

NC Department of Health and Human Services Updates

**Zack Moore, MD, MPH
State Epidemiologist
Division of Public Health**

**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

PFAS Abbreviation	
GenX	PFHxS
PFBS	n-PFOA
PFHxA	Sb-PFOA
PFBA	PFDA
PFHpA	PFUnDA
PFPeA	Sm-PFOS
ADONA	n-PFOS
9Cl-PF3ONS	PFNA
MeFOSAA*	

* no available laboratory method to measure in urine

Results – Participants (30)

	%
Gender	
Male	50
Female	50
Age	
<18 years old	17
18-64 years old	50
≥65 years old	33
Years living in county	
10-19 years	27
20-29 years	17
30-39 years	13
≥40 years	43

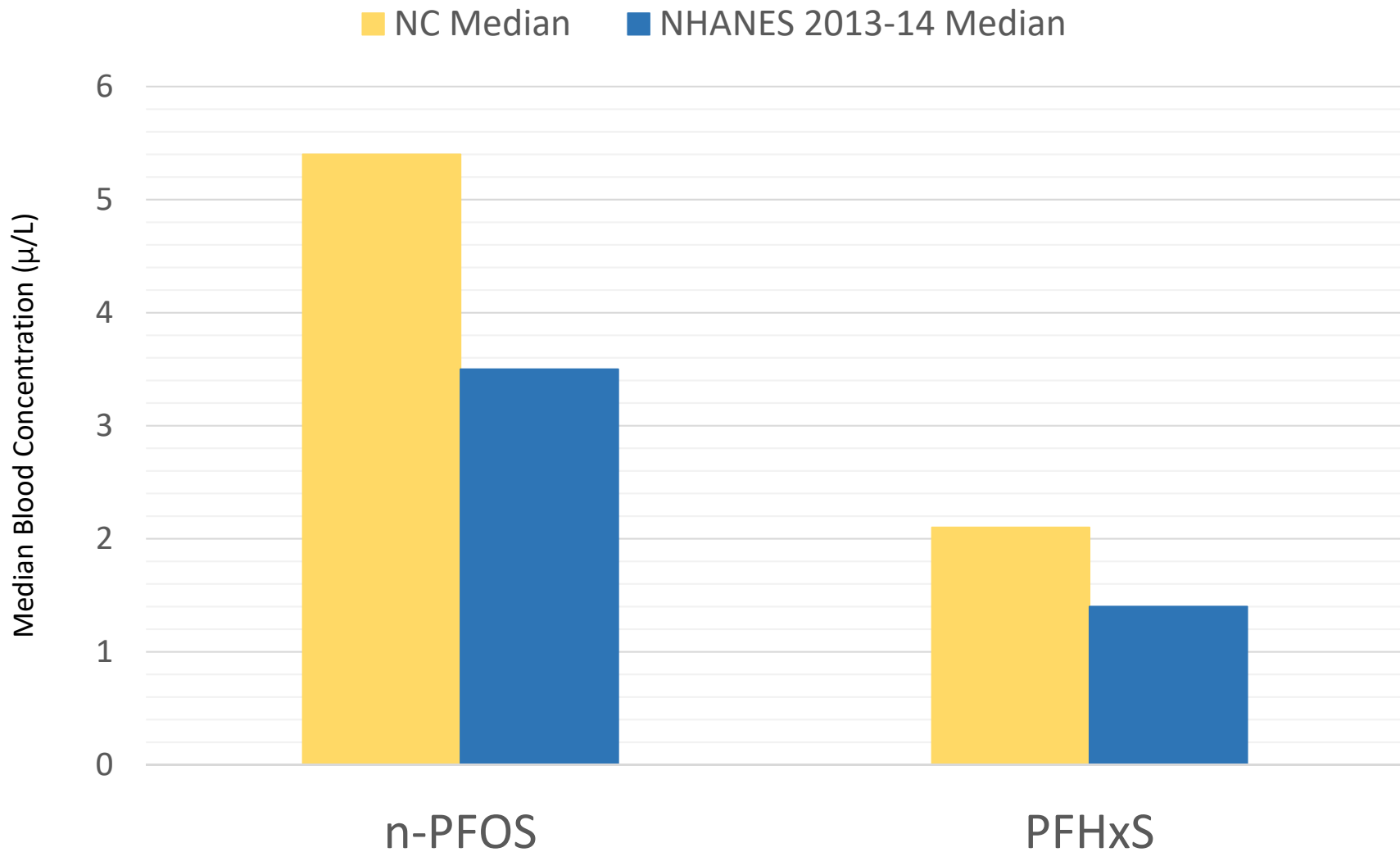
Results - Questionnaire

	%
Bottled water as current drinking water source	100
Consumed locally sourced products	
Fish	23
Eggs, poultry, meat or wild game	33
Fruits and Vegetables	67
Spent time working or playing outdoors	80

