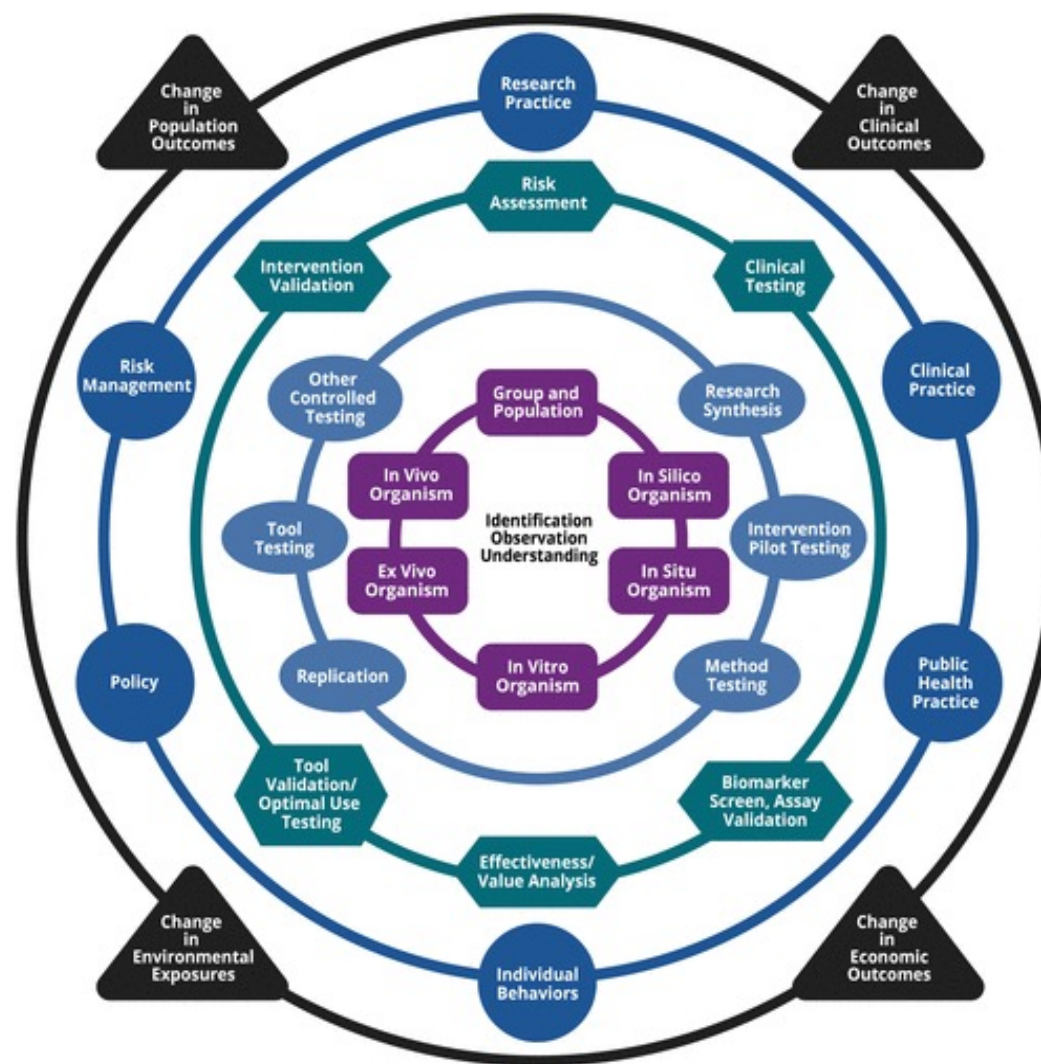


Integrative Health Sciences Facility (IHSF) Core



The National Institute of Environmental Health Sciences (NIEHS) introduces a new translational



EHP July 2018



Director - Clinical:
Alejandro Comellas, MD (alejandro-comellas@uiowa.edu)

EHSRC website: <https://cph.uiowa.edu/ehsrc/>



Associate Director - Imaging: Eric A. Hoffman, PhD

Members:

- Kai Wang, PhD
- Justin Kuhn, RRT-NPS/ACCS
- Kimberly Sprenger, RN
- Gary Pierce, PhD



IHSF



Aims:

- Facilitate translational findings bi-directionally along the spectrum from basic and/or clinical research to the applied or public health arenas
- To encourage, support and enhance clinical and translational studies relevant to environmental health science

IHSF

Components

- Research participant recruitment
- Lung physiology
- Imaging Component (Dr. Eric Hoffman).
- Biologic Sampling
- Vascular Health
- Ecological momentary assessment and health-symptom sampling for environmental health researchers.

