Developing GP Catchment Areas and Beyond

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What Do We Want To Achieve?

- **Goal:** to inform policies aimed at improving access to appropriate care and to achieve a more efficient and equitable distribution of care through better spatial resource allocation

- **Plan:**

  - Develop appropriate geographic units (catchment areas), study patient flows

  - Identify and study determinants of geographic variation in needs, utilization, cost

  - Identify actionable items and simulate policy interventions

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Linked Data Sets

- 45 and Up Survey

- Medicare data (MBS/PBS)

- Hospitalizations

- Emergency department admissions

- Mortality data (includes cause of death)

- Cancer registry

Ethics Application Status

- 45 and Up Survey

- Medicare data (MBS/PBS)

- Just got UWS ethics approval

- Ready for analysis through SURE

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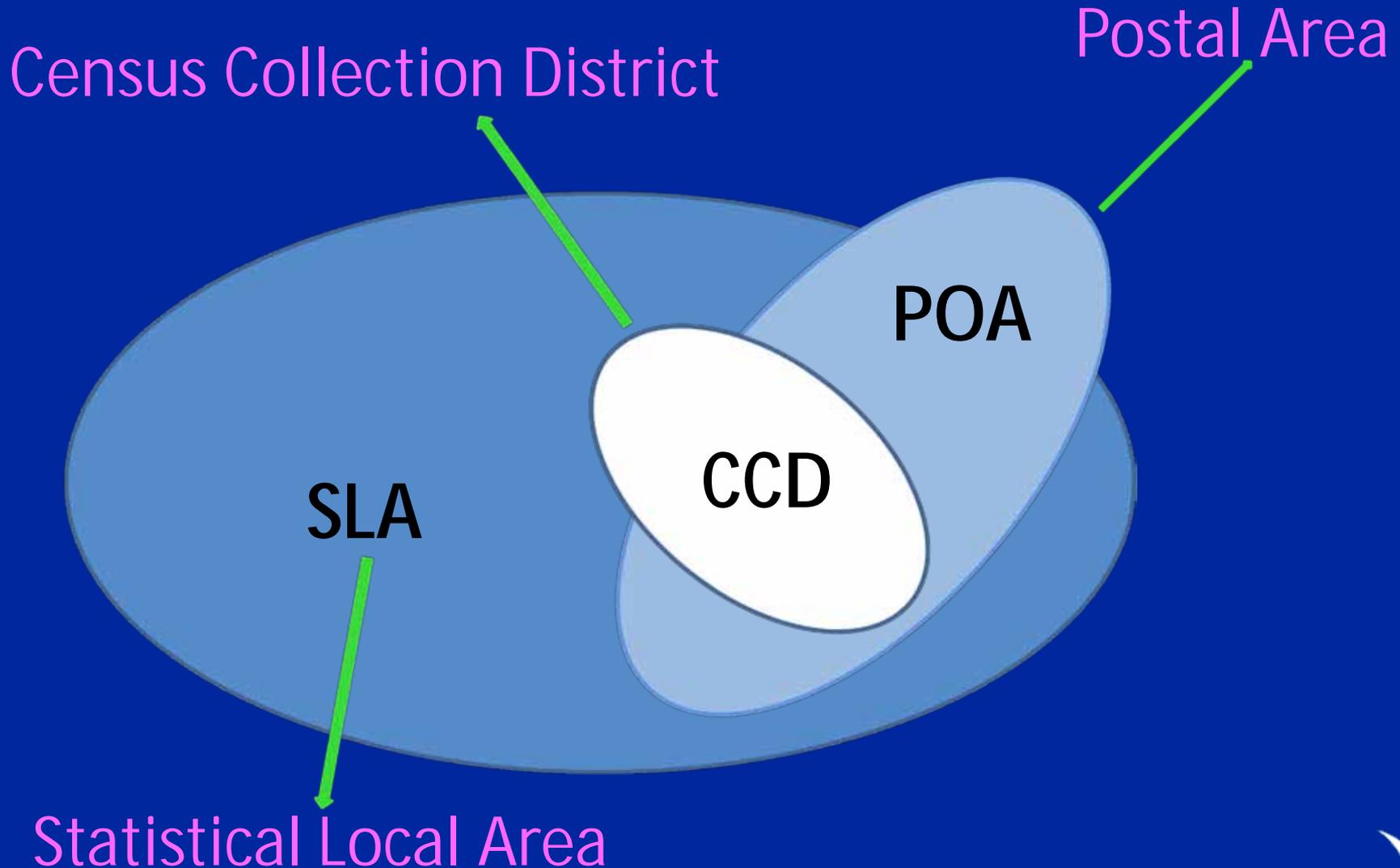# Ethics Application Status

