagship program for prevention and control of chronic disease
- ▶ The CPCRN is funded by 2 federal agencies:
 - ▶ The Division of Cancer Prevention and Control of the CDC's National Center of Chronic Disease Prevention and Health Promotion
 - ▶ The Division of Cancer Control and Population Sciences of the National Cancer Institute
- ▶ Currently conducting work relevant to this project, such as the dissemination of findings from a national survey investigating the role of community-clinical linkages in increasing HPV vaccination rates



Environmental Health Sciences Research Center (EHSRC)



Environmental health resource for improving the health of rural residents

Research areas:

- ▶ Rural exposures
- ▶ Population health
- ▶ Susceptibilities
- ▶ Pathways of toxicity
- ▶ Disease and repair
- ▶ Translating research findings into public health practice and regulatory policy



Agricultural Health Study



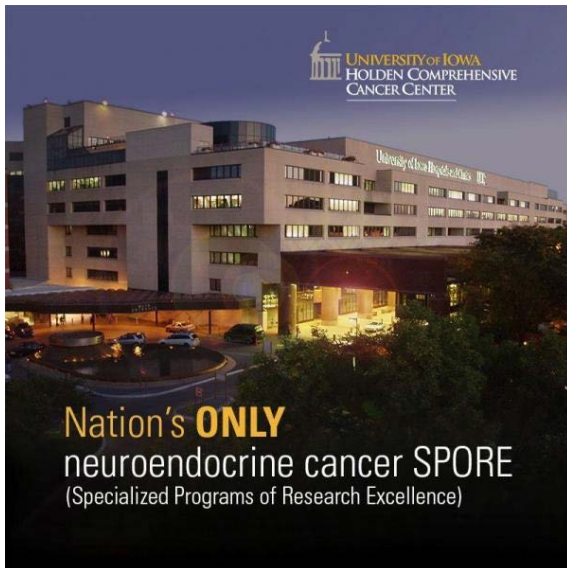
- ▶ The Agricultural Health Study is funded by the NCI and the National Institute of Environmental Health Sciences in collaboration with the US EPA and NIOSH
- ▶ More than 89,000 farmers and their spouses in Iowa and North Carolina have been involved in the AHS since 1993
- ▶ Their involvement has provided the data that researchers need to help the current and future generations of farmers, and their families, live healthier lives

Specialized Program of Research Excellence (SPORE)

Lymphoma SPORE

- ▶ The University of Iowa/Mayo Clinic (UI/MC) Lymphoma SPORE is a productive, translational research program that was first funded in 2002 and competitively renewed in 2007, 2012, and 2017
- ▶ Overall goal is to support innovative, interactive, translational research into lymphoma and chronic lymphocytic leukemia that leverages the expertise of laboratory, clinical, and population-based research at both institutions

<https://uihc.org/lymphoma-spore>



Neuroendocrine SPORE

- ▶ This is the first and only SPORE grant ever awarded to fund research on neuroendocrine tumors
- ▶ Goal is to understand the molecular biology of NETs so that it is possible to diagnose the cancers earlier and create new treatments

<https://uihc.org/neuroendocrine-spore-overview>

Molecular Epidemiology Resource (MER) Registries

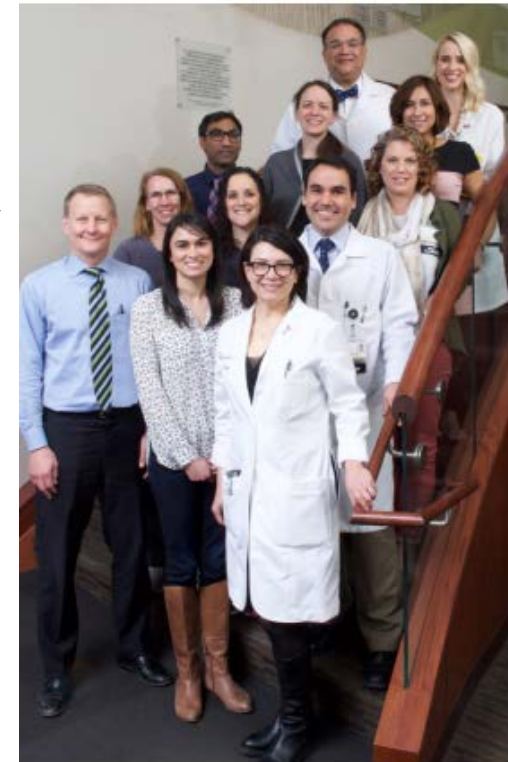
- ▶ Breast Example ▶
- ▶ Genito-Urologic Disorders
- ▶ Lymphoma
- ▶ Melanoma
- ▶ Multiple Myeloma & Related Disorders
- ▶ Pancreatic, Biliary & Gastrointestinal Disorders
- ▶ Sarcoma & Connective Tissue Disorders

