

# 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  
Assistant Professor  
Associate Director,  
Iowa Cancer Registry



Maggie Chorazy, MPH, PhD  
Clinical Assistant Professor  
Director, Undergraduate  
Programs



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



Cara Hamann,  
MPH, PhD  
Associate



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



Aaron Miller, PhD  
Assistant Professor



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



Michael Pentella,  
PhD, D(ABMM)  
Clinical Professor



Christine Petersen,  
DVM, PhD  
Associate 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

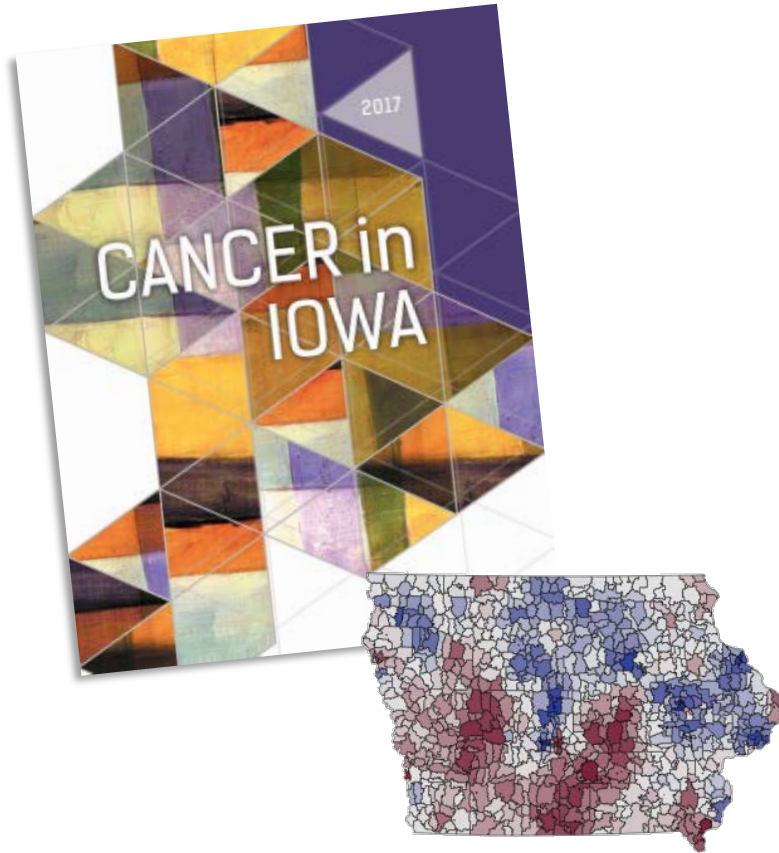


James Torner, PhD, MS  
Professor

## 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 January 15, 2019, the RTR contained 610,435 tissue blocks involving 102,202 pathology reports for 72,719 tumors (in situ or invasive) from 69,130 patients (majority were diagnosed between 1994 and 2007); the VTR contains tissue for an estimated additional 390,000 tumors
- ▶ 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
- ▶ 77 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
- ▶ Ranked #18 by U.S. News & World Report in Best Hospitals for Cancer
- ▶ Matrix Cancer Center that benefits from the broad base of research taking place at the University of Iowa
- ▶ Comprised of 206 Full/Associate members from 6 colleges and 39 departments who conduct cancer research, secure over \$40 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

- ▶ Program's goal is to conduct population-based research that improves our understanding of cancer etiology, morbidity, and mortality so that cancer incidence and mortality rates decrease and quality of life improves for the cancer survivor
- ▶ The CEPS program is divided into 3 major interactive research themes that serve as the specific aims for the program
  - ▶ Cancer Etiology, Cancer Health Services and Outcomes, and Cancer Prevention and Control
- ▶ Research in each theme is highly collaborative and supports the overall mission of the program

## Theme 1 Cancer Etiology

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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 Health Services and Outcomes

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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

