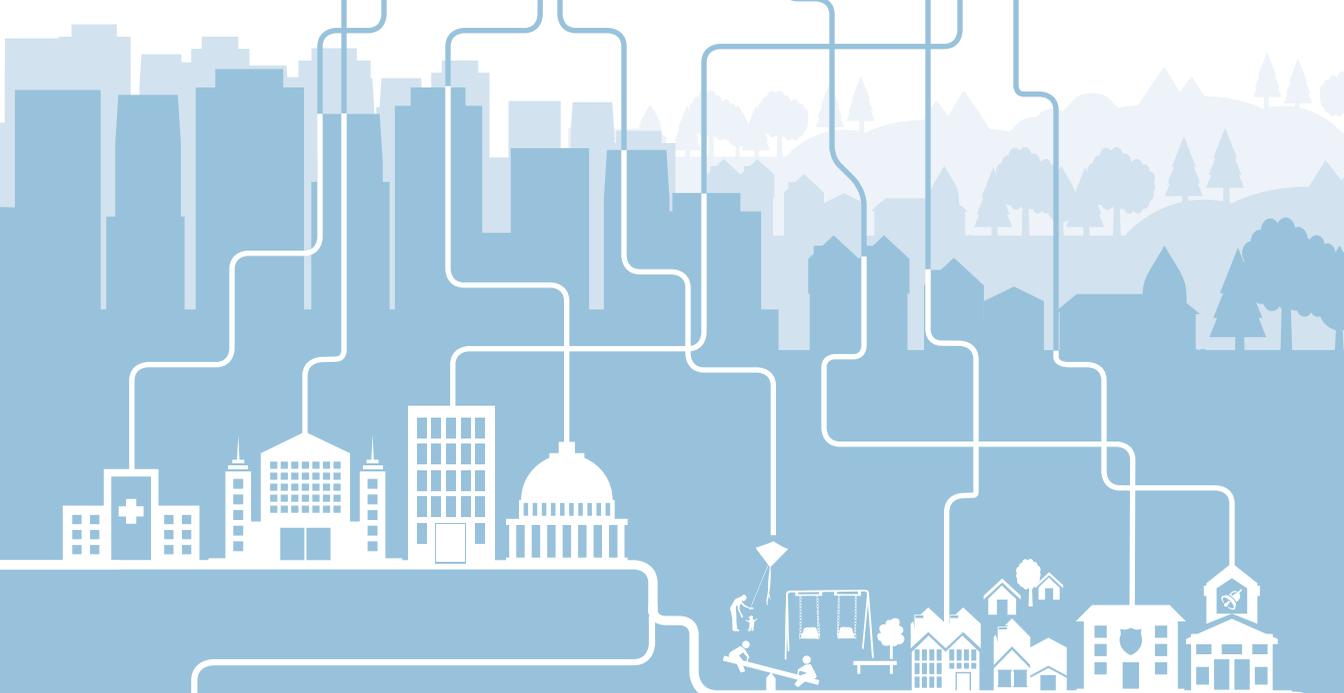
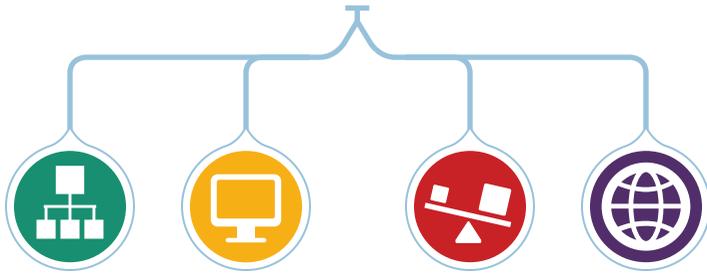




Institute for Child Health Policy

2016 PROGRESS REPORT





INSTITUTE FOR CHILD HEALTH POLICY

2016 PROGRESS REPORT



Letter from the Director

This past year, the Institute for Child Health Policy has experienced tremendous forward momentum — capitalizing on new academic strengths and synergies to gain increased statewide and national prominence in pursuit of its mission to improve children's health.

With funding from the NIH and the Patient-Centered Outcomes Research Institute, ICHP researchers are leading new initiatives that set the national agenda for child health research. In addition, we are conducting vital research designed to improve the health of populations using big data. These highlights provide only a sampling of the pivotal research our faculty are engaged in here at the University of Florida. I invite you to peruse this report to learn more about how we are seeking to improve children's health via comparative effectiveness, implementation science, biomedical informatics and population health research.

The institute has grown and changed much over the past year, including the addition of 11 new faculty members. In the face of this growth and change, our commitment to rigorous science and our mission has only strengthened.

Sincerely,

Betsy Shenkman
Director, Institute for Child Health Policy



OUR MISSION:

IMPROVING CHILDREN'S HEALTH

OUR METHODS

Implementation Science

Scientists examine how to integrate research findings into health care settings, practices and policies on small and large scales.

Biomedical Informatics

Researchers study information at the intersection of computer science, biology and health.



Population Health

Researchers explore the health of entire groups of people and identify patterns of sickness and health.

Comparative Effectiveness Research

Scientists compare programs, policies and treatments to see which ones provide the most benefit to particular groups of people.

REPORT CONTENTS

NEW FACES, NEW PLACES	
Think Big p5	   
Keeping Kids Healthy for Life p7	   
Unprecedented Momentum p7	   
IMPROVING HEALTH CARE DELIVERY	
Moving the Needle p9	   
National Leaders p10	   
Promoting Quality and Access p10	   
Diabetes Disparities p11	  
LEVERAGING BIG DATA	
Powerful Partners p13	   
Getting it Right p14	   
Big Data, Best Fit p14	 
Tracking Florida's NICU Rates p15	 
ADVANCING HEALTH RESEARCH	
Addressing Youth Alcohol Use p17	   
Calculating Risks p18	   
Breathing Easier p18	   
Setting the National Agenda p19	   
HELPING THE MOST VULNERABLE	
Preterm Birth Hotspots p21	  
Behind at Birth? p22	  
A Matter of Fat p22	 
2016 PROGRESS REPORT	
Institute Leadership p23	   
By the Numbers p24	   
Get Involved p25	   

Throughout the progress report, researchers affiliated with the Institute for Child Health Policy will have their names bolded.



