



## MEET OUR INVESTIGATORS:

### DR. PETRIELLO AND HIS GROUP'S WORK ON PFAS.



A couple of years ago, Michael Petriello asked his fellow scientists involved in CHARM research if they were interested in forming a group to study the results of chemical exposure.

The answer was “yes,” and the majority suggested studying a manufactured class of chemicals called per- and polyfluoroalkyl substances commonly known as PFAS.

“In every one of us there are measurable levels of these compounds,” said Petriello, PhD, an assistant professor of pharmacology at Wayne State University, who chairs CHARM’s PFAS Interest Group. “Once they get into us, our bodies can’t metabolize or excrete them quickly.”

PFAS is in drinking water near waste disposal sites, food packaging, some fish and dairy products, water repellants, fire extinguishing foam, non-stick cookware, and personal care products, such as shampoo and cosmetics. Studies have shown that PFAS exposure is linked to low birth weight and developmental delays in children, increased risk of some cancers, a weakened immune system, and metabolic disorders, including diabetes and high cholesterol.

Petriello received a grant from the National Institutes of Health to study how PFAS affects the microbiota, or microscopic organisms, in the digestive tracts of pregnant women. He suspects that PFAS in the blood hijacks the body’s signaling molecules that control metabolism and lipid and cholesterol levels, thus contributing to a variety of disorders, including irritable bowel syndrome, cardiovascular disease, diabetes, and preterm birth.

Although some forms of PFAS were phased out a decade ago, the compounds, known as “forever chemicals,” remain in the environment, and new versions of unknown toxicity are being manufactured now.

Petriello suggested that more needs to be done at all levels of government to decrease exposure as well as at the individual level by getting rid of household items, such as old nonstick cookware, that contain the chemical. Eating a healthy diet and limiting fast food may also help, he said.

“What I always tell people is, ‘Yes, we are exposed to these chemicals, but don’t get scared to the point of giving up,’” Petriello said. “Ask yourself, ‘What in my lifestyle am I doing that I can control and how can I get involved in my community to reduce risk?’ There are things that you can do. If you think we’re doomed, that’s not what we’re trying to say. If we work together, there is hope.”

## STUDY UPDATE:

### GROUPS OF CHARM INVESTIGATORS WORK WITH CHARM DATA.

You might not know it, but by participating in CHARM, you are contributing to several studies, all aimed at improving the health of women and their children.

Since it began more than a decade ago, CHARM (Child Health Advances from Research with Mothers) has spawned six interest groups of scientists studying different medical areas with data and specimens gathered from CHARM participants.

The six interest groups include:

- The microbiome group, which is studying how microscopic organisms in the digestive tract contribute to the health of mothers and their babies.
- The PFAS group, which is looking at the potential health threats from exposure to PFAS, a group of synthetic chemicals.
- The placenta group, which studies placentas for clues to the causes and prevention of childhood disabilities, including neurodevelopmental handicaps such as cerebral palsy.
- The vaccine hesitancy group, which studies why some parents are reluctant to have their children vaccinated.
- The public health and health services group, which studies barriers to public health and how public health departments can better serve the public.
- The cannabis and pregnancy group, which studies how marijuana impacts pregnancy.

Although each group has a particular area of interest, the researchers work together, mining data that was collected for other studies and sharing blood samples and other specimens.

None of that would be possible without the participation of the women who agreed to be part of CHARM.

“The main message to the participants is they are making a difference in people’s lives,” said Tracy Thompson, a research specialist at Michigan State University, one of the five Michigan institutions collaborating on CHARM. “Things are happening. A lot of work is going on.”

## WHAT IS CHARM?

Child Health Advances from Research with Mothers, or CHARM, is a coalition of researchers and clinicians from Michigan State University, University of Michigan, Wayne State University, Henry Ford Health System, and the Michigan Department of Health and Human Services.

The goal of CHARM is to improve the health of mothers and children in the state of Michigan.

CHARM has produced two study cohorts. The first one began in 2008 primarily in Lansing, MI and is named ARCH (Archive for Research on Child Health). It stopped recruiting in 2016, but continues to follow participating moms and children. The oldest children are approaching 13 years old.

The second study cohort is called MARCH (Michigan Archive for Research on Child Health). It is modeled upon ARCH, but is designed to represent the population of Michigan. MARCH will recruit from different cities including Flint, Traverse City, Ann Arbor, Grand Rapids, Detroit, and others.

Funders for CHARM include the ECHO Program in the National Institutes of Health, Office of the Director and the Michigan Health Endowment Fund.

## TIPS FOR MOMS:

# COVID VACCINE UPDATE.

As the COVID-19 pandemic appears to be waning (finally), many parents likely wonder, is it still advisable for them to have their children vaccinated?

For children ages 5 through 17, as well as adults, the answer is “yes,” according to the U.S. Centers for Disease Control and Prevention (CDC)\*. The American Academy of Pediatrics agrees.

“Research trials have shown COVID-19 vaccines are highly effective against severe COVID-19 illness, hospitalization, and death,” the academy says on its website.

The U.S. Food and Drug Administration and the CDC have not yet approved a vaccine for children 4 years and under, but the Pfizer-BioNTech vaccine is authorized for children 5 through 17. The vaccine is free to everyone, regardless of income or insurance coverage. The shots are available through doctors’ offices and most pharmacies.

“Widespread vaccination for COVID-19 is a critical tool to best protect everyone from COVID-19 and COVID-19 related complications,” the CDC advises, adding: “Everyone ages 12 years and older should get a COVID-19 booster shot.”

Children are as likely as adults to get infected with the virus. Among the 28 million children in this country between the ages of 5 and 11 years old, nearly 2 million have been diagnosed with COVID-19, which can lead to severe complications. More than 8,300 children between 5 and 11 years old have been hospitalized due to COVID-19, and nearly 100 have died, making it one of the top 10 causes of death for children in that age group, according to the CDC.

As of early March, nearly 400,000 Michigan residents 19 years old and under had been diagnosed with COVID-19, and 40 had died.

The Michigan Department of Health and Human Services, pediatricians, and leaders of children’s hospitals throughout Michigan say Pfizer-BioNTech vaccine is safe, and they urge parents to have their children ages 5-18 vaccinated.

\*[https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/children-teens.html?s\\_cid=11370:covid%20vaccine%20approved%20for%20children;sem.ga:p:RG:GM:gen:PTN:FY21](https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/children-teens.html?s_cid=11370:covid%20vaccine%20approved%20for%20children;sem.ga:p:RG:GM:gen:PTN:FY21)



Are you an ARCH, MARCH, or CHARM participant whose contact information has changed? Please send your new information to:

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Pediatric Cohort