## Theme 3 Cancer Prevention and Control

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



## HCCC CEPS Program

- ▶ Consists of 27 full members (additionally 18 associate members and 16 affiliate members) from 26 departments across 6 University of Iowa colleges
- ▶ CEPS members frequently perform research in more than one of the thematic areas and are highly collaborative
- ▶ From January through mid-November 2018, members have co-authored 89 cancer-related peer-reviewed publications

### Selected Publications from Members:

- ▶ [Grossman, DC, Curry, SJ, Owens, D et al. Screening for Ovarian Cancer: US Preventive Services Task Force Recommendation Statement. JAMA. 2018;319\(6\).](#)
- ▶ [Weeks, KS, Kahl, AR, Lynch, CF, Charlton, ME. Racial/ethnic differences in thyroid cancer incidence in the United States, 2007-2014. Cancer. 2018;124\(7\).](#)
- ▶ [Reiner, AS, Sisti, J, John, EM, Lynch, CF, et al. Breast Cancer Family History and Contralateral Breast Cancer Risk in Young Women: An Update From the Women's Environmental Cancer and Radiation Epidemiology Study. Journal of Clinical Oncology. 2018;36\(15\).](#)
- ▶ [Armer, JS, Clevenger, L, Davis, LZ, Cuneo, M, Thaker, PH, Goodheart, MJ, Bender, DP, Dahmouh, 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\(16\).](#)
- ▶ [Katz, D. A., Stewart, KR, Paez, M, Vander Weg, MW et al. Development of a Discrete Choice Experiment \(DCE\) Questionnaire to Understand Veterans' Preferences for Tobacco Treatment in Primary Care. The Patient. 2018; 11\(6\).](#)
- ▶ [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\(1\).](#)

## 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



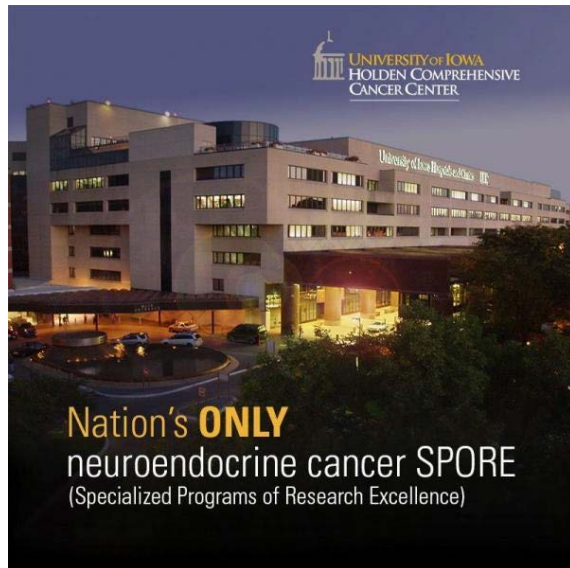
- ▶ The Agricultural Health Study is funded by the NCI and the National Institute of Environmental Health Sciences in collaboration with the US EPA and NIOSH
- ▶ More than 89,000 farmers and their spouses in Iowa and North Carolina have been involved in the AHS since 1993
- ▶ Their involvement has provided 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

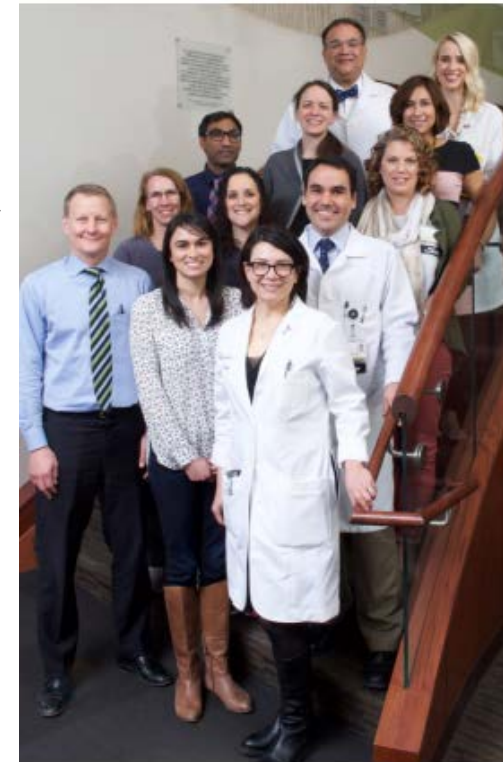
- ▶ Breast Example ▶
- ▶ Genito-Urologic Disorders
- ▶ Lymphoma
- ▶ Melanoma
- ▶ Multiple Myeloma & Related Disorders
- ▶ Pancreatic, Biliary & Gastrointestinal Disorders
- ▶ Sarcoma & Connective Tissue Disorders