THINK BIG

Leveraging Big Data for the Gator Good

Brought to UF through its Preeminence Initiative last year, **William Hogan**, M.D., M.S., director of biomedical informatics, has assembled a multidisciplinary team of biomedical informaticians to collaborate on improving health outcomes for children and adults in Florida and nationwide.



Jiang Bian, Ph.D., is looking for ways to analyze and model social media platforms and to leverage their power to improve access to quality health information online.



To reduce disparities, **Amanda Hicks**, Ph.D., is developing ways to capture and represent gender identities in health care to ensure adequate representation of gender minorities in medical data and research.



François Modave, Ph.D., has established an mHealth lab to build evidence-based mobile apps for health and fitness. Last year, he found that many iPhone fitness apps fell short of national guidelines for physical activity.



William Hogan, M.D., M.S., has enabled researchers statewide to conduct health care research using de-identified health records through the OneFlorida Data Trust and is leading a national Zika-focused surveillance initiative.





KEEPING KIDS HEALTHY FOR LIFE

New associate director works to improve children's health outcomes across the lifespan

Matthew Gurka, Ph.D., joined the Institute for Child Health Policy in November 2015 as its new associate director through UF's Preeminence Initiative, which aims to address some of the world's most pressing issues and increase UF's prominence nationally and internationally. Gurka, who also serves as an affiliate faculty member of the Anita Zucker Center for Excellence in Early Childhood Studies, was recruited for his expertise in biostatistical approaches to address important health issues, particularly in early childhood, one focus area of UF Preeminence.

Gurka came to UF from West Virginia University, where he served as the founding chair of the department of biostatistics and director of the clinical research design, epidemiology and biostatistics core of the West Virginia Clinical & Translational Science Institute. He brings crucial expertise in statistical design and lifespan health research to ICHP.

Working closely with ICHP Director **Betsy Shenkman**, Ph.D., and Assistant Director of Clinical Research **Lindsay Thompson**, M.D., M.S., Gurka is leading the institute's strategic planning efforts and hopes to expand the institute's presence, grow its affiliate program and remove barriers to conducting children's health research at UF. Read more about Gurka's research endeavors on page 18. 

UNPRECEDENTED MOMENTUM

New faculty bring fresh perspectives, new directions in research

The Institute for Child Health Policy experienced a year of remarkable growth as 11 new faculty members — including two preeminence professors — joined our ranks. The new faculty represent a range of expertise in children's health, such as biomedical informatics, obesity, spatial analysis, and cancer control and prevention.

Matthew Gurka, Ph.D., Professor and ICHP Associate Director

Bill Hogan, M.D., M.S., Director of Biomedical Informatics

François Modave, Ph.D., Associate Professor

Jiang Bian, Ph.D., Assistant Professor

Michelle Cardel, Ph.D., R.D., Assistant Professor

Chris Delcher, Ph.D., Assistant Professor

Amanda Hicks, Ph.D., Assistant Professor

Dominick Lemas, Ph.D., Assistant Professor

Ramzi Salloum, Ph.D., Assistant Professor

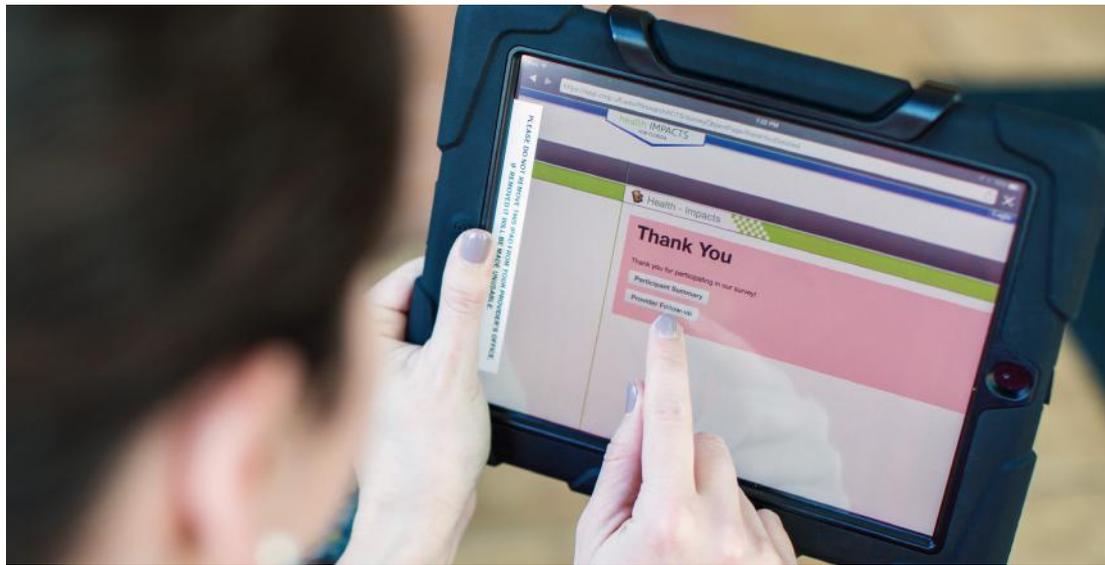
Jaclyn Hall, Ph.D., Assistant Research Scientist

Tanja Laschober, Ph.D., Assistant Research Scientist



IMPROVING HEALTH CARE DELIVERY





MOVING THE NEEDLE

ICHP researchers find innovative ways to increase HPV vaccine rates

Less than half of American youths receive the HPV vaccine, even though it has been proven to prevent several types of cancer. Using an innovative system that is integrated into clinics, a team of ICHP researchers led by **Stephanie Staras**, Ph.D., has increased the odds of adolescents starting the vaccine series by 140 percent among girls and 60 percent among boys. The researchers not only identified key factors that influence how likely parents are to start the vaccination series, they also implemented a multipronged approach that included mailings and new technology in primary care clinics. The findings, published in the *Journal of Adolescent Health*, could shape how providers approach HPV vaccination in their clinics and help prevent up to 17,500 new cancer cases per year.