IHSF



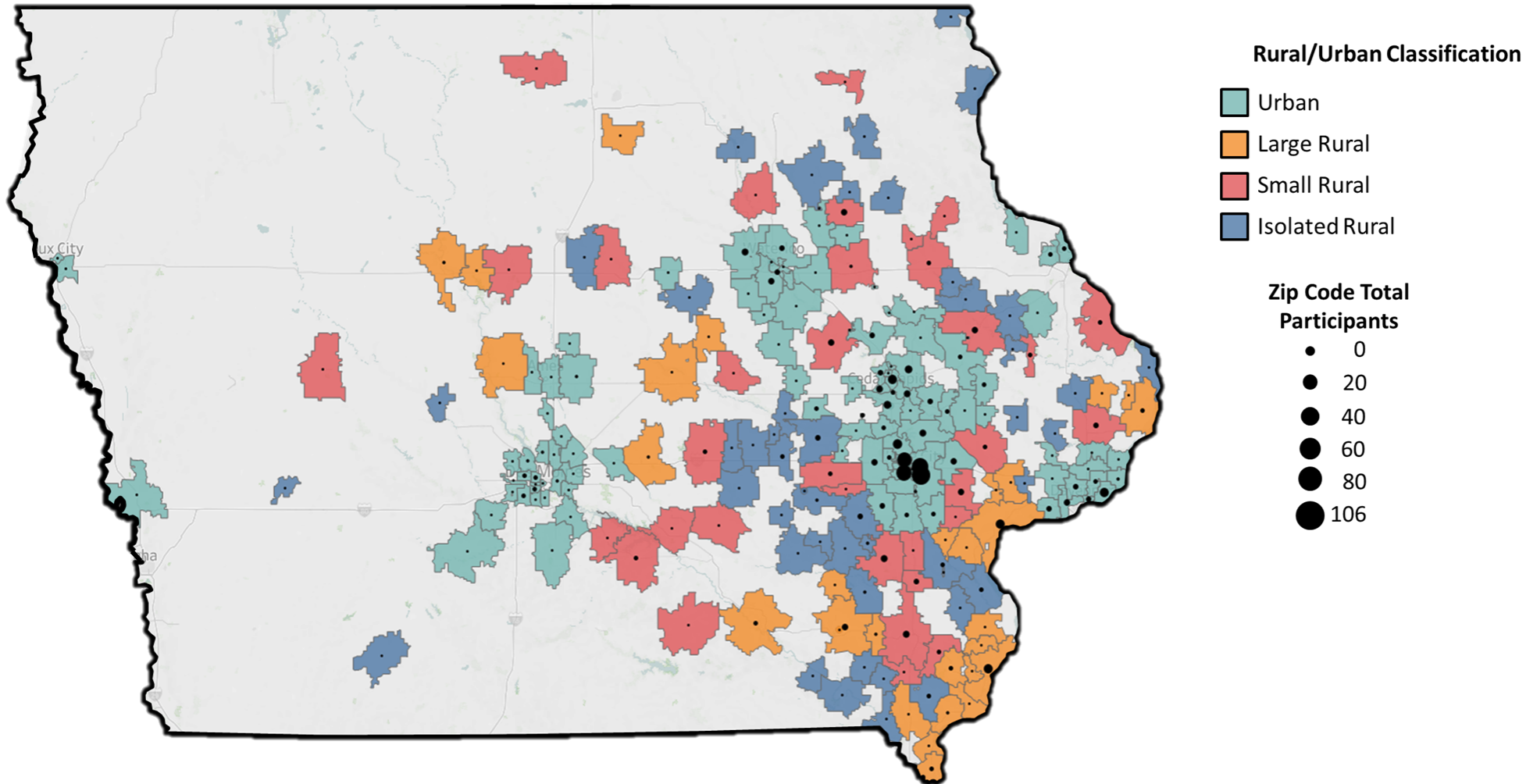
- IHSF is currently supporting several clinical projects that are determining the lung structural changes in subjects with Chronic Obstructive Pulmonary Disease (COPD), such as:
 - Phase-3 NIH funded COPDGene: One of the largest studies (10,000 participants ever to investigate the underlying genetic factors of COPD
 - SPIROMICS: (3000 participants) SubPopulations and InteRmediate Outcome Measures In COPD Study (SPIROMICS) supports the prospective collection and analysis of phenotypic, biomarker, genetic, genomic, and clinical data from subjects with COPD for the purpose of identifying subpopulations and intermediate outcome measures

