



EMORY  
UNIVERSITY

# The Michigan PBB Registry



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Michigan's Premiere Public Health Conference  
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# Research findings following the PBB incident

- Skin rashes
- Hair loss
- Memory problems
- Muscle and joint problems
- Slight differences in immune system and liver function
- Hypothyroid among chemical workers

# Timeline

- July 1973-May 1974
  - Michigan residents ate dairy, beef, and poultry products that had been contaminated with PBBs
- 1976-1979
  - Creation of the PBB Registry (MI long-term PBB study)
  - Measurement of PBB in blood
  - Health questionnaires
- 1980
  - PBB no longer produced in the United States
  - PBDE and other similar chemicals are still produced

# PBB Registry

## Long-Term PBB Study

- About 5,000 individuals enrolled
- People who ate contaminated food
  - Farm families
  - Michigan residents
- Chemical company workers – follow-up ceased in 1990; Re-contact in 2013
- Children of Registry participants

# PBB Characteristics

- Exposure – contaminated food, inhalation, skin absorption
- Stored in body fat
- Remain in the body for many years
  - After 15 years, about half of the PBB has been eliminated from the body
- Can mimic or block natural hormones
- Can be transferred from mother to child in the womb or through breast milk

# Research Findings

## Farm Families

### Those who ate contaminated food

- Men who ate contaminated food
  - Thyroid problems
- Women who ate contaminated food
  - Possible changes to menstrual periods
  - Lower estrogen levels
  - A few more cases of breast cancer than expected
  - No increase in endometriosis, infertility or miscarriages

# Research Findings

## Children Born After 1973, to Women Who Ate Contaminated Food

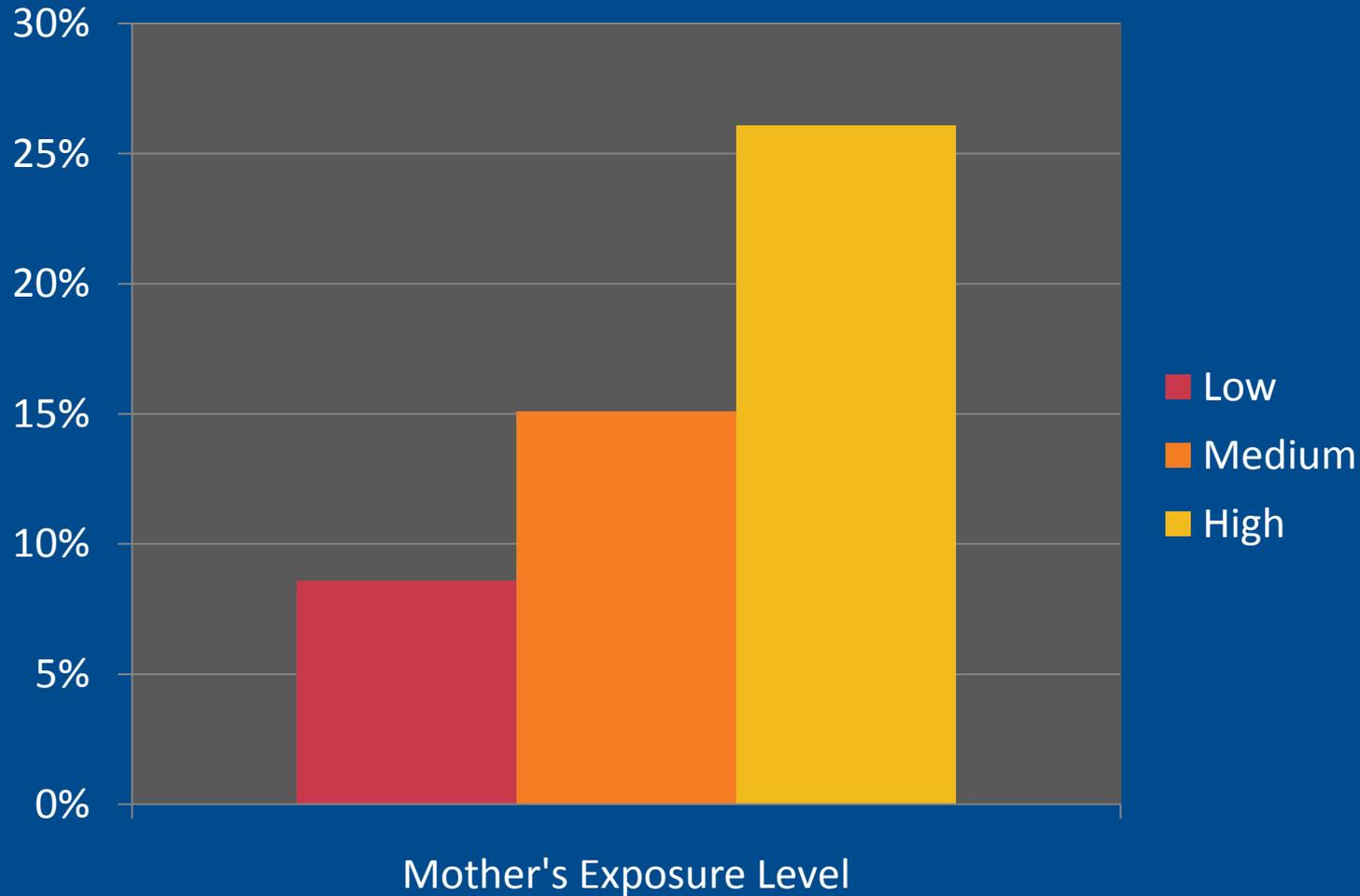
- PBB can be transferred to children while in the womb or through breast milk
- Children born many years later can still be exposed
- Children are more vulnerable to toxic chemicals than adults