In addition to sending postcards about the vaccine to parents of adolescents, the researchers facilitated provider recommendations of the vaccine at selected primary care practices via an electronic survey during check-in. This Health Information Technology, or HIT, system generates automatic feedback for clinic staff to easily recognize and target interested patients for vaccination.

Staras will continue her research on the HIT system and HPV vaccines with a two-year developmental grant from the National Cancer Institute. 🏢 📧 🌐

📖 **RESEARCHERS:** Staras SAS, Vadaparampil ST, Livingston MD, Thompson LA, Sanders AH, Shenkman EA, Gurka M, Hogan W, Muszynski M

NATIONAL LEADERS

ICHP expertise leveraged to evaluate children's quality of care and health outcomes in Florida and Texas Medicaid programs

Collaborating with two of the nation's largest states — Florida and Texas — ICHP researchers have the unique opportunity to work with health care enrollment, claims and encounter data to evaluate the quality and outcomes of care for low-income, vulnerable children in these states' Medicaid programs.

ICHP's analysis provides Florida and Texas with state-of-the-art, data-driven profiles of the quality of health care provided by Medicaid managed care plans. These profiles offer a sound analytic basis for tailoring interventions and quality improvement projects to enhance the quality of care for children in these states.



📖 **RESEARCHERS:** Shenkman EA, Vogel B, Maldonado-Molina MM, Muller K, Theis R, Ranka D, Bright M, Walker AF, Morris H, Delcher C, Hall J, Laschober T

PROMOTING QUALITY AND ACCESS

Identifying measures and barriers to ensure children receive high-quality dental care

In two different studies, ICHP faculty aim to improve oral health care for children. First, ICHP faculty are working with the Dental Quality Alliance to test two standards for measuring the quality of care children receive following untreated tooth decay. In addition, a research team including an ICHP faculty member uncovered two new factors that keep dentists from accepting pediatric patients on Medicaid: perceived social stigma and a lack of specialists who accept Medicaid for referrals. Validating these measures and finding ways to remove these barriers could improve dental care for low-income children nationwide. 🏢 📺 🌐



📖 **RESEARCHERS:** Guo Y, Shenkman EA, Catalanotto F, Logan HL, Marks J, Dharamsi S



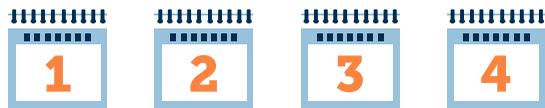
DIABETES DISPARITIES

An ICHP and UF Diabetes Institute research team discovers health disparities among low-income children with diabetes

Why is low socioeconomic status associated with poor health outcomes for children and adolescents with Type 1 diabetes? A team led by ICHP researcher **Ashby Walker**, Ph.D., examined three factors: routine endocrinology visits, geographic access to pediatric endocrinologists and social supports.

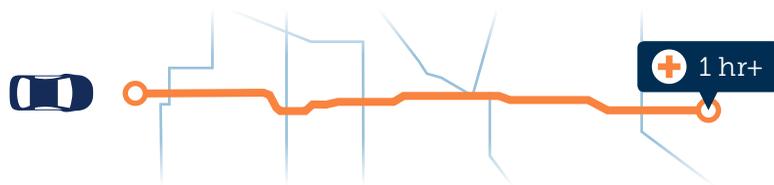
ONLY 27 PERCENT

of publicly insured children with Type 1 diabetes met the recommended four routine visits to endocrinologists per year.



Hispanic children had the highest rates of visits; non-Hispanic black children had the lowest.

For children in rural Florida, the average driving time to an endocrinologist is one hour or more.



In a separate study, Walker found vast disparities in diabetes coping activities, such as extracurricular and leisure activities, between affluent and non-affluent youths.



More research is needed to understand and address these barriers for low-income children.



RESEARCHERS: Walker AF, Shenkman EA, Bell R, Shuster J, Morris H, Haller M, Sun Y, Hall J, Johnson C, Silverstein JH, Rohrs HJ, Schatz D



LEVERAGING BIG DATA



POWERFUL PARTNERS

ICHP scientists team up with state and national research networks to facilitate child health research

Leveraging the power of big data and statewide and national research networks, ICHP researchers are poised to address some of the nation's most pressing pediatric health problems.

With the guidance of statewide leaders, including ICHP Director **Betsy Shenkman**, Ph.D., and **William Hogan**, M.D., director of biomedical informatics at UF, the OneFlorida Clinical Research Consortium and its research database, the OneFlorida Data Trust, have coalesced into cutting-edge resources for child health investigators.

As of April 2016, the OneFlorida Data Trust contained de-identified health data from more than 3.5 million children, which will facilitate pediatric observational research and cohort discovery statewide. The Data Trust will allow researchers nationwide to tap into a previously unavailable bank of de-identified electronic health records from health care systems across Florida.

Nationally, the OneFlorida Clinical Research Consortium became one of only 13 clinical data research networks within the national Patient-Centered Clinical Research Network, or PCORnet. This network will enable researchers nationwide to conduct clinical trials more quickly and less expensively than was previously possible and will ensure that research focuses on outcomes that are most important to patients. Learn more about the incredible wealth of data available to researchers through the OneFlorida Data Trust below or at onefloridaconsortium.org.