The Breast Molecular Epidemiology Resource (BMER) currently collects:

- ▶ Tumor tissue, normal tissue, serum, plasma, peripheral blood (DNA), and buffy coat from patients who have a proliferative disorder of the breast or may be at risk for a breast disorder
- ▶ Information regarding the diagnosis, treatment, and follow up on these patients
- ▶ Quality of life of the patients treated by sending out surveys periodically
- ▶ Repository contains data and specimens on more than 1,200 patients



Molecular Epidemiologic Resource
Core Team



The Breast Care Team
Consists of Medical and Surgical Oncologists,
Radiologists, Radiation Oncologists, and
Nursing Professionals

The Roy J. and Lucille A. Carver College of Medicine

- ▶ Committed to the missions of educating students, caring for patients, and studying basic biological processes
- ▶ With 795 full-time faculty members, the College carries out its functions of education, research, and service
- ▶ Faculty bring fresh ideas, new techniques, and enthusiasm to the teaching of 680 medical students and over 300 residents, fellows, and graduate students in various training programs



University of Iowa Health Care



- ▶ Leading teaching hospital and regional referral center that attracts patients from across the state and the U.S.
- ▶ 7,400 health professionals annually care for 30,000 acutely ill children and adults
- ▶ 708 inpatient beds
- ▶ 880,000 clinic visits each year
- ▶ Long history of innovation and advancement
 - ▶ Pioneered the heart-lung machine
 - ▶ Performed the first horizontal gastroplasty surgery for morbid obesity
 - ▶ Implanted the first multi-channel cochlear implant in U.S.
 - ▶ Established the world's first bone marrow registry
 - ▶ Pioneered pediatric robotic surgery
 - ▶ Performed the world's first magnetically guided lung procedure using Stereotaxis.®
- ▶ U.S. News & World Report magazine consistently ranks UI Hospitals and Clinics among "America's Best Hospitals"
 - ▶ Otolaryngology and ophthalmology ranked in the top 10
 - ▶ 7 others—orthopedic surgery, cancer, neurology/neurosurgery, gynecology, kidney disease, urology, and digestive disorders—ranked in the top 50 for their respective categories
- ▶ "Best Doctors in America" database recognizes nearly 270 UI Physicians, nearly half of the over 500 individual Iowa physicians listed on the nationwide database

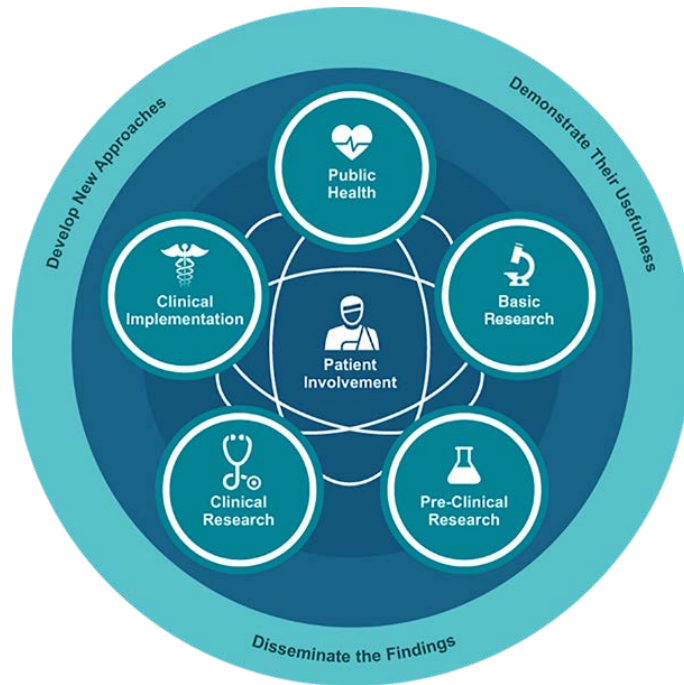
VA Health Care System



- ▶ Iowa City VA Healthcare System is located across the street from the University of Iowa Hospitals & Clinics
- ▶ Serves more than 184,000 veterans living in 50 counties in Eastern Iowa, Western Illinois, and Northern Missouri
- ▶ Houses a Veterans Rural Health Resource Center which strives to:
 - ▶ Improve care coordination for dual-use veterans, including those who use Community Care Programs
 - ▶ Use VA Telemedicine and Informatics tools to improve access to care
 - ▶ Develop innovative interdisciplinary treatment models to improve the quality and efficiency of care