# Research Findings

## Daughters Born After 1973, to Women Who Ate Contaminated Food

- Earlier maturation - First menstrual period at 11.5 years compared to 12.5 years
- Shorter stature
- As adults - more miscarriages

# Miscarriages Among Daughters



# Research Findings

## Among Sons Born After 1973, to Women Who Ate Contaminated Food

- More genital conditions (hypospadias) than the general population
- Sons of highly exposed women were more likely to have problems with the urinary or genital system
- Sons of highly exposed women had slower growth in childhood

# Research Findings

## Important Points

- PBB appears to be acting as an “endocrine disrupter”
  - Thyroid
  - Reproductive system
- Children of exposed parents may be affected

# Current Research

- Measurement of PBB among Registry participants
- Evaluation of reproductive function
  - Among those exposed in childhood
  - Among those born to exposed parents
- General health questionnaire

# Community Engagement

- Disseminate the research findings
- Knowledge is a prerequisite for action
- Research needs to be relevant to those affected
- Community has knowledge about exposures, health effects

# PBB Citizens Advisory Board



## Editorial

# Pretending St. Louis doesn't exist

When the Velsicol Chemical Company's contamination in St. Louis was only beginning to be understood, it

Wednesday. (Sun photo by LISA YANICK-JONAITIS/@lisayj\_msun)

*Morning Sun Th. Jan. 31, 2013*

## Video on PBB contamination ignores St. Louis

By LINDA GITTLEMAN  
@LindaGittleman

"How come a community where the exposures were the highest is neither briefed on the newest posed to larger amounts of PBB. And while farmers in other parts of the state are interviewed, not

# Pine River Superfund Citizen Task Force



# MORNING SUN



## The possibility of a getting a PBB health study in St. Louis begins

By LINDA GITTLEMAN / @LindaGittleman

The Morning Sun 3/24/13

The Emory University professor who's conducting a follow-up health study on the effects of PBB among Michigan farmers and her team were in Alma and St. Louis Saturday to get a look at the area where PBB originated.

## Professor wants PBB health study in St. Louis

By LINDA GITTLEMAN  
@LindaGittleman

ogy at Emory, listened as gan PBB study, St. Louis with multiple exposures. pointed out that there are  
Alma College Professor residents and workers It's important to do that. different such lists and

## *Local residents might be included in PBB study*

by Greg Nelson  
Herald Editor

After St. Louis was left out of a recent documentary regarding

to widespread PBB contamination throughout the state.

Polybrominated biphenyls, known as PBB, were used to

By that time many people were already contaminated with low levels of PBB, but those who lived on the quarantined farms had the

The registry now includes their children and grandchildren who may have been exposed to PBB in the womb or through breastfeed

# The **PBB** Registry Welcome!

## Community Discussion

- ▶ PBB Research Findings
- ▶ Chemical Exposure Concerns
- ▶ PBB Tests Available

March 8: 10am-noon & 2-4pm

March 9: 2-4pm

## Blood Draw

*walk-ins welcome*

March 7-16: 8am - 7pm

## Health Study

*walk-ins welcome*

March 7-16: 8am - 7pm



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## More than 200 get tested for PBB at St. Louis meetings



Posted on Wednesday, December 18th, 2013 and is filed under **FEATURE**. You can follow any responses to this entry through the [RSS 2.0](#) feed. You can skip to the end and leave a response. Pinging is currently not allowed.



by Greg Nelson  
Herald Editor

More than 200 people had blood withdrawn during two public meetings in St. Louis this past weekend in an effort

# Task force pleased to finally get health study

Posted on Tuesday, December 24th, 2013 and is filed under [News](#). You can follow any responses to this entry through the [RSS 2.0 feed](#). You can skip to the end and leave a response. Pinging is currently not allowed.

by Greg Nelson  
Herald Editor

## *PBB researchers returning for more testing*

by Greg Nelson  
Herald Editor

More testing of Gratiot County residents who were possibly exposed to PBB or other toxic substances manufactured at the former Velsicol Chemical Co. plant, and its predecessor, Michigan Chemical Co. in St. Louis, Mo., is being conducted.

The times and locations have not yet been announced, however, organizers are looking for a larger meeting space and testing area than what city hall offered, possibly the Mid-Michigan District Health Department branch office in Ithaca.

Anyone wishing to take part is invited. There is no cost.

## PBB researchers continue study in county

Posted on Wednesday, March 12th, 2014 and is filed under [FEATURE](#). You can follow this feed. You can skip to the end and leave a response. Pinging is currently not allowed.



