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Hurricane Harvey Wristband Study Update The Highlands Community



Oregon State
University

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CONFLICT OF INTEREST STATEMENT

Kim Anderson and Diana Rohlman have a conflict of interest related to this study. These researchers own or are related to someone who owns a company that provides services related to the silicone wristbands and that interest could influence research that you are participating in.

WHO

Researchers from Oregon State University Superfund Research Program collaborated with the Texas Health and Environment Alliance

WHAT

We used passive wristband samplers to determine personal chemical exposure after the flooding in Houston

WHY

These wristbands can measure up to 1,530 different chemicals found in the air, water and soil. We are collecting this information to get a better idea of what types of chemicals people may be exposed to after extreme flooding.

Effects of Hurricane Harvey



News Releases from Headquarters > Office of the Administrator (AO)
Status of Superfund Sites in Areas Affected by Harvey

9.02.2017

41 Superfund sites in the impacted areas



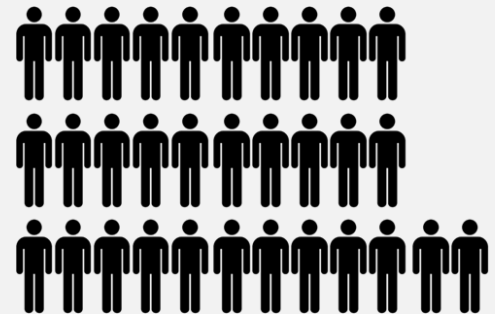
Our Study

On September 20, 2017, researchers enrolled individuals living or working in flooded areas to wear a wristband for seven days. More information about the wristband is on the last page of this report.

We looked at chemicals in different chemical classes, as shown on the next page.

Currently, there are no regulations for many of these chemicals in the air. As a result, it is difficult to know how much of a chemical is needed to cause health effects. Therefore, while this report shows the chemicals found in wristbands, that does not mean that you will suffer from any health effects.

Future work will track chemical exposures over time, for example 1 year after Hurricane Harvey.



32 people recruited

27 wristbands returned
27 wristbands analyzed

All wristbands tested for
1530 chemicals

Questions?

Thank you for your interest in this study. Please do not hesitate to reach out if you have additional questions.

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~ The Oregon State Research Team

Results at a Glance

Summary of the study

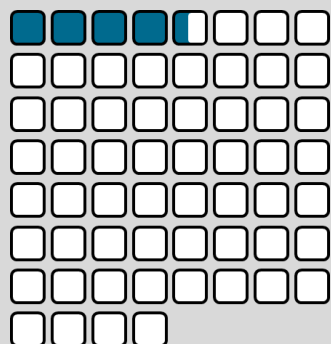


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We looked for **1,530** chemicals found in several different chemical classes. Some chemicals are included in more than one class. For example, triclosan is found in both personal care products and is considered a pesticide. On average, each person had **28** chemicals in their wristband. For a full list of all 1,530 chemicals, please visit:

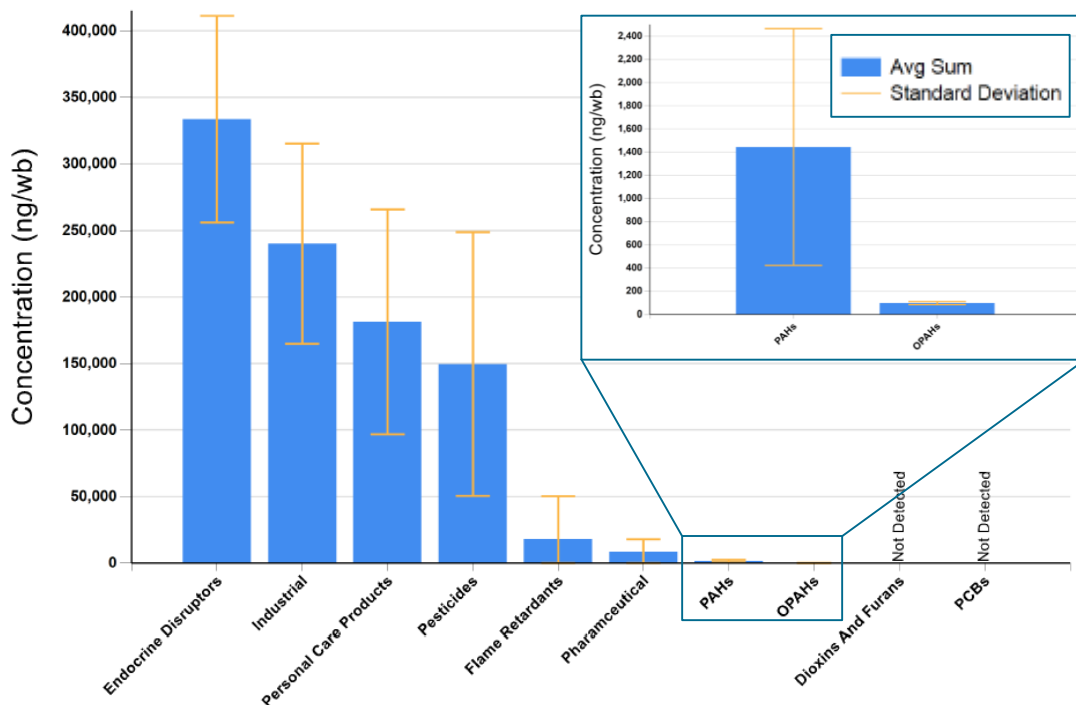
<http://fses.oregonstate.edu/1530>

We measured chemicals at the nanogram level, which is a very small amount. However, we are still learning how much of a chemical is needed to cause a negative health effect. Our ability to measure very low levels of chemicals is helping us better understand the relationship between exposures at this level and potential health effects.



□ Equals 25 chemicals

We detected a total of **119** chemicals across all 27 wristbands. **1411** chemicals were not detected.



In this bar graph, you can see that people were mostly exposed to chemicals in the 'endocrine disruption' classification, followed by chemicals in the 'industrial' classification. For each wristband, we looked at the total amount of chemicals found in the different classes. We zoomed in on some chemicals detected at low levels.

Standard Deviation: This describes how similar each wristband was between everyone in the study. The bigger the standard deviation (orange lines), the greater the difference between people's wristbands. We expect to see these differences.

This graph shows the average amount of chemical all 27 people were exposed to over 7 days (blue bars). This allows us to look at the major chemical types of pollution a community is exposed to.

Endocrine disruptors are found in many groups, including pesticides, flame retardants and personal care products.

Industrial chemicals include phthalates, commonly found in plastics.

ng/wristband = nanograms of chemical/wristband

Nanogram = 1 billionth of a gram. That's like 1 second in nearly 32 years.

Take Home Messages

- An average of 28 chemicals were detected in each wristband. The lowest was 12 chemicals in a wristband and the highest was 43 chemicals in a wristband.
- People were mostly exposed to endocrine disruptors, followed by industrial chemicals and chemicals found in personal care products.
- NO dioxins, furans or polychlorinated biphenyls (PCBs) were detected in any of the samples
- Future work will track chemical exposures over time, for example 1 year after Hurricane Harvey.