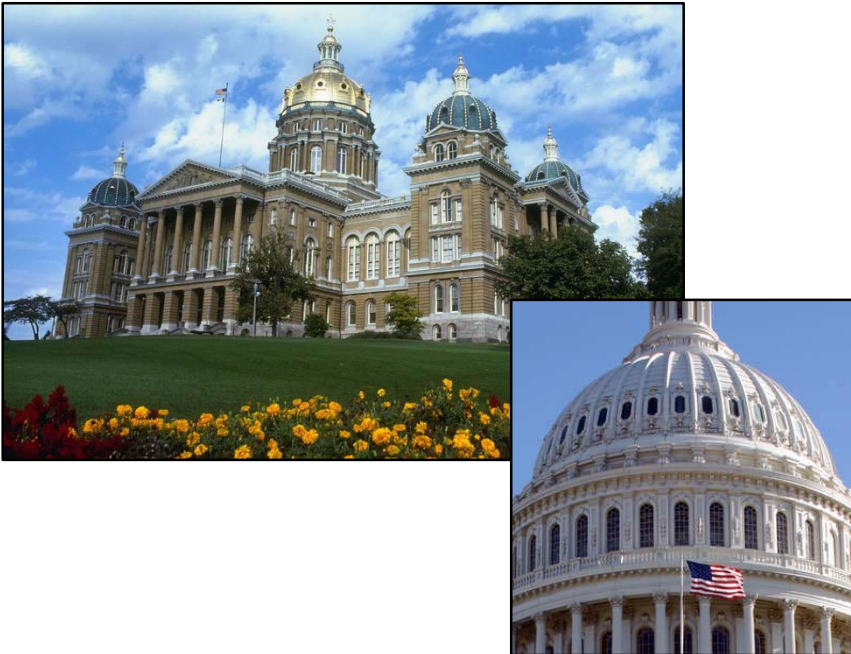
VETERANS RURAL HEALTH RESOURCE
CENTERS

Institute for Clinical and Translational Science



- ▶ ICTS is the epicenter of clinical and translational science at the University of Iowa and serves as the academic home for all CTSA funded clinical and translational science conducted here
- ▶ Provides an area of great opportunity and future growth for clinical and translational researchers
- ▶ Unique overarching academic structure provides a multidisciplinary matrix for facilitating and supporting clinical and translational science throughout the University's colleges as well as the University of Iowa Hospitals and Clinics

The RUPRI Center for Rural Health Policy Analysis



- ▶ One of the 10 national rural health research centers funded by the Federal Office of Rural Health Policy (FORHP)
- ▶ Conducts original research in the areas of access to health care services, Medicare policies, development of rural delivery systems, and public health
- ▶ Specific objectives include conducting original research and independent policy analysis that provides policy makers and others with a more complete understanding of the implications of health policy initiatives
- ▶ Hosts the one and only Rural Health Value program (<https://cph.uiowa.edu/ruralhealthvalue/>) funded by FORHP to provide technical assistance to rural communities, hospitals, and providers
- ▶ Through the Rural Health Value program, the Center
 - ▶ Conducts research on innovations and strategies in the organization, finance, and delivery of healthcare services in rural America
 - ▶ Assists rural communities, hospitals, providers transition to a high-performance rural health system
- ▶ Established collaborations with rural hospitals, quality improvement organizations (e.g., Iowa Healthcare Collaborative), and state offices of rural health within and beyond Iowa

Iowa City is known for:

- ▶ Packing a lot of cultural and recreational opportunities within its college-town charm
- ▶ Consistently being named one of the best places to live in U.S. by [national publications](#)
- ▶ Its focus on the arts, sciences and humanities:
 - ▶ Home of the prestigious Iowa Writers' Workshop
 - ▶ One of only 3 cities worldwide that is designated a UNESCO City of Literature by the United Nations
- ▶ Being among the top 10 most educated metro areas in the country
 - ▶ 45% of area residents over age 25 have completed 4+ years of college education
- ▶ Having 1,305 doctors per 100,000 people, the second highest physician-to-population ratio of any city in the U.S.

