Updates on the Implementation of New Jersey's First Statewide Biomonitoring Population Study: NJHANES

Elisabeth Cook[1], **Esohe Irabor[1,2]**, Colleen Donohoe[1,2], Gurleen Kaur[1,2], Cristina Maceda[1], Chang Ho Yu[1], Eric P. Bind[1], Zhihua (Tina) Fan[1]

1. New Jersey Department of Health, Public Health and Environmental Laboratories, Environmental and Chemical Laboratory Services, Ewing, NJ 08628
2. Association of Public Health Laboratories, Bethesda, MD 20814

Introduction

In 2021, NJDOH launched NJ's first biomonitoring population surveillance study (NJHANES) to:

- Estimate NJ residents' exposure to environmental chemicals, health, and nutritional status
- Report NJHANES results back to study participants
- Establish exposure baselines of NJ residents to environmental chemicals
- Identify state-specific exposure disparities though comparison with NHANES
- Share findings with other relevant agencies/scientist to prepare for future studies

Study Design and Approach

Figure 1. NJHANES Recruitment Process

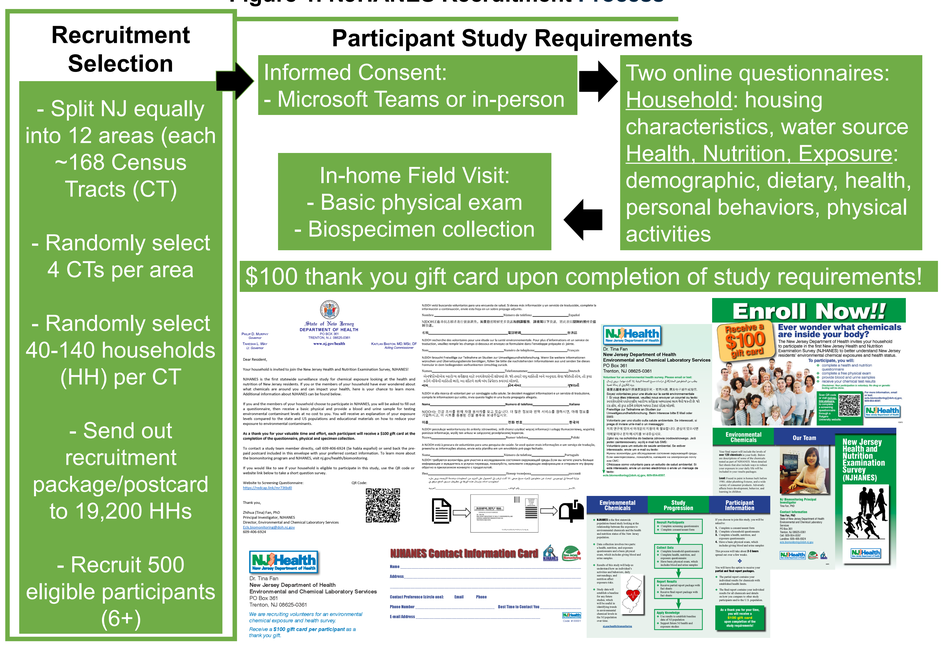
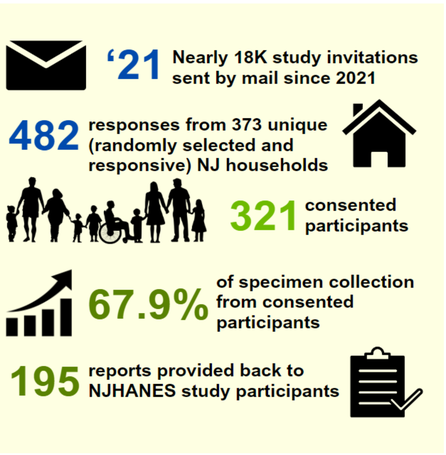


Table 1. NJHANES Challenges, Recruitment Modifications, & Outcomes

Initial Challenge	Modification	Resultant Outcome
Recruitment • Low response rate • Large amount of returned mail	• Increased incentive • Modified materials • Changed recruitment mailing schedule • More verification	• Increased response due to increased mailing • Decrease in return mail from 10.5% (2022) to 7.25% (2024)
Scheduling Consent	• Added option for online scheduling	• Online scheduling became the predominant consenting method
Scheduling & Conducting Field Visit • 16% error rate w/ specimen collection by mobile phlebotomy service (MPS) • Large delay between consent and field visit	• Refresher trainings • Formed field team • Added availability question on consent form	• Specimen collection issues resolved (0% error rate) since changing to in-house field team • Onboarding new MPS with strict guidelines • Increased field visit completion and decreased lag time

