

# Building capacity for data-driven physical activity interventions in communities with depression and obesity hotspots

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## Principal Research Investigators

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### Advisors:

- Sean Mooney, PhD Biomedical Informatics, UW
- Kari Stephens, PhD Family Medicine, UW



## Community Partners

WPRN: WWAMI region Practice & Research Network

Network of 80+ primary care practices across the 5-state “WWAMI region” (Washington, Wyoming, Alaska, Montana, & Idaho)

WPRN Clinic liaisons

- Gina Keppel, MS
- Allison Cole, MD

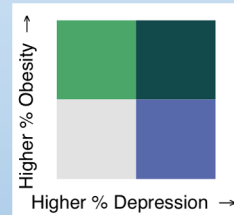
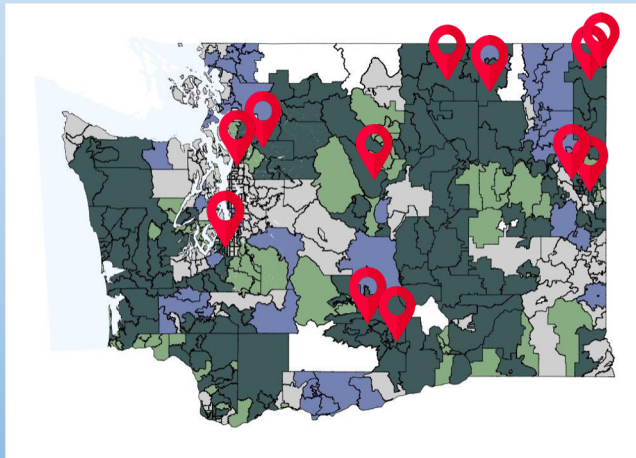



# Project Overview

## Visual Schematic



**Aim 1. Geospatial analysis of health data to identify “hotspots” enriched for obesity & depression**



 Possible target community

**Aim 2. Engage hotspot communities to assess needs & preferences for tailored physical activity interventions**



## Project Vision

Longer-term, we plan to:

- Scale up geospatial analytics pipeline to identify multiple hotspot communities
- Co-design tailored physical activity interventions with hotspot communities
- Evaluate and compare interventions across diverse communities

Examples of community-tailored interventions

- Peer-support digital teams
- Gamification
- Just-in-time adaptive interventions
- Built environment
- Culturally-appropriate movement practice

# Project Overview

## Use-Inspired Research

### Problem

- Depression and obesity are widespread
- Physical activity can reduce BMI and depression symptoms, but only 23% of US adults meet federal recommendations
- Community-tailored exercise interventions have the potential to promote physical activity among people with obesity and depression

Community needs: What are the barriers in the community? Facilitators? Intervention preferences?

### Target communities

1. Yakima, Washington
2. Tacoma, Washington

## PG Activities

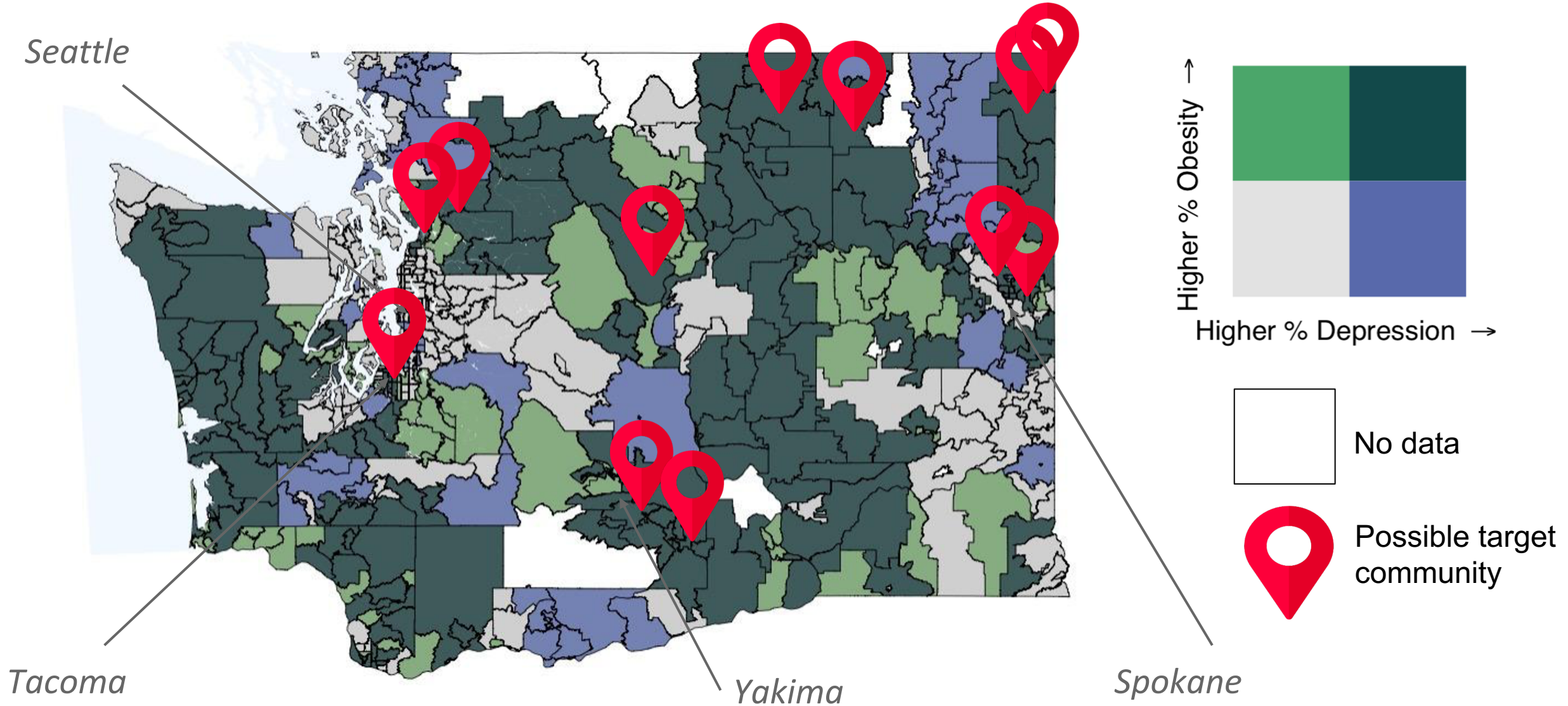
**Aim 1. Identify geographic hotspots for obesity + depression**

- Develop cohort definition based on published electronic health record (EHR) phenotypes
- EHR data pull & preprocessing
- Geospatial analysis data to identify “hotspots” enriched for obesity + depression
- Compare hotspots with alternative data sets for convergent validity (National surveys & datasets)

**Aim 2. Assess needs & preferences for community-tailored interventions**

- Protocol development & IRB approval
- Clinic selection & partnership building
- Recruitment, community survey & interviews

# Project Update



# Project Evolution

## Lessons we have learned

- Preliminary geospatial analysis shows more hotspots in rural than urban areas
- Some potential hotspots (e.g., Native American Tribal Nations) could take years to engage and thus may not be feasible as project sites in the near term
- Partnering with community clinics gives us community “champions”
- In future IRG project we may:
  - Focus more on communities & health systems in rural areas
  - Leverage our champions to facilitate community engagement