

Exploration of Genomic Diversity across Rural Illinois Communities

SIUSOM: Jenkins, Delfino, Fogleman,
Zahnd, Dean
UIUC: Malhi, Lipka, Jongeneel

- Studies of cancer incidence and other diseases at times observe disparities in prevalence between rural and urban populations.
- These are not consistently observed and do not necessarily vary by known and measured risk factors.
- Many disease phenotypes are complex traits and it is possible that underlying genes contribute to phenotypic variation in an additive, dominant, or epistatic manner.
- It is likely that the exact genetic contribution to such phenotypes substantially vary across environments.

Context

Many rural areas of the United States, having been founded primarily by a small group of immigrant families of similar ethnicity and ancestry, have acquired a degree of genetic distinction through relative geographical isolation, increased rates of endogamy, low rates of admixture, and consistently similar environmental and cultural influences, such that founder effects may be present at genotypic levels influencing phenotypic diversity.

Hypothesis

- The isolated populations project is a collaborative work funded by the SIUSOM and the UIUC.
- Funding is available for the recruitment of participants, collection and analysis of saliva specimens, and full-genome analysis (~1,000,000 points of comparison).
- The goal is to determine if the genetic drift of rural communities has diverged from that of their urban peers.

The Isopop project

- Is the potential research stigmatizing?
- How will confidentiality be assured?
- How will communities be chosen and engaged?

IRB aspects

- From a list of all IL communities, selected those with a population 1300-1700.
- Found these on a map and tried to determine the three 'most isolated'.
- The selected communities: Grayville, Vienna and Warren.

The 'winners'



1. Contact the city mayor w/ the county health department.
2. If agreeable, address the city council.
3. **If agreeable, identify willing 'contact people' for local footprint and effort.**
4. Assemble and conduct a focus group to discuss aspects of research, privacy, and recruitment.
5. Develop and implement a method of recruitment and sample collection.

Community engagement process

- So far, all three mayors and city councils have been quite enthusiastic and supportive of the project.
- However, finding a contact person has been difficult.

Local contacts – the Achilles' heel to date

- Original contact 9/23 and council meeting 10/12
- The mayor reached out to local PH nurses (including his daughter-in-law) and we have 4 names and info.
- From there, we've had reliable contact with two.
- The FG was originally scheduled for 12/3 at 8 PM (after a HS event)
- That day, informed only ~3 could attend so we cancelled.
- Scheduling continuing....

Warren

- Original contact 9/16 and council meeting 10/7
- No luck identifying a contact.
- The county HD official contacted me about other business on 12/1 and asked about progress
- Same day identified someone to help
- As of 12/9 we have spoken with the person (is willing) and are arranging for the FG.

Vienna

- Original contact 8/19 and had write up in the local paper 8/27
- Difficulty recruiting a contact, so addressed council meeting 11/9
- They called 11/20 to say they had someone who was considering
- Wrote Grayville on 12/4 stating that if no contact identified by 12/18 we'll have to go elsewhere.

Grayville