Results

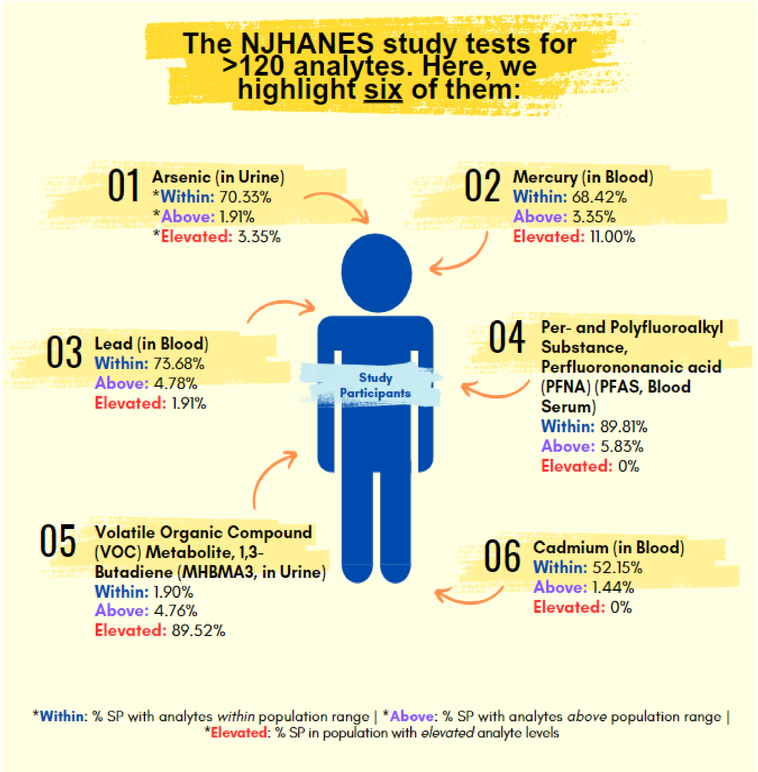
Figure 2. NJHANES Study Progress & Reporting



Participants have the option to receive results:

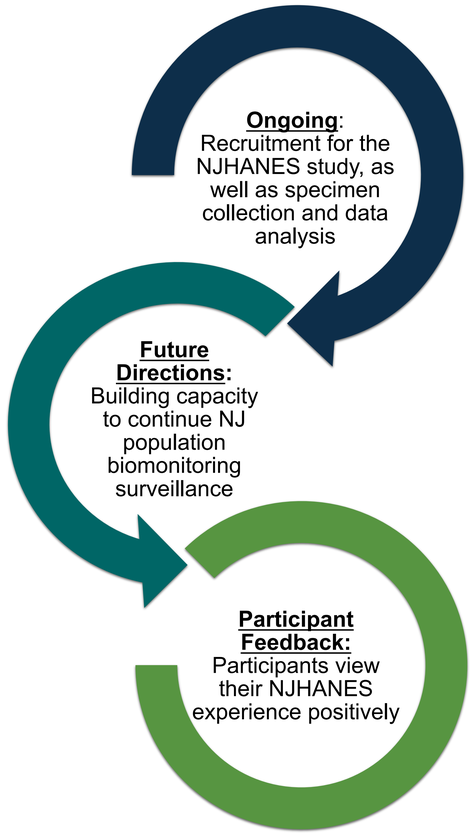
- **Initial report** including chemicals with established health limits sent 2-3 months after field visit
- **Final report** including all chemicals, comparison to NJ population, and comparison to NHANES sent at the end of the study
- **Intermediate report** available upon request

Figure 3. NJHANES Results Infographic For Selected Analytes



***Population Range** Defined As: 0-95th percentile of NHANES*
*"**Elevated**" Defined As: 3x the 95th percentile of NHANES for metals and organic chemicals without known health limits*

Summary and Future Work



Comments From NJHANES Participants:

"This was a good educational experience for me and my family. We thank you for your study and service to our community."

"…We appreciate how easy you and the other staff members made the whole process. We are looking forward to seeing our results from the study. Thanks again!"

"I just wanted to say thank you from my husband and I for your patience and working with us… We wish you much success with the completion of the study and look forward to whatever results you can forward to us as well."

Acknowledgements

NJDOH Biomonitoring and ECLS Team
Andrew Steffens, Doug Haltmeier, Songyan Du, Josh Peterson, Linbin Zhong, Carrie Xu, Colleen Lestician, Veronica Chandra, Arman Hosen, Dave Riker, Shawn O'Leary, Annie Lin, Lauren Lettiere, Latasha Blue, Sandra Camacho

Dr. Thomas Kirn, Rosalind Finney, Quality Assurance, & administrative staff
NJDOH Senior Management and Communications
CDC Biomonitoring Grant #NU88EH001326