


## Center of Excellence for Exposure Health Informatics

### Founding Members

#### University of Utah

	<p><b>Scott Collingwood</b> <i>Assistant Professor, Pediatrics</i> ✉: Scott.Collingwood@hsc.utah.edu</p>	<p>Scott Collingwood, PhD joined the Department of Pediatrics in 2009 in the capacity of Director, Environmental Monitoring for the University's National Children's Study (NCS) sites and as Assistant Professor. Today, Dr. Collingwood manages operational aspects, research and data collection associated with the NCS at both Salt Lake County and Cache County study sites. In the past two years, Dr. Collingwood has secured additional funding amounting to \$2.15M from NIH for formative research aimed at informing the NCS.</p> <p>Dr. Collingwood received his undergraduate degree in Industrial Engineering from the University of Iowa and worked in business and industry for a decade before returning to earn a PhD in Occupational &amp; Environmental Health. His research and scholarly activities began in earnest at the University of Utah in 2005 when he joined the faculty at the Rocky Mountain Center for Occupational &amp; Environmental Health (DFPM)—a graduate training and research program. His research focuses on novel methods of exposure monitoring—specifically using direct reading instrumentation to provide accurate and real-time exposure estimates for airborne contaminants. In professional service, Dr. Collingwood is active nationally and locally serving in leadership and officer roles for the American Industrial Hygiene Association.</p>



**Mollie Cummins**

*Professor, Nursing & Biomedical  
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PhD Program*

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Mollie R. Cummins, PhD, RN, FAAN, FACMI is an Associate Professor of Nursing and Associate Dean for Research and PhD Program at the University of Utah College of Nursing, Adjunct Associate Professor of Biomedical Informatics at the University of Utah School of Medicine, and Presidential Scholar. She holds a PhD in nursing science and information science from Indiana University. In 2007, she studied methods of complexity science including agent-based modeling and network analysis at the Santa Fe Institute. Prior to her career in informatics, she practiced as an emergency nurse and family nurse practitioner. She has made numerous scholarly contributions in informatics, particularly in the areas of poison control informatics, health information exchange and applied data science. Dr. Cummins chairs the Board of Scientific Counselors of the Lister Hill National Center for Biomedical Communications, the intramural research division of the National Library of Medicine. She is a former President of the Utah Nursing Informatics Network and former elected member of the national steering committee of the Alliance for Nursing Informatics. At University of Utah, she's led a series of studies related to informatics applications in poison control, and she is currently leading an AHRQ funded study to develop and evaluate a health information exchange process for emergency departments and poison control centers (AHRQR01HS021472). She is also heavily engaged in clinical research informatics; she serves as a biomedical informatics lead for the University of Utah Center for Clinical and Translational Science (NCATS UL1TR001067). As a co-investigator for the Utah PRISMS Center (NIBIB U54EB021973), she is contributing to the development of a research informatics platform that enables the integration of air quality sensors into studies of pediatric asthma. She has authored numerous articles, book chapters, scientific papers, and abstracts, and previously served as a journal editor.



**Julio Facelli**  
*Professor and Vice Chair,  
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Julio Facelli, PhD, FACMI, was born in Buenos Aires, Argentina and attended the University of Buenos Aires where he got his Ph.D in physics in 1982. In 1993 he did post-doctoral research at the University of Arizona and the following year he joined the University of Utah. At the University of Utah he was the Director of the Center for High Performance Computing from 1995 to 2013 and he is currently, Professor and Vice Chair of the Department of Biomedical Informatics, Associate Director for Biomedical Informatics, Center for Clinical and Translational Science, Adjunct Professor of Chemistry and Physics and member of the Utah Nano Science Institutes. He has extensive expertise in computational sciences, parallel and distributed computing and advance network applications. Dr. Facelli is co-author of more than 220 international per review publications and his research has been funded by NSF, NIH and DOE.



**Ram Gouripeddi**  
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Ram Gouripeddi, MBBS, MS, earned his MS from Arizona State University (2009) and his medical degree from MGR Medical University, India. He is an Assistant Professor in the University of Utah's Department of Biomedical Informatics. He has broad interests in clinical and translational research informatics. He participates in research in which investigators attempt to understand the requirements of the clinical research community and develop the means and tools to enable, accelerate and scale clinical research. In particular, these are in the use of informatics methods for comparative effectiveness research and health-services research; machine learning and data mining for knowledge discovery and personalized medicine; biomedical data modeling; biomedical terminologies and ontologies. Of late he work has particularly focused in developing informatics methods for exposure science and developing the new field of exposome informatics. He is also interested in reproducibility of researcher and using informatics for achieving it.