IHSF

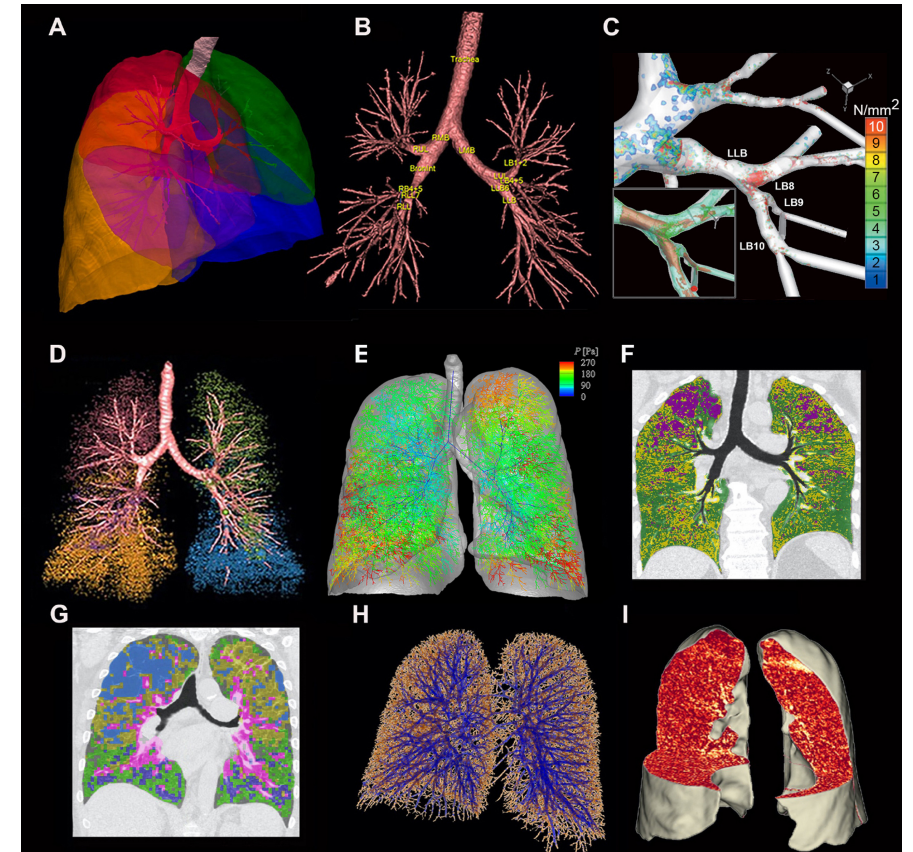


- Source: (700 participants) looks for early signs of lung changes in younger smokers to better understand the first stages of COPD
- Lung Health Study: (4000 participants) overarching objective of the ALA-LHC is to establish a national cohort of young adults for the purpose of defining lung health and developing targets to intercept chronic lung disease at its earliest stages
- University of Iowa Post-COVID cohort: > 600 participants are part of the UI registry

Statewide COPDGENE Recruitment by Zip Code and Rural/Urban Classification



Lung physiology and imaging



Hoffman EA. Br J Radiol. 2022 PMCID: PMC9153696.