- ACT approval

- Waiting for NSW approval

- 45 and Up Survey

- Hospitalizations

- Emergency department admissions

- Mortality data (includes cause of death)

- Cancer registry

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Need to Define Geographic Aggregation Units: Catchment Areas

- Methodology will be similar to the one used by Goodman et al. for Primary Care Service Areas (PCSAs)

- Requires to know the location of both patients (45 and Up) and providers (MBS):

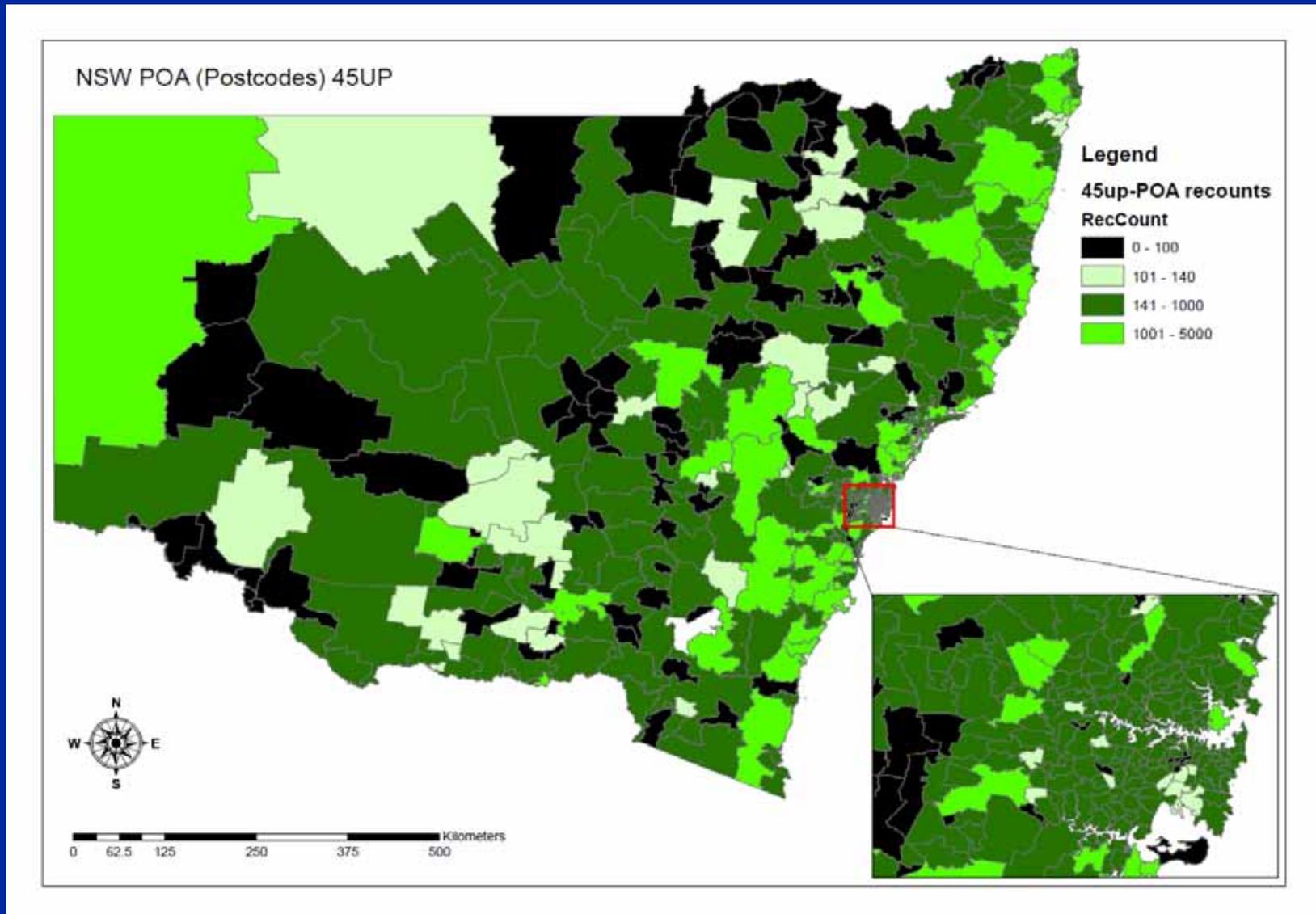   – Highly sensitive data

    – Non-trivial privacy concerns

What Will Be Catchment Areas Built Off?

- **Ideally**: Census Collection Districts (CCDs)

- **Practically**:

  - First POAs (because CCDs are not available yet)