6,531,625 PATIENTS



129,462,028 ENCOUNTERS



247,509,332 DIAGNOSES

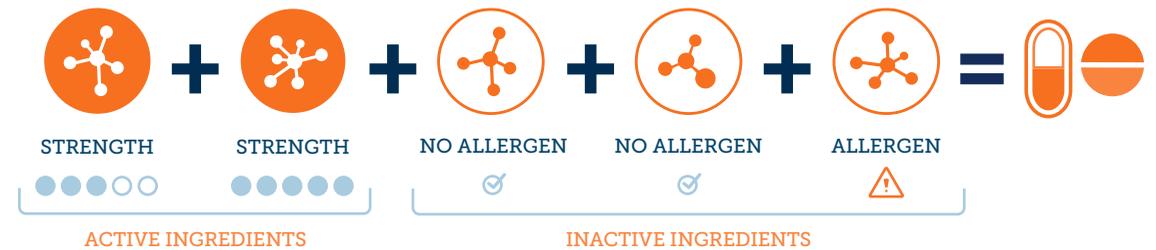


RESEARCHERS: Shenkman EA, Hogan W, Nelson D, Forrest C, Smith S, Robinson T, Muszynski M, McCafferty J, Evans C, Roh M, Carek P, Brickman A, Jayaweera D, Carrasquillo O, Kobetz E, van Vessem N, Hurt M, Ramirez G, Watson D, Cardel M, Gurka M, Salloum R, Staras SAS, Lemas D, Bian J, Modave F, Hogan W

GETTING IT RIGHT

Refining a pharmaceutical database to include drug strengths and inactive ingredients

ICHP researchers updated the pharmaceutical database they constructed while at the University of Arkansas, called Drug Ontology or "DrOn," to include vital information on the strengths of various active ingredients in drugs and information about inactive ingredients, or excipients, which can affect drug efficacy and cause allergic reactions in patients. These updates were in response to researchers utilizing the database for comparing the effectiveness of various drug therapies using case studies, or comparative effectiveness research. Check out the database at ontology.atlassian.net/wiki/display/DRON.



RESEARCHERS: Hanna J, Bian J, Hogan W, Hicks A

BIG DATA, BEST FIT

ICHP researcher and national collaborators define best frameworks for processing large data sets

While reliance on big data for research is increasing, robust tools for analysis are still being developed. A team of researchers, including ICHP faculty member **Jiang Bian**, Ph.D., compared several frameworks for processing complex and large-scale datasets that are organized according to their structural relationships, also known as "graph structured."

Specifically, the researchers examined existing frameworks that run graph-parallel algorithms, including Giraph, GPS and GraphLab (PowerGraph). While all three performed poorly on scalability, PowerGraph consistently exhibited better performance.

RESEARCHERS: Zhao Y, Yoshigoe K, Xie M, Zhou S, Seker R, Bian J



TRACKING FLORIDA'S NICU RATES

ICHP researchers map trends among state's most vulnerable newborns

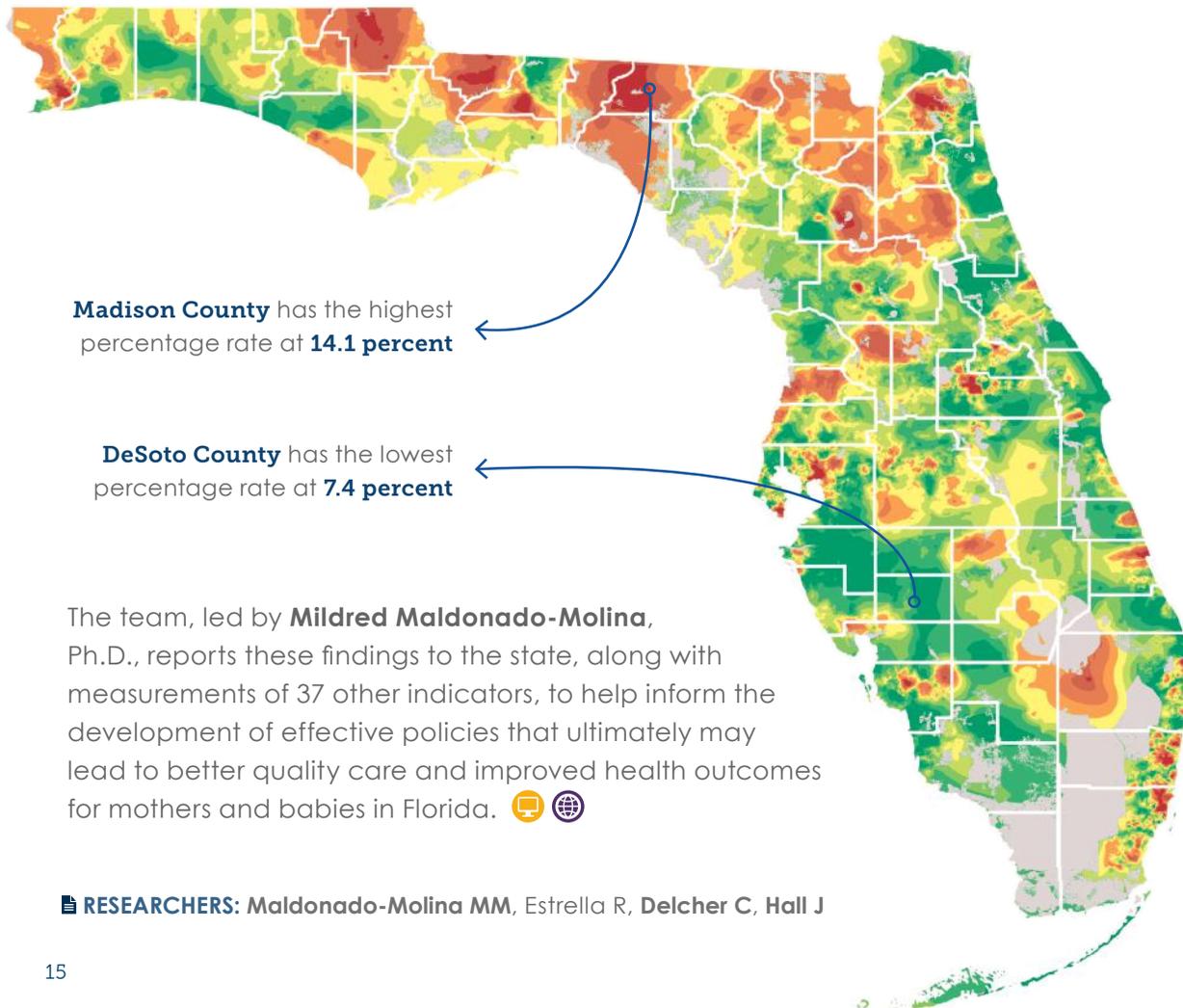
ICHP researchers examined hospital records and birth certificates for more than one million births in Florida between 2010 and 2014 to geographically depict the rates of newborns who require neonatal intensive care. On average, 9.5 percent of newborns required neonatal intensive care, for a total of 97,890 babies. This work is done under contract with the Florida Agency for Health Care Administration.

