NC Department of Health and Human Services Updates

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Public Information Session – Bladen Community College
December 11, 2018
Updates

1) Blood and urine testing in Bladen and Cumberland Counties
2) Community Survey
3) EPA’s Draft GenX Toxicity Assessment
Exposure Investigation Objectives

1) Can GenX and other PFAS be measured in blood and urine from people with highest exposure?

2) How do levels in highly exposed people compare to levels in other groups?
Collaborators

• CDC/National Center for Environmental Health (NCEH)
• Agency for Toxic Substances and Disease Registry (ATSDR)
• Bladen and Cumberland County Health Departments
• NC DEQ
Recruitment

• 30 residents
  – Highest GenX concentrations from well testing
  – Up to 2 people per house—one adult, one child

• Eligibility criteria
  – 12 years of age or older
  – Full-time resident since September 2016
  – Can provide consent or parental permission
  – Safely provide blood and urine
  – Able to understand English
Analysis

- Looked for 17 PFAS in blood and 16 PFAS in urine

<table>
<thead>
<tr>
<th>PFAS Abbreviation</th>
<th>Measured Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>GenX</td>
<td>PFHxS</td>
</tr>
<tr>
<td>PFBS</td>
<td>n-PFOA</td>
</tr>
<tr>
<td>PFHxA</td>
<td>Sb-PFOA</td>
</tr>
<tr>
<td>PFBA</td>
<td>PFDA</td>
</tr>
<tr>
<td>PFHpA</td>
<td>PFUnDA</td>
</tr>
<tr>
<td>PFPeA</td>
<td>Sm-PFOS</td>
</tr>
<tr>
<td>ADONA</td>
<td>n-PFOS</td>
</tr>
<tr>
<td>9Cl-PF3ONS</td>
<td>PFNA</td>
</tr>
<tr>
<td>MeFOSAA*</td>
<td></td>
</tr>
</tbody>
</table>

* no available laboratory method to measure in urine
Results – Participants (30)

<table>
<thead>
<tr>
<th></th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>50</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;18 years old</td>
<td>17</td>
</tr>
<tr>
<td>18-64 years old</td>
<td>50</td>
</tr>
<tr>
<td>≥65 years old</td>
<td>33</td>
</tr>
<tr>
<td><strong>Years living in county</strong></td>
<td></td>
</tr>
<tr>
<td>10-19 years</td>
<td>27</td>
</tr>
<tr>
<td>20-29 years</td>
<td>17</td>
</tr>
<tr>
<td>30-39 years</td>
<td>13</td>
</tr>
<tr>
<td>≥40 years</td>
<td>43</td>
</tr>
</tbody>
</table>
## Results - Questionnaire

<table>
<thead>
<tr>
<th>Activity</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottled water as current drinking water source</td>
<td>100</td>
</tr>
<tr>
<td>Consumed locally sourced products</td>
<td></td>
</tr>
<tr>
<td>Fish</td>
<td>23</td>
</tr>
<tr>
<td>Eggs, poultry, meat or wild game</td>
<td>33</td>
</tr>
<tr>
<td>Fruits and Vegetables</td>
<td>67</td>
</tr>
<tr>
<td>Spent time working or playing outdoors</td>
<td>80</td>
</tr>
</tbody>
</table>
Results – Blood

• Nine of 17 PFAS detected in blood samples
  – GenX and 7 other PFAS not detected

• Four PFAS detected in all participants
  – PFHxS, n-PFOS, n-PFOA, Sm-PFOS
  – Levels of PFHxS and n-PFOS higher than US population

• Five other PFAS detected in at least one participant
  – PFHpA, MeFOSAA, PFDA, PFUnDA, PFNA
Results – Blood (cont.)

<table>
<thead>
<tr>
<th></th>
<th>Median Blood Concentration (μ/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>n‐PFOS</td>
<td>NC Median: 5.5</td>
</tr>
<tr>
<td></td>
<td>NHANES 2013-14 Median: 3.7</td>
</tr>
<tr>
<td>PFHxS</td>
<td>NC Median: 2.0</td>
</tr>
<tr>
<td></td>
<td>NHANES 2013-14 Median: 1.5</td>
</tr>
</tbody>
</table>
Results – Blood (cont.)

**Legend**
- NC Participant
- NC Median
- NHANES 2013-14 Median
- NHANES 2013-14 95th Percentile
Results – Blood (cont.)

- n-PFOA: NC Median = 1.8, NHANES 2013-14 Median = 1.9
- PFDA: NC Median = 0.2, NHANES 2013-14 Median = 0.3
- Sm-PFOS: NC Median = 1.2, NHANES 2013-14 Median = 1.3
- PFNA: NC Median = 0.6, NHANES 2013-14 Median = 0.7
Results – Urine

• Only one PFAS detected
  – PFHxA found in one participant
  – Close to detection limit

• No other PFAS detected in urine
Limitations

• Couldn’t test for all PFAS

• PFAS levels are only representative of the time samples were collected

• Cannot relate to health effects
  – No established health-based levels in blood
  – Can’t compare to drinking water health levels

• Not a representative sample of entire community
Conclusions

• Nine of 17 PFAS detected
  – Most not found (i.e. GenX) or found at levels similar to US population
  – May indicate GenX doesn’t stay in body long

• Two older PFAS found at levels higher than US population
  – Stay in people’s bodies for a long time
  – Unclear if ongoing or past exposure
Next Steps

• Results mailed to participants in October
  – Press release included sample letter

• Summary report released November 13

• Community survey
Community Survey

• Purpose:
  – To better understand and respond to the concerns of the community

• Information will be used to:
  – Understand how the community has been affected
  – Guide future response efforts
  – Tailor health education activities and messages to the community’s needs
Community Survey (cont.)

• Questions cover:
  – Your Home and Drinking Water
  – Other Activities around Your Home and Community
  – Health
  – Communications
  – Demographics
Community Survey Mailing

• Survey will be mailed to all residents within 10-miles of Chemours

• Mailed out in January 2019
  – Announced with press release
  – Will have approximately 3 weeks to complete

• Two ways to complete:
  1) Fill out paper copy and return in pre-paid envelope
  2) Complete online
EPA Releases GenX Toxicity Assessment

• Draft for public comment
• 60-day public comment period ending January 22, 2019
• Includes a draft chronic reference dose (RfD) = 0.00008 mg/kg/day
• Not directly comparable to NC DHHS provisional health goal for GenX in drinking water of 140 ppt
• NC DHHS provisional RfD = 0.0001 mg/kg/day
EPA Assessment - Noted Effects

• Liver damage – effect seen at the lowest doses of GenX
• Anemia (not enough red blood cells)
• Kidney damage
• Decreased offspring weight
• Immune suppression
• Suggestive evidence of carcinogenic potential
EPA vs. NC DHHS GenX RfD

• EPA and NC DHHS reference doses very similar

• EPA used the same toxicological studies as NC DHHS and same endpoint (damage to liver cells)

• Slight differences in uncertainty factors, accounting for interspecies differences
NC DHHS Next Steps

• Current EPA assessment is draft and subject to change following public comments

• NC DHHS will reassess the provisional health goal for GenX in drinking water upon EPA’s final release
Questions?