  - Then CCDs

45 and Up Records Distribution by POA

NSW POA (Postcodes) 45UP

Legend
45up-POA recounts
RecCount
- 0 - 100
- 101 - 140
- 141 - 1000
- 1001 - 5000

Kilometers
0   62.5   125   250   375   500

(Courtesy of P. Konings)
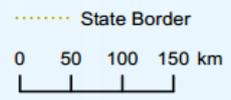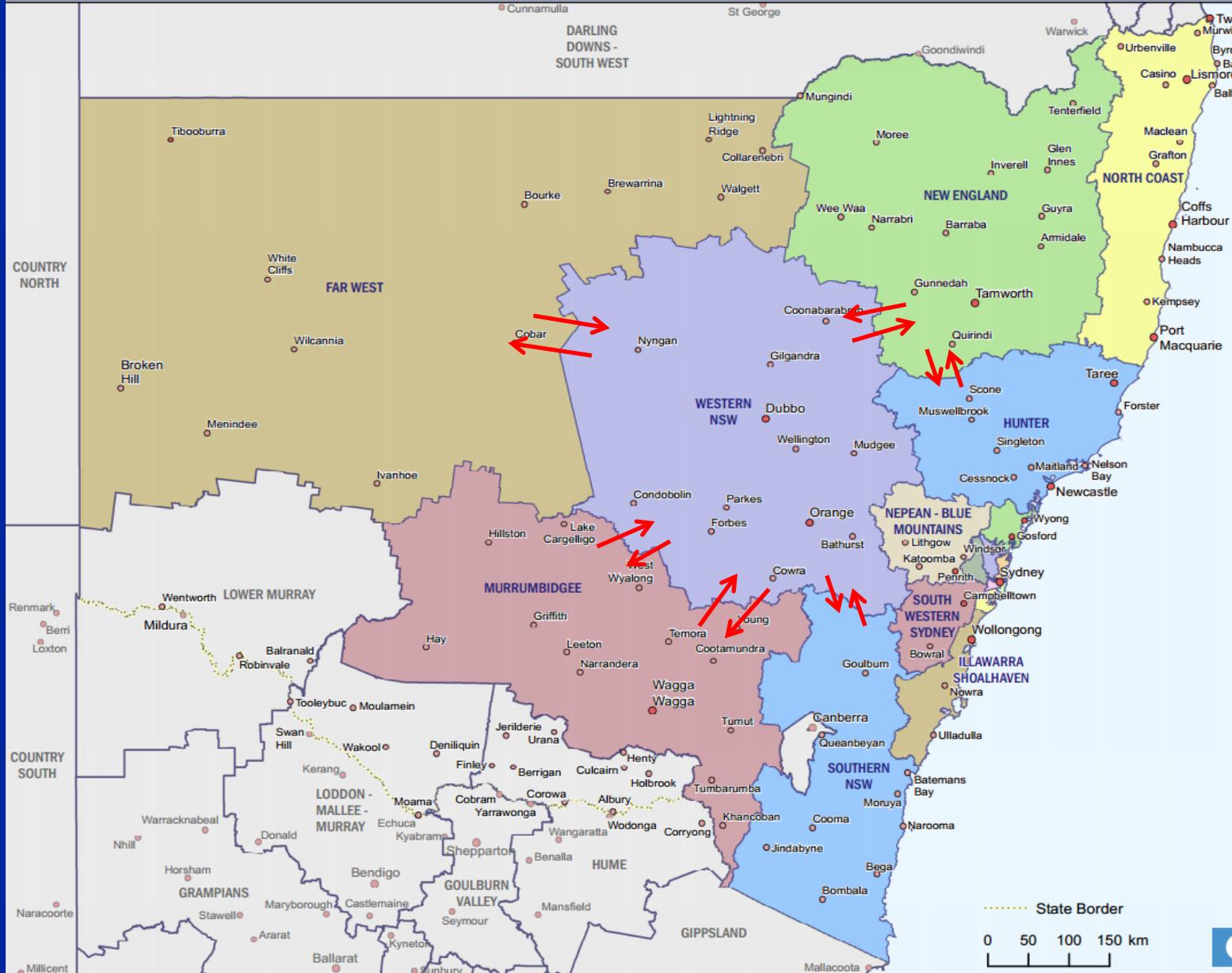
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Catchment Areas