Of the 23 Florida counties with a higher-than-average percentage of infants who required neonatal intensive care, 16 counties are in the North Florida region.

Infants who Required Neonatal Intensive Care in Florida (2010-14)

Percent in 1,000 nearest births

4.4%-7.3% 7.4%-8.1% 8.2%-8.7% 8.8%-9.3% 9.4%-10.1% 10.2%-10.9% 11%-12% 12.1%-13.4% 13.5%-19.2%



Madison County has the highest percentage rate at **14.1 percent**

DeSoto County has the lowest percentage rate at **7.4 percent**

The team, led by **Mildred Maldonado-Molina**, Ph.D., reports these findings to the state, along with measurements of 37 other indicators, to help inform the development of effective policies that ultimately may lead to better quality care and improved health outcomes for mothers and babies in Florida. 📺 🌐

📖 **RESEARCHERS:** Maldonado-Molina MM, Estrella R, Delcher C, Hall J



ADVANCING HEALTH RESEARCH



ADDRESSING YOUTH ALCOHOL USE

ICHP researchers examine youth access to alcohol in rural communities via NIH-funded collaboration with the Cherokee Nation



As ICHP develops new national pediatric collaborations with PCORI and the University of Pennsylvania's PEDSnet, ICHP researchers continued to build upon longstanding collaborations with one of the nation's largest Native American tribes, the Cherokee Nation, to address youth alcohol use in rural Oklahoma.

While definitive data analysis for the multi-faceted trial is underway, two studies reveal important facets of youth alcohol use in rural communities. To examine selling patterns, the research team asked women over 21 who appeared to be under 18 to purchase alcohol in four rural towns. Among 997 alcohol purchase attempts over two years, outlets sold alcohol to the participants without checking age identification 23 percent of the time. Across repeated attempts, 76 percent of outlets sold alcohol to a participant at least once without checking ID, demonstrating the need to enforce laws against selling alcohol to minors.

In addition, the team identified gender-specific trajectories of alcohol and substance abuse in survey responses by rural 9th and 10th graders. Males were more likely to use multiple substances, while females tended to misuse prescription drugs. Alcohol users and heavy drinkers of both genders were more likely to abuse additional substances. 🏠 🌐

RESEARCHERS: Komro K, Wagenaar A, Maldonado-Molina MM, Lynne-Landsman S, Kominsky T, Boyd ML, Livingston MD

CALCULATING RISKS

Calibrating a calculator to gauge metabolic syndrome

Approximately one in three American adults — and an increasing number of children — develop a cluster of symptoms known as metabolic syndrome: obesity, high blood pressure, high glucose levels, low HDL cholesterol and high triglycerides. **Matthew Gurka**, Ph.D., is seeking to calibrate a tool that calculates the severity of a person's metabolic syndrome. The calculator, which can be used in clinical care for children and adults, aims to help clinicians track whether or not patients' scores — and therefore their health conditions — are improving. The ultimate goal is to help prevent future illness, specifically Type 2 diabetes and cardiovascular disease. 🏠 🏠 🌐

RESEARCHERS: Gurka M, DeBoer M, Guo Y, Cardel M, Pearson T

BREATHING EASIER

Smoke-free policies may extend benefits beyond college campuses

A research team led by **Ramzi Salloum**, Ph.D., found that smoke-free colleges and universities

have fewer hookah lounges nearby, compared to institutions without these policies. Using online directories,

the team found that 38 percent of 1,454 colleges and universities nationwide had at least one hookah establishment

within 3 miles, whereas smoke-free institutions were almost half as likely to have a hookah establishment

within that same distance. This protective factor extending beyond college campuses may bode well for the long-term health of college-aged students, given hookah's appeal among that age demographic. 🌐

RESEARCHERS: Salloum R, Maziak W, Thrasher JF





SETTING THE NATIONAL AGENDA

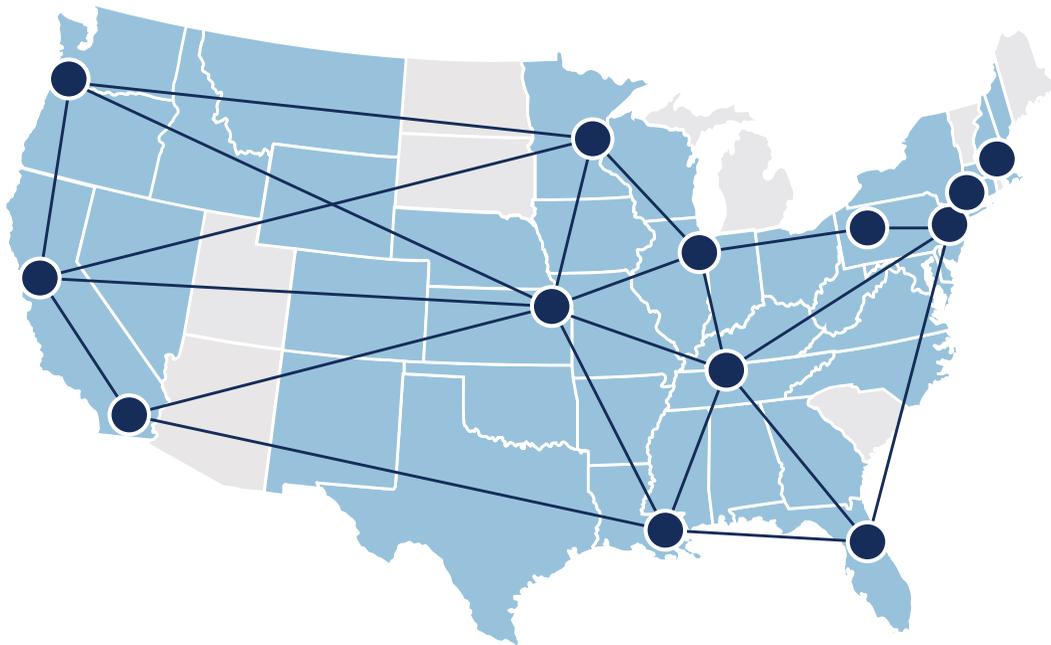
ICHP director co-chairs national pediatric research efforts

In an effort to accelerate the translation of research findings into patient-centered care, the Patient-Centered Outcomes Research Institute appointed ICHP Director **Betsy Shenkman**, Ph.D., to chair its Pediatrics Collaborative Research Group with Christopher Forrest, M.D., Ph.D., at the University of Pennsylvania. The group is tasked with leveraging the power of PCORnet's 13 clinical data research networks to address some of the nation's most pressing pediatric health problems.