**John Horel**  
*Professor and Chair, Atmospheric  
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John Horel, PhD is a professor and chair of the Department of Atmospheric Science. His research is centered on the observation and analysis of weather and climate processes in mountainous regions. His current research activities include further development of MesoWest and ROMAN (see <http://mesowest.utah.edu>), which provide access to surface weather observations for operational, research, and educational applications. MesoWest also provides a foundation from which to conduct research to improve data assimilation techniques over complex terrain and evaluate the cost effectiveness of surface observing networks. He also am involved in research related to the Great Salt Lake, Utah regional climate issues, and cold-air pools associated with poor air quality.




**Sneha Kasera**  
*Professor, Computer Science,  
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Sneha Kumar Kasera, PhD is the Associate Dean for Academic Affairs in the College of Engineering and a Professor in the School of Computing at the University of Utah in Salt Lake City. From 1999-2003, he was a member of technical staff in the Mobile Networking Research Department of Bell Laboratories. Earlier, he received a PhD in Computer Science from the University of Massachusetts Amherst, and a Master's degree in Electrical Communication Engineering from the Indian Institute of Science Bangalore. Dr. Kasera's research interests include computer networks and systems encompassing network security, privacy, and reliability, mobile and pervasive systems and wireless networks, Internet of things, crowdsourcing, dynamic spectrum access, network resource management, measurements, and modeling, and social network applications. He is a recipient of the 2002 Bell Labs President's Gold Award for his contribution to wireless data research. He has chaired the technical program committees of ACM WiSec in 2017, ACM MobiCom in 2015, and the IEEE ICNP and IEEE SECON conferences in 2011. He has served as a member of many technical program committees including those of ACM MobiCom, ACM Sigmetrics, and IEEE Infocom, among many others. He has also served on the editorial boards of the IEEE Transactions on Mobile Computing, IEEE/ACM Transactions on Networking, ACM MC2R, ACM/Springer WINET,



		<p>and Elsevier COMNET journals. Prof. Kasera started and has been leading the Advanced Networked Systems Research Lab at the University of Utah since 2003. His research has been funded by several NSF, DoD, DoE, and NIH grants and has led to publications in the top venues including all of the conferences and journals mentioned above. His research on overload control methods, performed while at Bell Labs, has been deployed in Lucent network products.</p>
	<p><b>Kerry Kelly</b> <i>Assistant Professor, Chemical Engineering</i> ✉: <a href="mailto:kerry.kelly@utah.edu">kerry.kelly@utah.edu</a></p>	<p>Kerry Kelly, PE, PhD, is an Assistant Professor in Chemical Engineering at the University of Utah. Her research focuses on the links between energy, air quality and human health. She received her B.S. in Chemical Engineering from Purdue University, a M.S. in Environmental Engineering from the University of North Carolina-Chapel Hill, and her PhD in Environmental Engineering from the University of Utah. Her research is motivated by local and regional air-quality challenges. Dr. Kelly served 8 years on Utah's Air Quality Board, and currently serves on Utah's Air Quality Policy Board. Her research includes projects to develop the next-generation of low-cost particulate matter sensors, to develop real-time estimates of particulate matter concentration and uncertainty, and to help engage high-school and middle-school students as citizen scientists. She was recently awarded theUCAIR person of the year by the governor for her work. Her work is funded by NSF and NIH.</p>



**Hanseup Kim**  
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Hanseup Kim, PhD is currently an USTAR Associate Professor in Electrical and Computer Engineering, the Director of the Utah Nanofabrication Facility, and an Academic Senate at the University of Utah. He is a co-founder and CTO for two start-up companies, Solefire LLC and Afflo Sensors LLC, in Salt Lake City. He received his BS degree in Electrical Engineering from Seoul National University in 1997, and his MS and Ph.D. degrees in Electrical Engineering from the University of Michigan in 2002 and 2006, respectively. Between 2006 and 2009, he held a post-doctoral research fellow position at the Center for Wireless Integrated MicroSystems (WIMS) in the University of Michigan working on a micro-scale gas chromatography system for environmental monitoring system. His present research at the University of Utah focuses on the development of integrated micro sensors, actuators and systems for health care and environmental monitoring research including physical/chemical sensors in implantable/wearable forms, miniature low-noise high-performance actuators and in-vitro animal models.