- Are interesting in their own right

  - For example, compare to administrative areas, such as Medicare Locals

- Provide input for the next part of the project

To what extent do people utilise primary care within their Medicare Local of residence?

New South Wales Medicare Locals map showing boundaries as of June 2012, with regional areas including Country North, Far West, Western NSW, New England, North Coast, Hunter, Murrumbidgee, Southern NSW, Nepean - Blue Mountains, South Western Sydney, Illawarra Shoalhaven, and surrounding areas.

We can study the patient flows in and out of Medicare Locals

- Create patient-provider matrix:

  – 45 and Up Study +MBS

- Calculate utilisation percentages:

  – how much took place outside the Medicare Local of residence?

- Spatial analysis:

  – geographical variation in primary healthcare utilisation across Medicare Locals

- Multilevel modelling:

  – to determine what type of people are more likely to cross Medicare Local boundaries for healthcare

In the next part of the project we focus on the analysis of spatial variation

- Spatial variation of what?

  - health, utilization, expenditure, access, GP supply …

- First we will document spatial variation
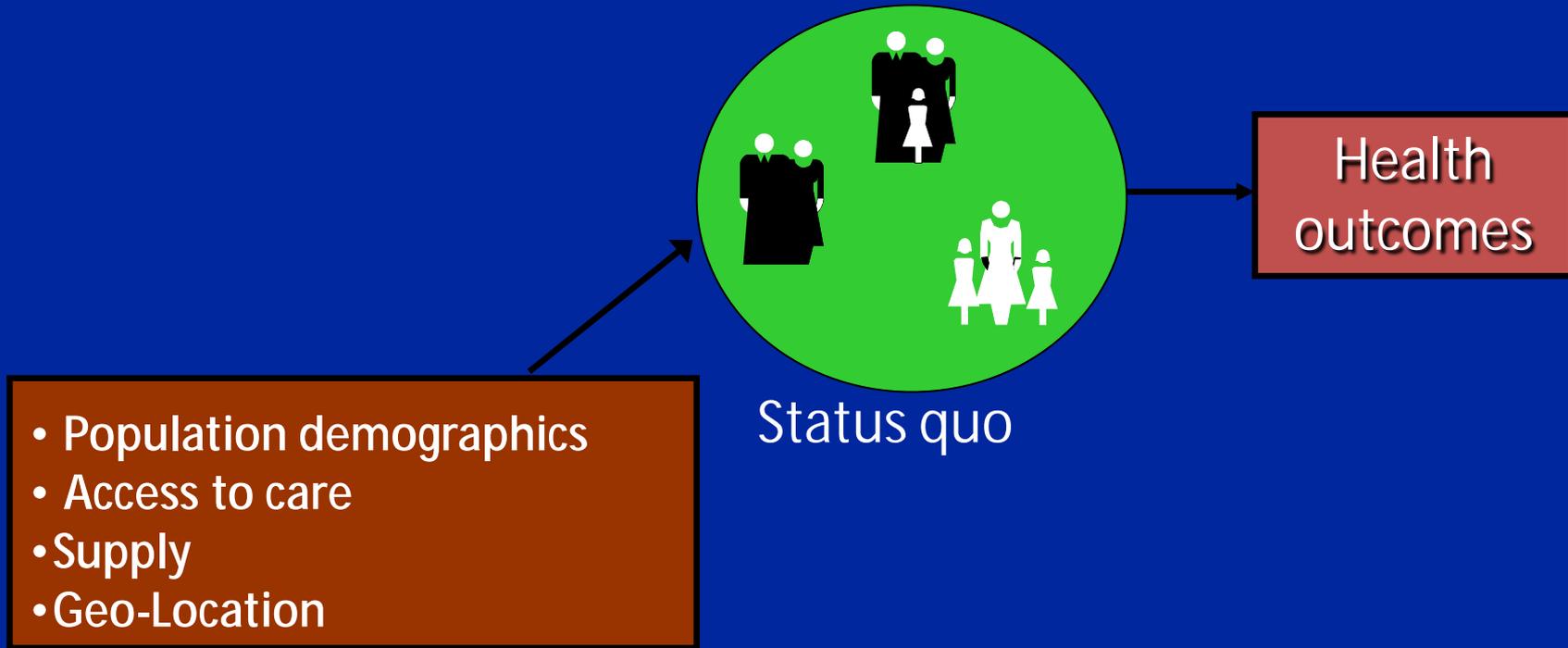
- Then we will try to explain it

Socioeconomic inequalities in health care use, access and outcomes in primary health care

- How where people live influences their interaction with the PHC system, in addition to who they are

  - Neighbourhood vs. individual effects
  - Interaction between context and composition
  - Influence of geographical location-spatial patterning, clustering

- Specific context/neighbourhood effects

  - SES -absolute disadvantage vs. relative inequality of an area
  - PHC service characteristics (supply, bulk billing rates, continuity of care)