The group will seek to address health disparities across the country as well as the lack of evidence needed to determine which interventions are most effective for addressing children's health problems, especially chronic conditions.

Although a number of smaller clinical research networks and databases around the country have made inroads into facilitating this kind of research, "No single network has sufficient numbers of investigators, clinicians or patients to provide the quantity and quality of evidence needed to substantively improve children's health care," Shenkman said. "Collectively across PCORnet, however, the breadth and depth of pediatric research interests and expertise is extensive and should be harnessed to improve children's health nationwide." 

PCORnet Clinical Data Research Networks



 **PCORnet CDRNs:** ADVANCE, CAPriCORN, The Greater Plains Collaborative, REACHnet, LHSNet, Mid-South Clinical Data Research Network, New York City Clinical Data Research Network, OneFlorida Clinical Data Research Network, PaTH, PEDSnet: A Pediatric Learning Health System, Kaiser Permanente & Strategic Partners PORTAL Network, pSCANNER



HELPING THE MOST VULNERABLE



PRETERM BIRTH HOTSPOTS

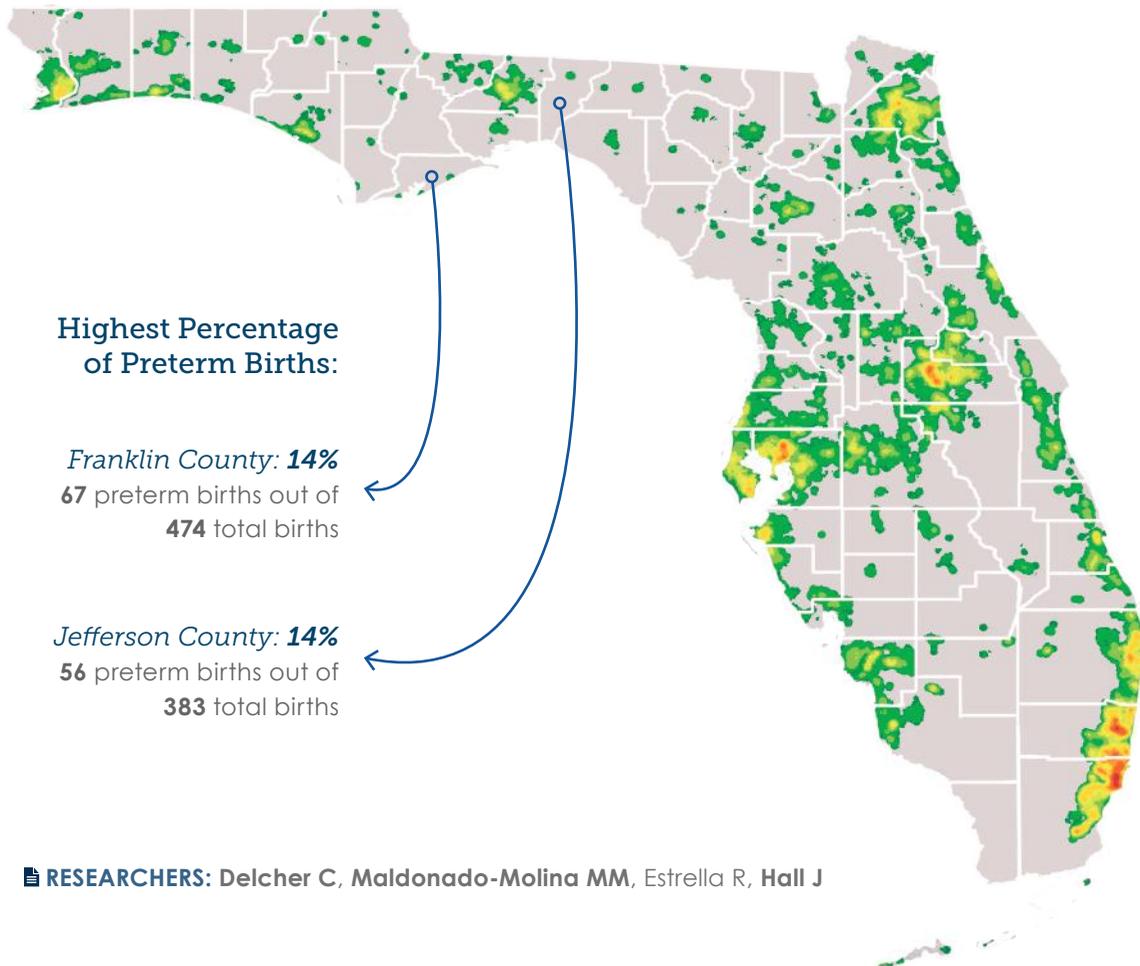
ICHP research team develops maps for all Florida's 67 counties

New county-by-county maps constructed by an ICHP research team reveal hotspots for preterm births in Florida, the leading contributor of death in infants.

According to ICHP researcher **Chris Delcher**, Ph.D., 9.9 percent of children in Florida are born before 37 weeks, putting them at increased risk for developmental delays, disability and death. The counties with the highest percentages of preterm births from 2011 to 2014 included two counties in the Apalachicola area, Franklin and Jefferson, at approximately 14 percent. Check out the map of the entire state below for a more in-depth view.