Prof. Kim is a recipient of both the prestigious National Awards: NSF CAREER Award in 2012 and the DARPA Young Faculty Award in 2011. He received some Best Paper Awards from academic research communities, such as Design Automation Conference (DAC) 2001 and Commercialization of Micro/Nano Systems Conference (COMS) 2008 and 2015. He also received a Rotary Club Ambassador Scholarship in 1999. He is an author of over 100 journal and conference publication, 3 book chapters and 7 published and pending patents.



**Flory Nkoy**  
*Professor, Pediatrics,*  
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Flory Nkoy, MD, MS, MPH, is an Associate Research Professor at the University of Utah, Department of Pediatrics and an Adjunct Associate Professor in the Department of Biomedical Informatics. He also serves as the Research Director for the Division of Pediatric Inpatient Medicine. His research interest focuses on the care of patients with asthma. In addition to clinical medicine, Dr. Nkoy's background includes training in public health, biomedical informatics and quality improvement with an emphasis on implementation and dissemination research. His work utilizes these skills to pioneer new approaches to improve long-term asthma care and reduce the risks for asthma exacerbations. Over the past 5 years, Dr. Nkoy has been the Principal Investigator of three large research grants, two R18 grants from the Agency of Healthcare Research and Quality (AHRQ) and one grant from the patient centered outcomes research institute (PCORI). The first grant (\$892,000.00 in total costs) provides resources to study the process by which organizational and other contextual factors in health care delivery environments influence implementation of evidence-based care in routine clinical practice. This grant has also served the basis to develop and implement the AsthmaTracker, an innovative, patient-centered tool designed to change the way asthma care is delivered from the current intermittent acute care model to proactive management through ongoing patient self-monitoring of chronic asthma symptoms to prevent the risk of asthma exacerbations. The goal of the second grant (\$1,195,058.00 in total costs) is to implement and evaluate the impact of the e-AsthmaTracker, a web-based decision support tool designed to enhance patient's engagement in asthma self-monitoring and respond appropriately to early signs of asthma exacerbations. This web-based tool will also allow identification of patient specific patterns of changes (cyclical improvements and deteriorations) in asthma control status over time. The third grant was awarded by PCORI to disseminate the e-AsthmaTracker at multiple primary care clinics, evaluate the impact on asthma outcomes, and identify critical factors associated with sustained patient engagement in asthma self-management. Dr. Nkoy plans to correlate longitudinal asthma symptom information generated from the e-AsthmaTracker with cyclical spikes in environmental triggers and define a novel way



		<p>to individualize asthma care where treatment decisions are tailored to patients' specific needs and individual environmental susceptibility. He is a reviewer for a number of medical journals and an ad hoc reviewer for the NIH "Implementation and Dissemination Research" study section, and the "AHRQ Healthcare Information Technology Research" study section. Dr. Nkoy has also been a grant reviewer for various study sections, including the AHRQ/HITR, NIH/NHLBI R18, NIH/NINR, and NIH/NHLBI-ZHL1 CSR-H</p>
	<p><b>Cheryl Pirozzi</b> <i>Associate Professor, Internal Medicine (Pulmonology)</i> ✉: Cheryl.Pirozzi@hsc.utah.edu</p>	<p>Cheryl Pirozzi, MD, MS has primary research interests in effects of air pollution on pulmonary diseases and chronic obstructive pulmonary disease (COPD). She has been a Principal Investigator in studies investigating effects of air pollution exposure on individuals with COPD, pneumonia, sarcoidosis, and idiopathic pulmonary fibrosis. She has been a Co-Investigator in SPIROMICS, a multicenter prospective COPD cohort study, including involvement in multiple sub studies, and serve as the site PI for the SPIROMICS Air Pollution sub-study. Cheryl has led translational studies assessing impact of particulate and ozone air pollution on symptoms, pulmonary function and measures of inflammation and oxidative stress in exhaled breath condensate in individuals with COPD.</p>
	<p><b>Christopher Reilly</b> <i>Associate Professor, Pharmacology and Toxicology</i> ✉: Chris.Reilly@pharm.utah.edu</p>	<p>Christopher Reilly, PhD has three main areas of research: TRP ion channels in lung physiology and disease, mechanistic studies of drug metabolizing enzymes, and biological applications of mass spectrometry. He is particularly interested in gene x environment and gene x environment x drug interactions in conditions such as asthma, COPD, emphysema, fibrosis, and acute lung injury/ARDS. He has led multiple studies and currently is Principal Investigator for an R01 from the National Institute of Environmental Health Sciences (NIEHS) to determine how different components of polluted air adversely affect the human respiratory system.</p>





