

ENVIRONMENTAL HEALTH LITERACY

How one study team used health literacy principles to share environmental exposure information with non-English speaking immigrants using translated materials in Boston

A case study developed by the MRCT Center and Tufts University School of Medicine

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**MULTI-REGIONAL
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The Opportunity

- The Community Assessment of Freeway Exposure and Health Study (CAFEH) conducts **community based participatory research** by collaborating with immigrant communities who live near an interstate highway in Boston.
- CAFEH wanted to **report back to study participants** and the broader community about the risks (biological and environmental) of exposure to ultra-fine particles from traffic air pollution **using a method that would facilitate reading and foster understanding.**

What CAFEH Did – started with a standard practice

Phase I – involved conducting **focus groups** to review draft fact sheets

1. Drafted environmental health materials
2. Translated materials into Spanish
3. Conducted focus groups with study participants
4. Revised materials based on participant feedback
5. Reviewed with community advisory board

What CAFEH Did – expanded to include more experts

Phase II - included a **health literacy practitioner** and **adult English language learners** to develop fact sheets

1. Health literacy practitioner drafted environmental health materials
 - Applied plain language writing and design principles
 - Added action items – What can you do about Ultra-fine Particles?
2. Translated materials into Spanish, Portuguese and Haitian Creole
3. Partnered with local adult literacy program and conducted educational program using materials with English language learners
4. Revised materials based on learner use of materials and feedback
5. Reviewed with community advisory board

Participant Feedback

- Focus group participants said they were overwhelmed by the amount of information in the first version.
- They found the information confusing, difficult to understand, and lacking enough information on what to do.
- After incorporating their feedback participants found the information “much easier to read.”
- **Larger font size and chunking text** improved reading ease.

Before

After

of 45 agreed to participate in the study. Interviewers visited these participants and asked questions about their weight, diet, daily activity, and other known risk factors for heart disease. With the participants' consent, a nurse recorded their blood pressure and drew a sample of their blood for analysis. Many biomarkers in the blood sample were used to assess people's risk of developing heart diseases.

One biomarker that is associated with increased risk of heart diseases, C-reactive protein (CRP), is of interest when studying traffic pollution exposure. High blood pressure and elevated CRP levels indicate higher risk of heart disease. The concentration of UFP and other pollutant particles were measured in neighborhoods near participants' residences in an attempt to estimate the participants' exposure levels.



Figure 1: A picture of part of the CAFEH research team standing with the recreational vehicle used to monitor the varying levels of air pollutants in the different study areas.

How does this affect you?

Although UFP are highest near highways, they also affect people living near roads with heavy traffic. Living close to a highway or heavy traffic may put you at higher risk of heart disease. Furthermore, traffic pollution disproportionately affects minority groups and people of low income. Your participation in this study helps us better understand the effect of highway pollution on human health. By supporting local officials and community partners who are involved in advocating for cleaner air, you can help make a difference.

For More Information, Contact:

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To learn more about this research, please refer to the following source:

More description of the CAFEH research could be found here: <http://sites.tufts.edu/cafeh/>
More information on the Puerto Rican study could be found here: <http://sites.tufts.edu/cafeh/project-description/puerto-rican-health-study/>

What Can You Do About Ultrafine Particles (UFPs)?

Ultrafine particles (UFPs) are in air near busy roadways. UFPs are also in the air inside homes and buildings near busy roadways.



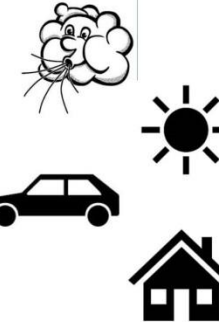
Here is how you can protect yourself and your family from breathing high levels of ultrafine particles UFPs.

Protect yourself and your family from UFPs near busy roadways.

- Plan your time outdoors for when UFPs levels are low.

Here's when UFPs levels are low outdoors:

- When there is a breeze in the air
- When it is warm outside
- When traffic is light



- Prevent UFPs from getting indoors.

Here's how to keep UFPs levels low indoors:

- Keep windows closed
- Use air conditioning or a high-quality air filter

Learn more about ultrafine particles (UFPs) from the Community Assessment of Freeway Exposure and Health Study (CAFEH) <https://sites.tufts.edu/cafeh/>

A Special Note About Translation

- Worked with community partners to translate materials into Spanish, Portuguese, and Haitian Creole
- Engaged English language learners to read and discuss information sheets in their own language
- Used **community expertise** to ensure translation accuracy

Examples of the different translations

¿Qué puedes hacer sobre las Partículas Ultrafinas(UFPs)?

UFPs están en la contaminación del aire cerca de carreteras ocupadas. UFPs también están en el aire dentro de las casa y edificios cerca de carreteras ocupadas.

Así es cómo puedes protegerte y proteger a tu familia de respirar altos niveles de partículas ultrafinas UFPs.



Protégete y protege a tu familias de UFPs cerca de carreteras ocupadas.

