NC STATE UNIVERSITY

Center for Human Health and the Environment

GenX Exposure Study

9/28/2020

Dear GenX Exposure Study Participant,

Thank you for participating in the GenX Exposure Study. I know you are all eagerly awaiting the results of the blood and urine samples. I wish we had those results to share with you today, but we are still waiting for the labs to reopen so that we can analyze those samples.

Today we want to share with you some preliminary results from the wristband samples that we collected in February 2019. As part of the study, we gave silicone wristbands to some study participants to wear for five days to monitor exposure to chemicals in their environment.

Silicone wristbands (see **Figure 1**) have been used in other research studies to understand the chemicals that people are exposed to throughout the day. Silicone wristbands are porous and can absorb low levels of chemicals that you come in contact with from the environment over the five days that they are worn. The levels measured are very low. Silicone wristbands have not been used to study PFAS exposure before.

Figure 1. Picture of a silicone wristband.

What did we do?

In February 2019, we recruited 153 people in Cumberland and Bladen Counties to participate in the GenX Exposure Study. We gave a silicone wristband to people who volunteered to wear it for five days and mail it back to NC State. We analyzed 90 wristbands for PFAS at Duke University.

We tested for 20 different PFAS, including GenX, on each wristband. Here we share our preliminary findings for GenX.

When we reported GenX concentrations in your well and tap water, we used nanograms (ng). We are reporting the concentration of GenX in the wristbands in picograms (pg), due to the very low levels that were found on each wristband. A picogram (pg) is 1000 times smaller than a nanogram

(ng). For example, a wristband with a GenX concentration of 200 pg/wristband is the same as a GenX concentration of 0.2 ng/wristband.

What did we find in the wristbands?
We detected GenX on 89% of the wristbands. The GenX method reporting limit was 2.4 pg/wristband. This means that if GenX was present at 2.4 pg/wristband or greater, we would have been able to detect it and determine how much was in the wristband.

The median concentration was 59 pg/wristband. Detectable levels of GenX ranged from 3 pg/wristband to 603 pg/wristband. Overall, the levels of GenX were very low compared to other common indoor chemical exposures.

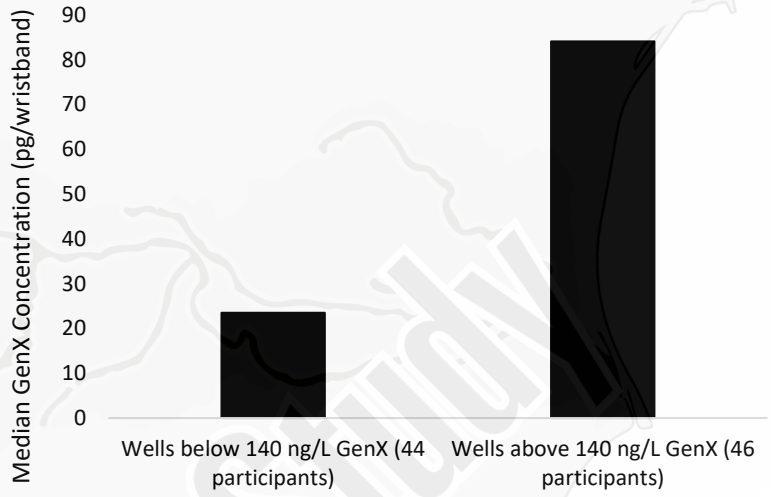

Figure 2: Median GenX concentration in wristbands of households below and above current NC GenX Health Advisory Level

In May 2020, we sent you a letter describing our PFAS results for well and tap water samples collected in February 2019. Our preliminary wristband results show that people with higher GenX levels in their wells tended to have higher GenX levels on their wristbands (see Figure 2).

What are the limitations of these findings?
This is the first time silicone wristbands were used to study PFAS exposure. The levels in the wristbands reflect dermal (skin) contact and air exposures for the five days when participants wore them.

We are still learning about the wristband technology. The amount of GenX measured on the wristband is a measure of how much a person came in contact with over the 5 day period. The amount of GenX on a person's wristband does not necessarily tell us how much GenX is getting into that person's body. For example, we would expect to find GenX on the skin and wristbands of people using water containing GenX to shower and bathe.

Based on toxicology data from other PFAS, such as PFOA, the Centers for Disease Control and Prevention and Agency for Toxic Substances and Disease Registry provides guidance for health care professionals that says, “Absorption of PFAS through the skin is limited and is of minimal concern as an exposure route.”

We are continuing to analyze these data and will know more in the future. We are planning to present these preliminary findings at a scientific meeting in late September, so we wanted to be sure that you knew what we had found at this time. We look forward to sharing more complete results with you in the future.

Thank you again for being a part of the GenX Exposure Study. We will continue to post study news on our website (https://genxstudy.ncsu.edu/) and hope you will continue to follow our progress.

If you have any questions about these findings or the study in general, please contact our study office by phone (855-854-2641) or email (genx-exposure-study@ncsu.edu).

Sincerely,

Jane Hoppin, ScD
GenX Exposure Study, Principal Investigator