**Catherine Staes**  
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Catherine J. Staes, PhD, MPH, RN, FACMI is currently the Director of the Nursing Informatics Specialty at the University of Utah's College of Nursing. Prior to taking this position in August 2018, she was on the faculty of the University of Utah's Department of Biomedical Informatics for 11 years leading efforts in the area of population and public health informatics.

Her expertise involves systems analysis, decision support, and standards to improve communication between public health and clinical entities, assisting clinicians and laboratories in making decisions that meet public health goals. This involves understanding the current processes for communicating public health guidelines and reporting requirements and designing systems and knowledge that can be implemented in the clinical setting. Dr. Staes' focus also includes developing and delivering curriculum about public health informatics, clinical decision support, and standards and terminology for graduate informatics students and the public health workforce.

Prior to joining the Biomedical Informatics Department in 2006, Dr. Staes worked primarily in epidemiology but has other healthcare experience as well. As a clinical nurse, she worked in a variety of areas including pediatric intensive care, infectious disease/oncology (AIDS), and in rural public health clinics with the U.S. Public Health Service (1981 to 1986). As an epidemiologist (1988 to 2000), Dr. Staes worked for the Centers for Disease Control (CDC), the North Carolina State Department of Health, and the Salt Lake Valley Health Department, where she worked in communicable disease control, lead poisoning prevention, and surveillance of injuries. She honed her public health research skills as an Epidemic Intelligence Service (EIS) Officer at the CDC. After earning her PhD, she worked as a knowledge engineer for Theradoc, a decision-support vendor.

Dr. Staes is an Associate Editor of JAMIAOpen and is on the editorial board of JAMIA. As an EIS Officer at the CDC, she earned the Alexander D. Langmuir Prize.



**Katherine Sward**

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Katherine Sward, PhD, RN, FAAN, is an Associate Professor with tenure in the College of Nursing, and Adjunct Associate Professor in the Department of Biomedical Informatics, at the University of Utah. She has extensive experience in clinical nursing, clinical and translational research, and biomedical informatics. She has a national reputation in informatics methods, team science, and interprofessional research and participate on scientific review committees. She served as Principal or Co-Investigator on multiple NIH extramural awards. Currently, Katherine leads, with Dr. Julio Facelli, the NIBIB funded PRISMS Informatics Platform – Federated Integration Architecture center (U54EB021973), part of a national initiative to examine the effects of the environment on health. This interprofessional team crosses multiple health science, basic science, and translational departments to develop a standards-based informatics platform that is intended to support studies that integrate environmental, physiological, and behavioral factors including high-resolution data measured through stationary and wearable sensors, person-reported information, and clinical observations. The project utilizes a user-centered design approach, working with families and researchers to design how they would like to view and visualize information from technologies and considering how they may alter their behavior based on that information. Katherine is deeply familiar with informatics methods, processes, tools, workflows, and artifacts to support complex and multi-center trials, reflected by my role as Co-Investigator for the Utah Trial Innovation Center (U24TR001597; PI Dean) and for the Utah Data Coordinating Center (U01HD049934; PI Dean). In those roles, she leads efforts for data harmonization, information management, and informatics. Katherine has extensive teaching and curriculum development experience. She mentored more than 50 graduate students and faculty; and consulted with numerous faculty across departments on course design and teaching issues. Her expertise has contributed to diverse clinical arenas.



**Brigham Young University**



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Philip Lundrigan, PhD is an Assistant Professor at Brigham Young University (BYU) in the Electrical and Computer Engineering department. He recently received his PhD in Computer Science from the University of Utah. Philip received a BS in Computer Engineering at BYU in 2012. His research focuses on mobile networks, Internet of Things, wireless network management, and building real systems that enhance and extend wireless networks.