Imaging Technologies



Dual Energy CT



Micro CT



Polarized Gas MRI

IHSF

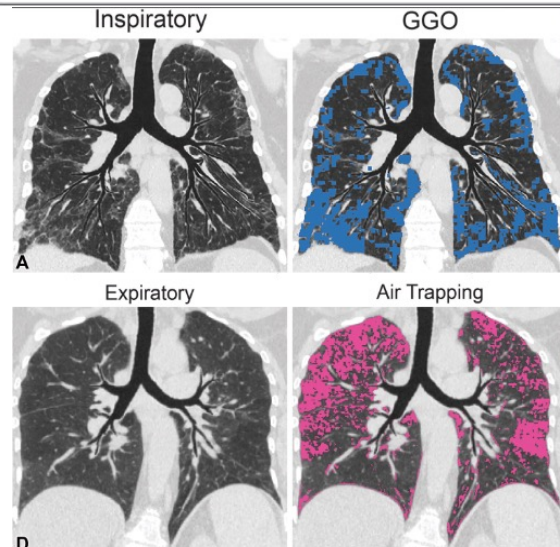
- The IHSF has supported several translational research projects as well as an international project



Radiology

ORIGINAL RESEARCH • THORACIC IMAGING

Quantitative Chest CT Assessment of Small Airways Disease in Post-Acute SARS-CoV-2 Infection



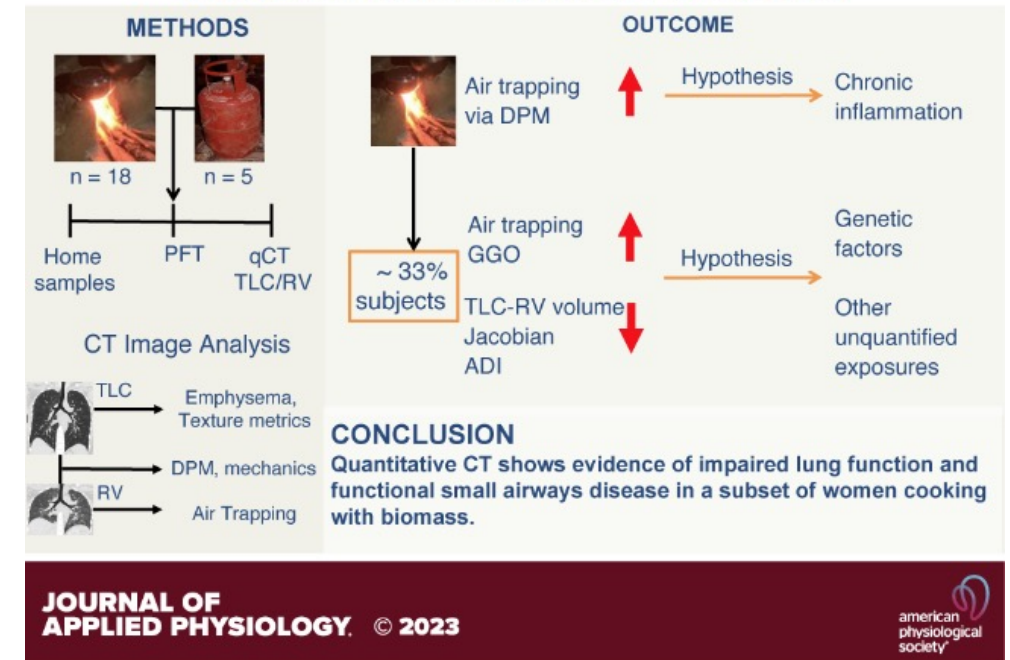
Metrics

Downloaded 18,885 times

Altmetric Score



Imaging Based Assessment of Lung Function in a Population Cooking Indoors with Biomass Fuel – A Pilot Study



Clinical Research Unit



Inpatient and outpatient

20,000 sq ft

- 16 examination rooms
- 6 consultation rooms
- 3 procedure room
- 7-bed infusion suite
- A conference room & work stations

Specific facilities for

- Pediatric, oncology, bariatric, and neuroscience studies
- metabolic research kitchen and dining facility
- Pulmonary function, vascular physiology, and body composition labs
- Inherited Neuropathies Consortium weekly clinic



Clinical Research Unit



- Provide unique resources to:
 - Enable high quality clinical research
 - Support the recruitment of new faculty interested in clinical research
 - Support the career development of early-stage clinical and translational investigators
- Promote interactions between basic and clinical research faculty and the translation of laboratory discoveries to humans.