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

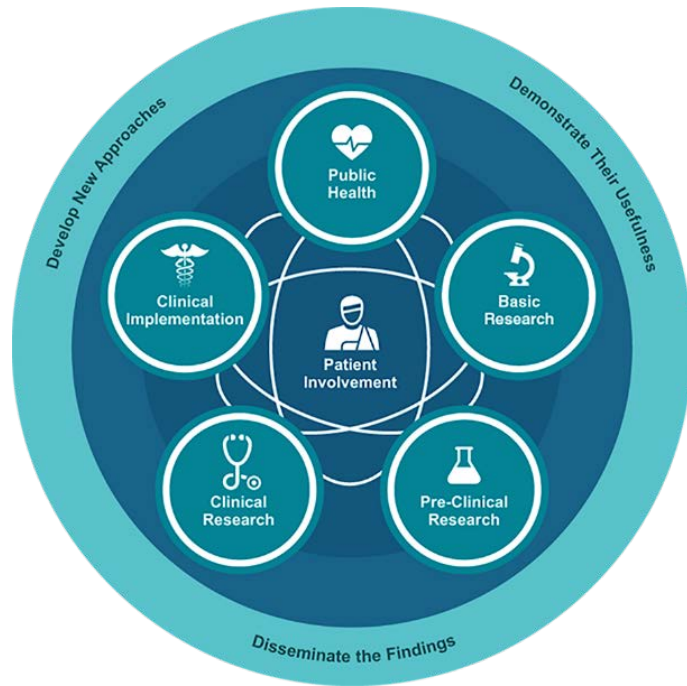
# VA Health Care System



- ▶ 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

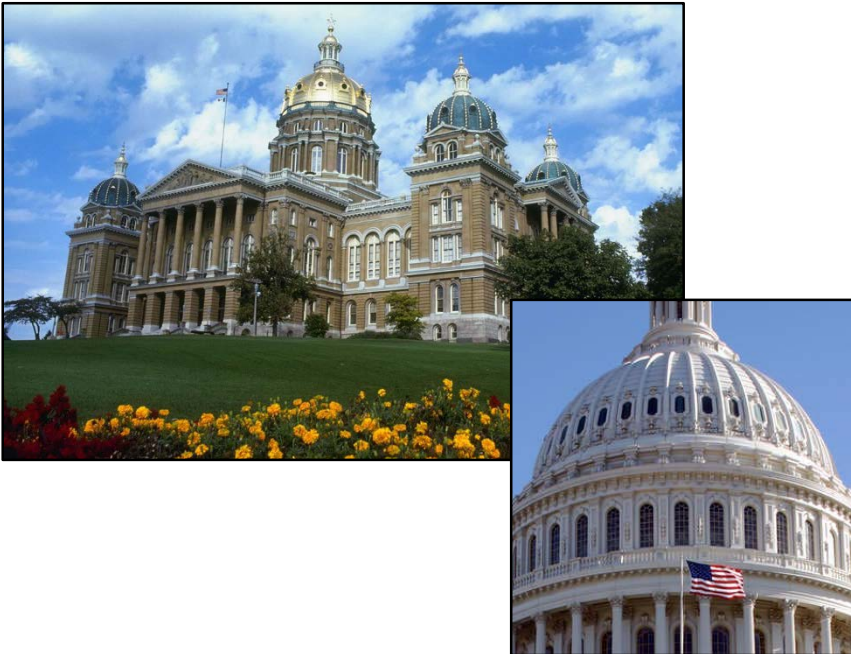
VETERANS RURAL HEALTH RESOURCE CENTERS

# 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.