- Planifique su tiempo afuera para cuando los niveles de UFP sean bajos.

Aquí es cuando los niveles de UFP son bajos afuera:

- Cuando hay brisa en el aire
- Cuando está cálido afuera
- Cuando el tráfico está ligero



- Evite que UFPs entren adentro.

Así es como mantener bajos los niveles de UFP adentro:

- Mantén las ventanas cerradas
- Usa aire acondicionado o un filtro de aire de alta calidad



Aprende más sobre partículas ultrafinas (UFPs) del Community Assessment of Freeway Exposure and Health Study (CAFEH) <https://sites.tufts.edu/cafeh/>

Spanish

O que você pode fazer a respeito de partículas ultrafinas ?

Partículas ultrafinas (UFPs) estão no ar perto de rodovias movimentadas. UFPs também estão no ar dentro de casas e prédios perto de rodovias movimentadas.

Aqui está como você pode proteger si mesmo e sua família de respirar altos níveis de partículas ultrafinas (UFPs).



Proteja si mesmo e sua família de UFPs perto de rodovias movimentadas.

- Planeje seu tempo do lado de fora para quando níveis de UFPs estão baixos.

Aquí está quando os níveis de UFPs estão baixo do lado de fora:

- Quando tem brisa no ar
- Quando está quente do lado de fora
- Quando tráfico está tranquilo



- Previna UFPs de ir para dentro de casa.

Aquí está como manter níveis de UFPs baixo dentro de casa:

- Mantenha janelas fechadas
- Use ar condicionado ou filtro de ar de alta qualidade



Aprende más sobre partículas ultrafinas (UFPs) del Community Assessment of Freeway Exposure and Health Study (CAFEH) <https://sites.tufts.edu/cafeh/>

Portuguese

SA KA FE APWOPO PATIKIL ULTAFEN YO(UFPs)?

Patikil Ultrafen yo (UFPs) nan le ki tpoou pre wout ki okipe yo are in air. UFPs yo na le ki anndan kay yo tou e gwo kay yo ki bo wout ki okipe yo.

Men koman ou ka pwoteje tet ou ak fanmiw pou nou pa respire anpil patikil ultrafen yo, UFPs.



Pwoteje tèt ou ak fanmi ou nan UFPs tou pre wout okipe yo.

- Planifye tan wap fe pase nan lari le UFPs yo pa anpil.

Men kile UFPs yo pa fo nan lari a:

- Le gen yon ti briz nan le a
- Le li on tjan fe cho
- Le pa gen blokis deyo a



- Prevante UFPs pou yo pa antre andedan kay la:

Isit la nan ki jan yo kenbe UFPs nivo ki ba andedan kay la:

- Kite fenet yo femen
- Itilize klimatize oubyen yon filtre le de bon kalite



Aprann plis de Patikil Ultrafen yo (UFPs) de Community Assessment of Freeway Exposure and Health Study (CAFEH) <https://sites.tufts.edu/cafeh/>

Haitian Creole

Who helped make this happen?

- Principal Investigator & Researchers
 - Partnered with community organizations in the design, implementation, and dissemination of the research.
- Community Advocates/Leaders from Partner Organizations
 - Worked with the research team to address community needs and interests, and serve as community liaisons.
- A Trained Health Literacy Practitioner
 - Applied an environmental health literacy framework to promote critical health literacy, and plain language as a strategic response.

Successes

- Engaging with community organizations throughout the design, implementation and dissemination of information.
- Applying plain language writing and design principles to the information sheets
- Paying close attention to the literacy, language and culture of the community.
- Collaborating with adult literacy programs to engage the community and promote environmental health literacy.

Challenges

- The study team thought the first set of fact sheets were easy to read - feedback from focus groups indicated that this assumption was incorrect.
- Even well intentioned researchers can make inaccurate assumptions about the clarity of their writing for a non-professional audience.
- The subject matter of ultra-fine particles was quite advanced - Limiting the amount of information and using everyday language was particularly difficult.

Lessons Learned

- Applying basic plain language writing and design principles helped us communicate complex research-related information in ways people could understand and act on.
- Working with a health literacy professional:
 - Helped the team focus on the need to know information and use non-technical terms to do so.
 - Modeled effective teaching and community engagement in an adult literacy, English language learning program.

Recommendations

Whether you want to make sure to meet your recruitment goals, or you want to return meaningful information to your study participants, **engaging representatives from your intended audience** when developing your materials is critical.

- This is especially important in the context of translation – ensuring information is appropriately translated for non-English speakers requires involvement of members from the communities of interest

Resources

- MRCT Center Health Literacy in Clinical Research website:
<https://mrctcenter.org/health-literacy/trail-life-cycle/overview/on-study/>
<https://mrctcenter.org/health-literacy/trail-life-cycle/overview/end-of-study/>
- Community Assessment of Freeway Exposure and Health (CAFEH)
<https://sites.tufts.edu/cafeh/>
- Developing fact sheets to communicate the risks of traffic pollution to urban Puerto Rican adults
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5830854/>