- Outcome measures

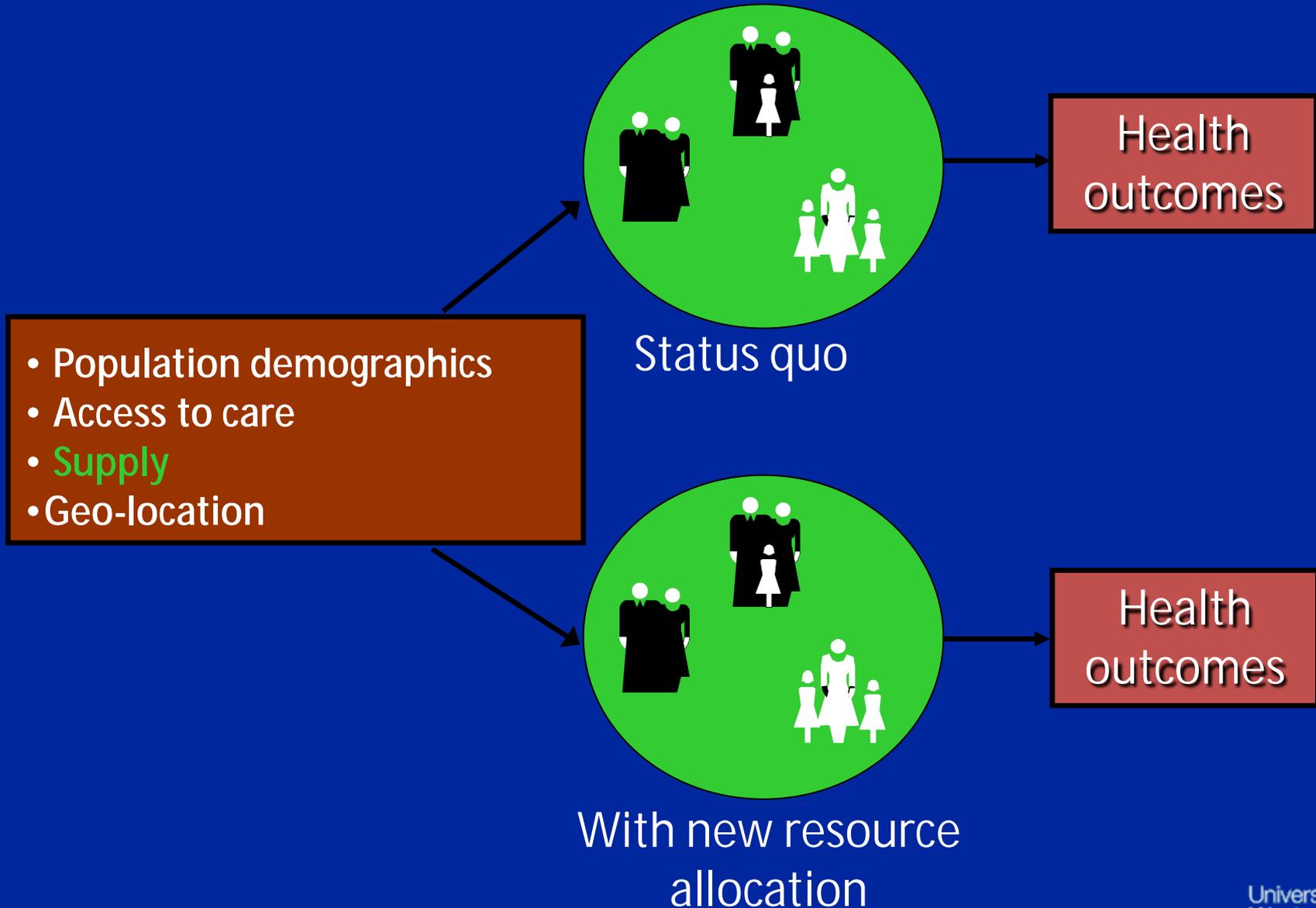 - Use, quality of care, GP like ED presentations

A Variety of Statistical Methods Will Be Used

- Analytical methods:

  - Multilevel modelling

  - Spatial analysis: geographically weighted regressions, cluster analysis, …

- Scale of analysis:

  - CCD, postal areas, possibly other geographies

  - Patient catchment

- Challenges

  - control for potential confounders

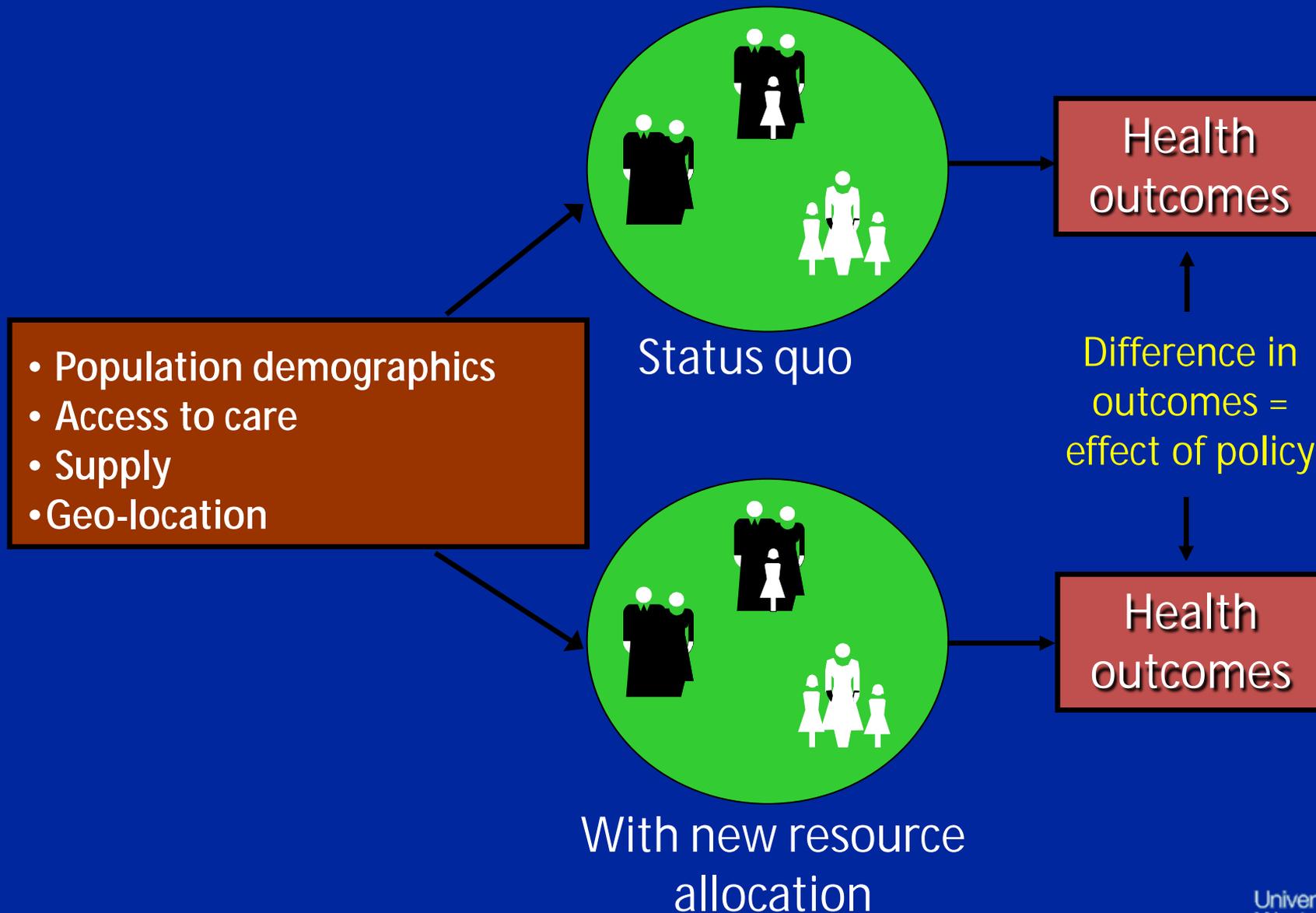 - deal with jointly determined variables and reverse causation

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Modeling a Policy Intervention Begins With Modeling the Status Quo

Then We Model the World With a Different Allocation of Resources

Status quo

With new resource allocation

- Population demographics
- Access to care
- Supply
- Geo-location

Health outcomes

Health outcomes

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The Difference in Outcomes Shows the Effect of the Policy

We welcome your feedback!

- General direction of the study

- In particular:

  - scope of the analysis of the catchment areas, patient flows and Medicare Locals

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