Florida Preterm Births / Square Mile (2011-14)

Total Florida Births = 835,735



RESEARCHERS: Delcher C, Maldonado-Molina MM, Estrella R, Hall J

BEHIND AT BIRTH?

ICHP researcher discovers babies born via C-section lack certain gut bacteria

Just as researchers nationwide are showing the crucial role gut bacteria play in maintaining human health, a research team has found that babies born by C-section do not carry the same gut bacteria as babies birthed vaginally. According to lead researcher **Dominick Lemas**, Ph.D., this incomplete transfer from mothers to babies has been associated with several health risks, including increased rates of obesity, asthma and allergies.

The researchers' next steps are to pinpoint which microorganisms aren't transferred and evaluate the plausibility of bacterial restoration.

RESEARCHERS: Lemas D, Montoya-Williams D, Carson TL, Allison A, Neu J

A MATTER OF FAT

Diets high in certain fats associated with less overall body fat among racially diverse children

Diets high in polyunsaturated fats, such as those in nuts, fish and vegetable oils, have been associated with less body fat and more lean muscle among adults and white children. Now, a team led by ICHP researcher **Michelle Cardel**, Ph.D., R.D., is the first to report that children of diverse ethnicities with diets high in polyunsaturated fats also had less body fat and more lean muscle than those who consumed more saturated fats, found in meat and dairy products, and artificial trans fats.



RESEARCHERS: Cardel M, Lemas D, Jackson KH, Friedman JE, Fernandez R

Institute for Child Health Policy Leadership

Betsy A. Shenkman, Ph.D.

Director



Since 2003, Shenkman has led the Institute for Child Health Policy, which brings together multidisciplinary faculty from across the University of Florida to conduct innovative, rigorous research that promotes the health of children, adolescents and young adults. Shenkman, who is working with the Patient-Centered Outcomes Research Institute in Washington, D.C., to set the national agenda for child health research and to lead the OneFlorida Clinical Research Consortium, has positioned the institute for increased collaboration and growth across the UF campus and at the state and national levels. As chair of the Department of Health Outcomes and Policy in the UF College of Medicine, Shenkman has a varied research portfolio, which focuses on reducing health disparities for adults and children through the implementation of evidence-based best practices. Shenkman also serves as co-director of UF's NIH-funded Clinical and Translational Science Institute (CTSI). In this role, she collaborates with faculty and staff to promote the development of implementation science and patient-centered outcomes studies across the lifespan.



Matthew Gurka, Ph.D.

Associate Director



As the new associate director of the Institute for Child Health Policy, Gurka is involved with strategic planning to expand the institute's presence and address barriers to child health research on campus. In addition, he is leading initiatives to encourage collaboration by refining and expanding the institute's affiliate faculty program. His research focus includes a wide range of applications of biostatistics to medical research, from the design and analysis of observational studies to the coordination and analysis of multi-center longitudinal studies. He also has extensive collaborative and independent research experience in pediatrics. With funding from the National Institute of Child Health and Human Development, he studied the impact of chronic illnesses, such as asthma, on development and behavior in children and adolescents. Recently he has focused on obesity and metabolic syndrome, both in children and adults. He has obtained NIH funding to develop and validate tools to measure the severity of metabolic syndrome that take into account gender and racial/ethnic differences.



Lindsay A. Thompson, M.D., M.S.

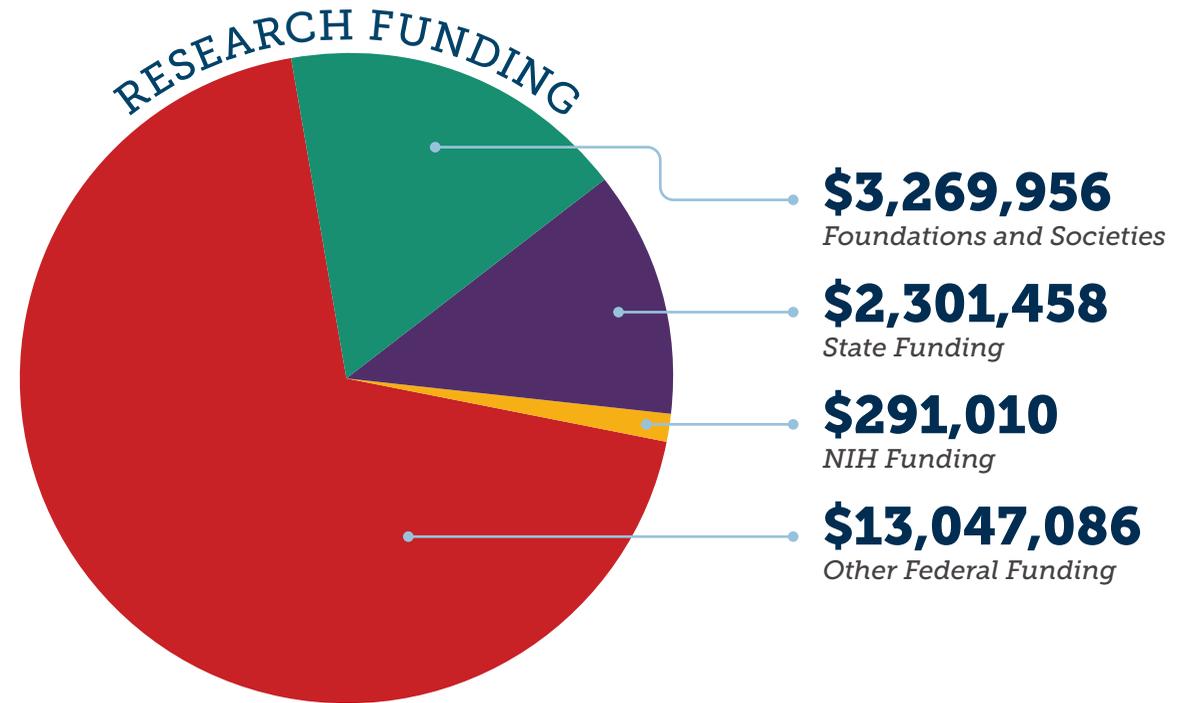
Assistant Director of Clinical Research



As a practicing clinician at UF Health, a health services researcher and an associate professor of pediatrics and health policy at the University of Florida, Thompson provides an important interdisciplinary bridge between the Institute for Child Health Policy's established research portfolio in community-based research and its growing interest in clinical care. Thompson is helping to lead ICHP's strategic planning efforts and serves as a co-investigator on two research grants run through the Institute for Child Health Policy. One study uses health information technology to improve adolescent vaccination rates, and the other aims to create quality measures for oral health in pediatric settings. As assistant director of clinical research, Thompson is helping to build more research collaborations between institute faculty and pediatric faculty, secure clinical settings as research venues and provide clinical insight for the institute's studies.