Researchers from Rollins School of Public Health at Emory University in Atlanta, Ga. are back in Gratiot

by Greg Nelson  
Herald Editor

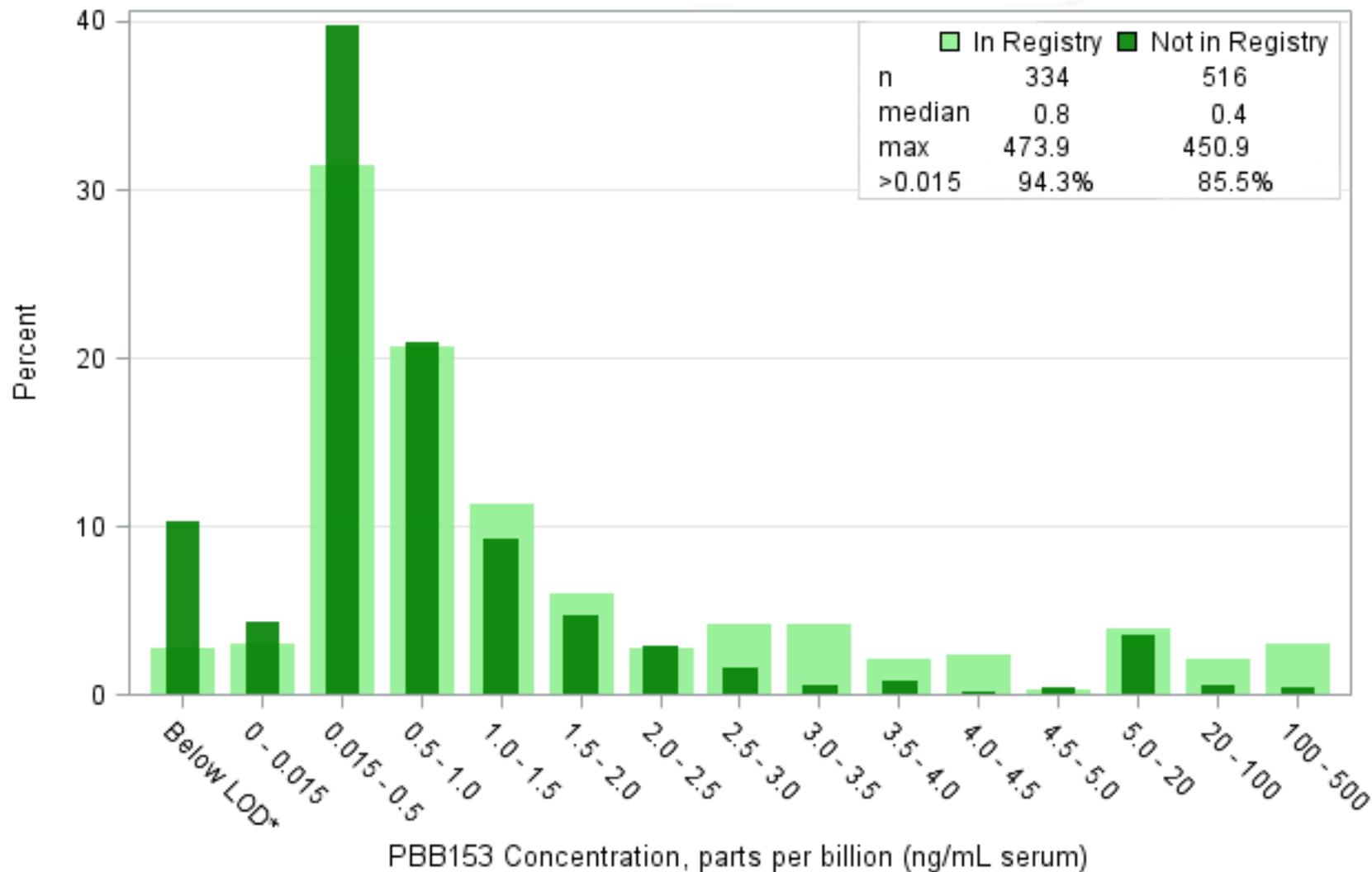
After testing more than 200 area residents in December for exposure to PBB and other hazardous chemicals, researchers from the Rollins School of Public Health at Emory University in Atlanta, Ga. are back in Gratiot County continuing the study.

They began additional blood



Dr. Mike L. Murray of Emory University

## Figure 2. Current PBB153 Concentrations, by Registry Status



\* Current Limit of Detection (LOD) is 0.001 ng/mL serum.

# Research and Action: Empowering an exposed community

- Study ways to reduce body burden
- Offer PBB testing and participation in health research to more Michigan residents
- Disseminate information about PBB to individuals, public health professionals, healthcare providers and policy-makers.
- Explore additional health concerns

For Questions or for More  
Information Please Contact us!

**PBB Registry Study Phone: 1-888-892-0074**

E-mail: [www.pbbregistry@emory.edu](mailto:www.pbbregistry@emory.edu)

Website : [www.pbbregistry.emory.edu](http://www.pbbregistry.emory.edu)

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