Clinical Research Unit



- 100 new protocols annually; >200 protocols currently open
- Investigators from UI College of Medicine, Public Health, Pharmacy, Nursing, Dentistry, Liberal Arts, Law, Engineering, Education, and Business
- Sponsors include NIH, Veterans Affairs, Foundations, Pharmaceutical/Device Industry, and Internal funds.

2021-2022 (CC & RC)



CC Personnel		39
Clinical Research Manager	1	
Nurse Clin. Trial Research Specialist	3	
Nurse Clin. Trial Research Associate	3	
Clin. Research Associate	13	
Clin. Trials Research Assistant	14	
Admin Service Coordinator	1	
Students	4	
Financial Analyst	1	

RC Personnel		6
Clin. Regulatory Manager	1	
Clin Trials Regulatory Research Associate	2	
Clin. Trials Regulatory Research Assistant	3	

Regulatory Core



6 Regulatory Coordinators assist with regulatory submissions (IRB submissions, clinicaltrials.gov submissions and reporting, IND/IDE consultation and submission, protocol development, sIRB grant submissions, NIH NCATS Human Subjects submissions)



This core also assists with NIH required completion and documentation for animal, genetic, human subject approvals which has improved efficiency of NIH approval for CTSA sponsored pilots and trainee projects.



They lead a training program for new coordinators

CTMS initiatives



- Single solution across the enterprise
- Integrates with Epic, IRB, financial systems (Possibly ICART?)
- Reduces duplication of effort/entry
- Financial consistency
- Regulatory consistency (centralized, more efficient)
- Efficiencies – CVs, re-useable forms, e-sigs
- Provides streamlined management and regulatory oversight of multi-site trials

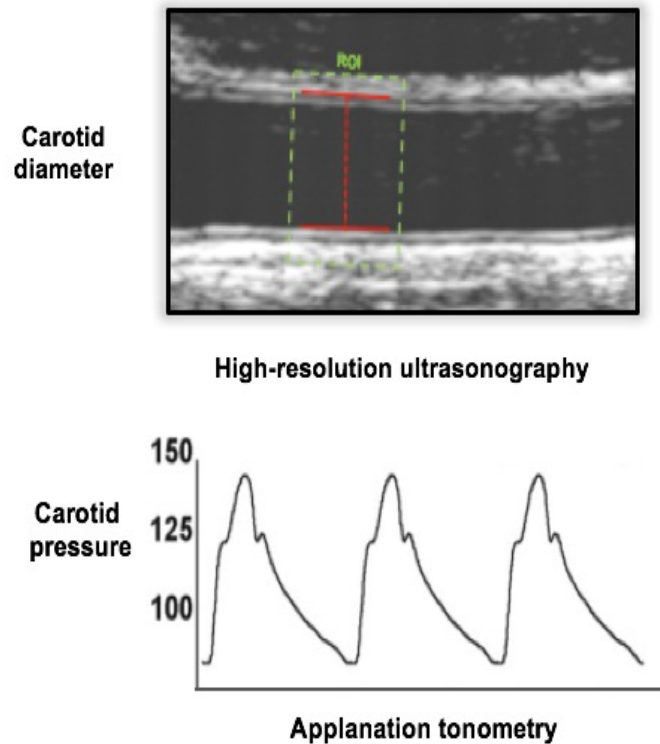
Vascular Health

- Vascular aging
- Endothelial function
- Arterial stiffness
- Central blood pressure
- Exercise physiology
- Oxidative stress and Inflammation

Vascular Health

Carotid artery stiffness

Acquire changes in carotid diameter and pressure for each cardiac cycle (for 15 sec)



Brachial artery flow-mediated dilation (FMD)



Normal FMD%: 8-12%
Abnormal FMD%: 0-4%

FMD expressed
as relative
change ($\% \Delta$)
and absolute
change ($\text{mm} \Delta$)