THE INSTITUTE FOR CHILD HEALTH POLICY BY THE NUMBERS



Several of our faculty members conduct research that impacts people across their lifespans. This research generated an additional **\$11.8 million** through the Department of Health Outcomes and Policy, bringing our faculty members' total research funding to more than **\$30.7 million**. Figures reflect funding received in 2014-2015.

\$30,761,025
IN TOTAL RESEARCH FUNDING

111

3,500,000
CHILDREN REPRESENTED IN THE ONEFLORIDA DATA TRUST

**FACULTY
PUBLICATIONS**



GET INVOLVED WITH THE INSTITUTE FOR CHILD HEALTH POLICY

Your engagement matters

The Institute for Child Health Policy is dedicated to improving children's health through rigorous research. This research and its impact are strengthened by powerful, invigorating collaboration.

Consider becoming involved with the Institute for Child Health Policy in one or more of the following ways:

- **Speaker Series & Networking Events:** Join the institute's listserv at ichp.ufl.edu/listserv to receive notifications of upcoming networking events and seminar invitations on child health research topics throughout the year. Stay tuned for details about our annual research event this spring.
- **ICHP Affiliate Program:** Learn more about the institute's revamped affiliate program at ichp.ufl.edu/membership-program.

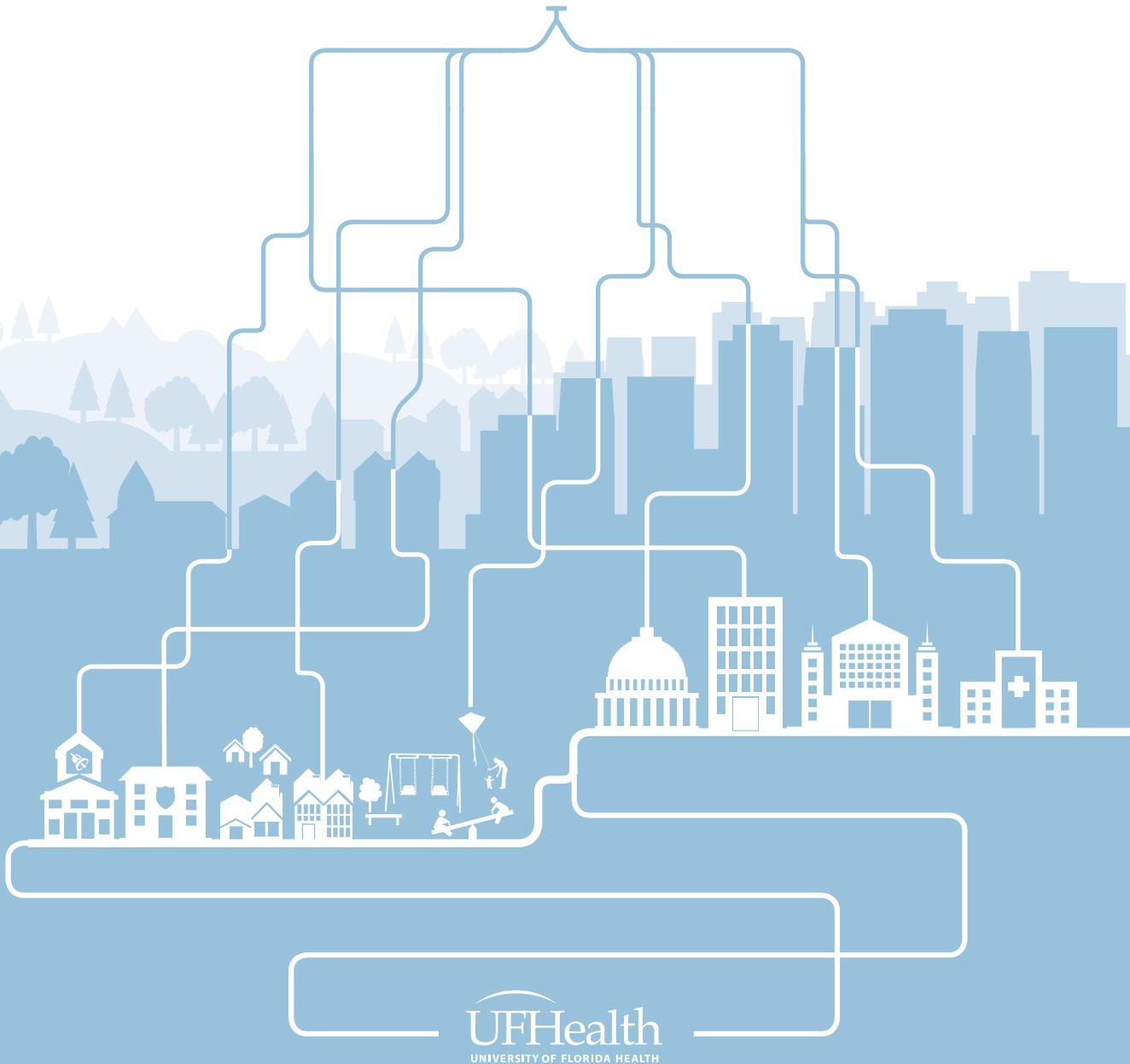
To discover more about how you can partner with the institute in its mission to improve children's health, contact **Matthew Gurka**, Ph.D., associate director, at (352) 627-9088 or matthewgurka@ufl.edu.



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UFHealth
UNIVERSITY OF FLORIDA HEALTH

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