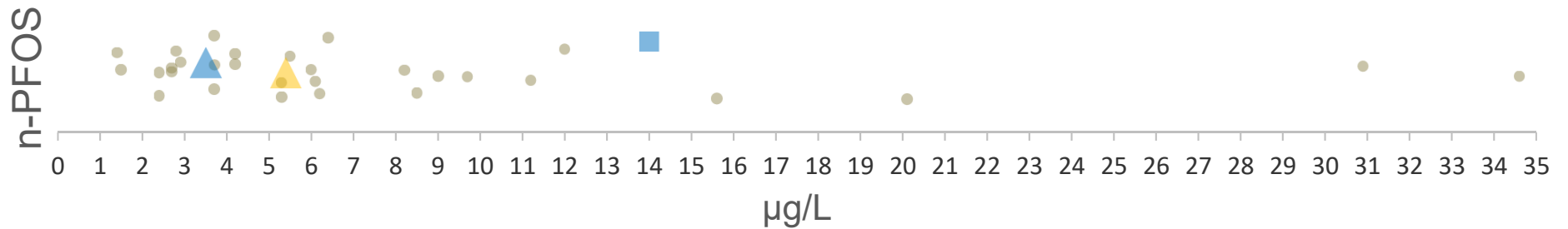
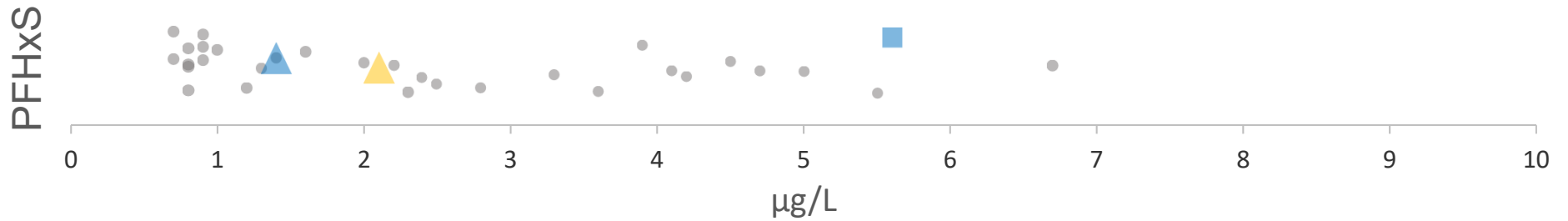
Results – Blood

- **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.)

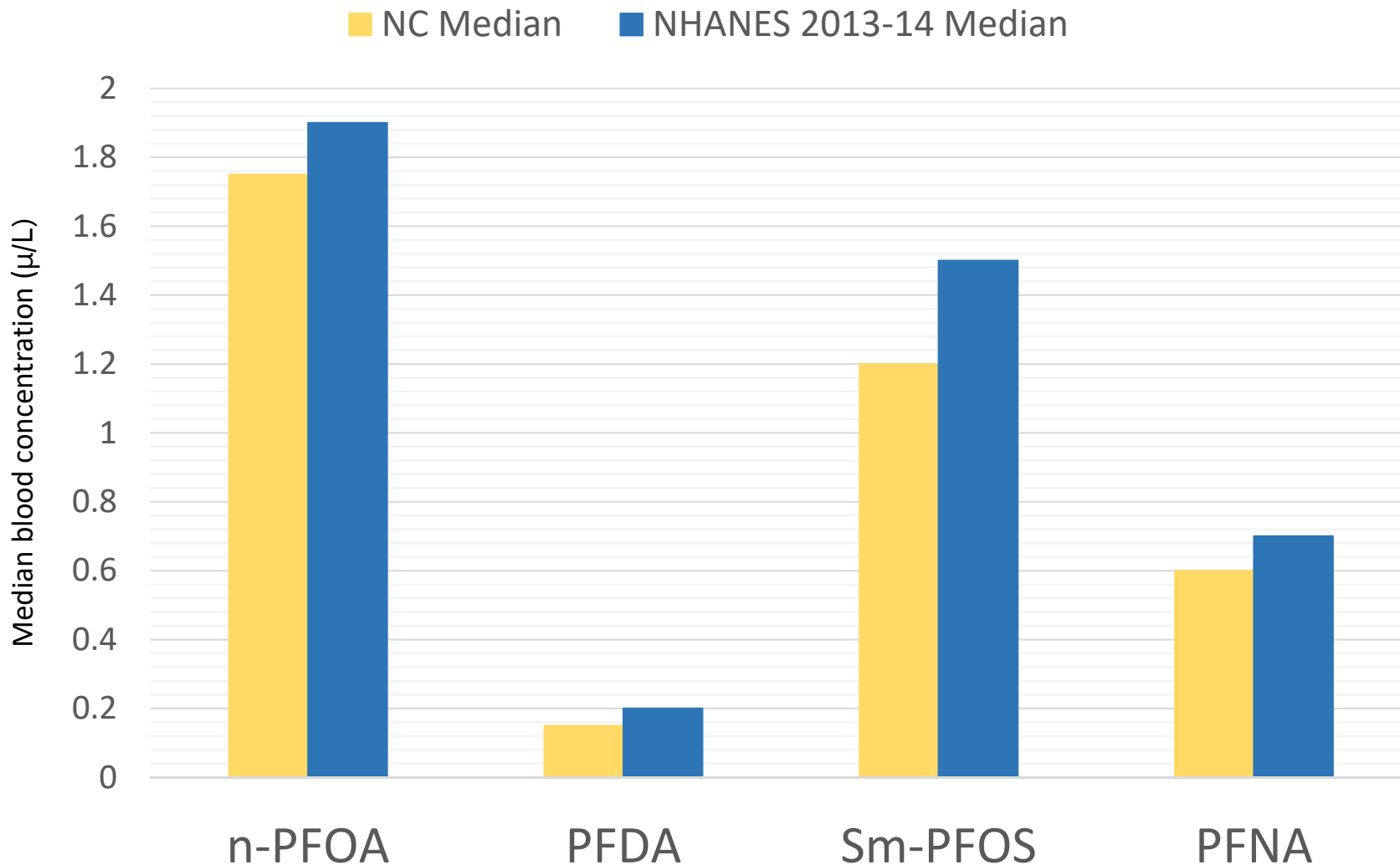


Results – Blood (cont.)



Legend	
●	NC Participant
▲	NC Median
▲	NHANES 2013-14 Median
■	NHANES 2013-14 95th Percentile

Results – Blood (cont.)



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?