RAND HEALTH

Use of GIS Mapping and Decision Tools to Help Health Plans Target Quality Gaps

ESRI Health GIS Conference
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Co-Investigators

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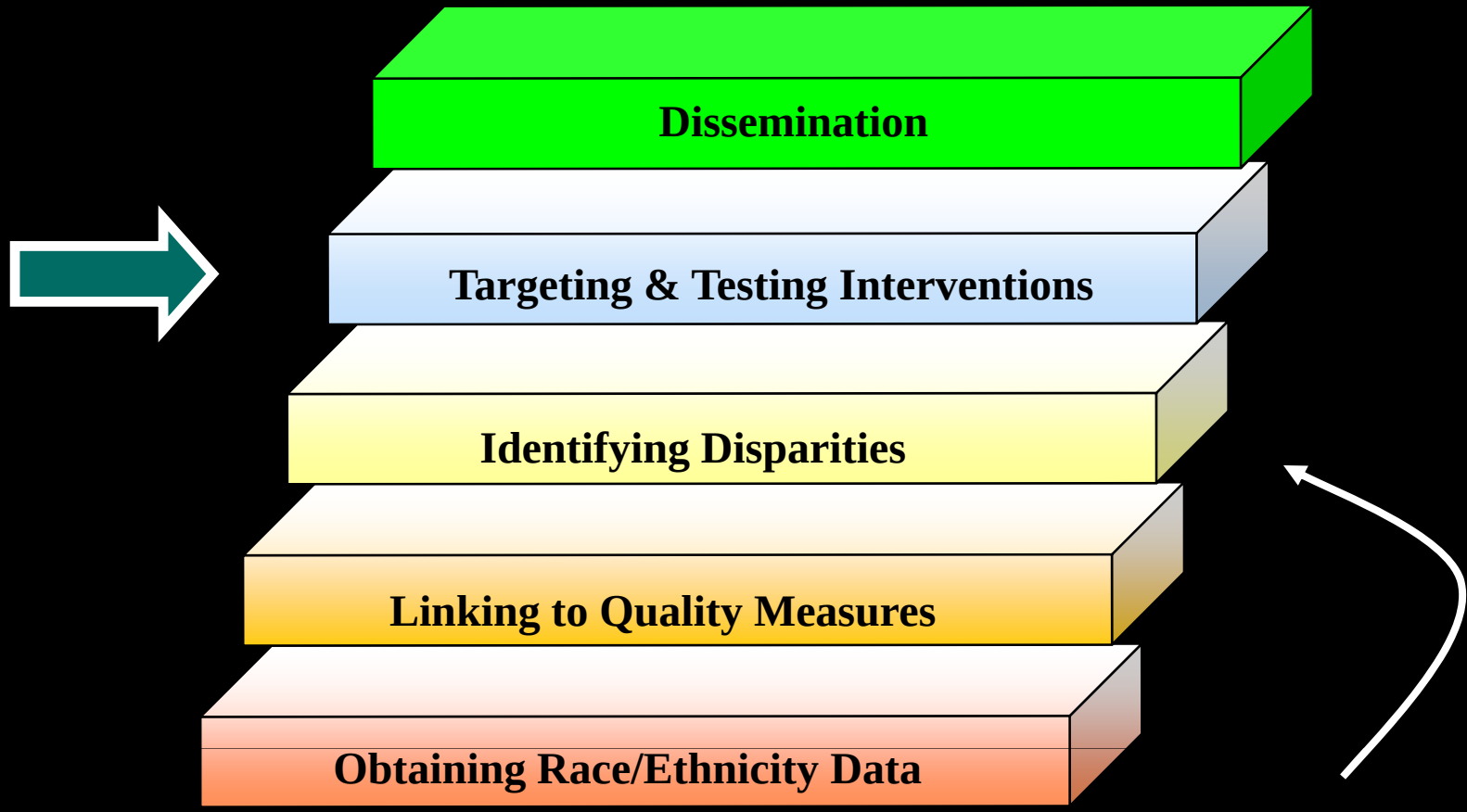
National Health Plan Collaborative (NHPC)

- **Public-private partnership to improve health care quality for racially and ethnically diverse populations.**
- **10 health plans, > 86 million members**
  - **Aetna, CIGNA, Harvard Pilgrim Health Care, HealthPartners, Highmark Inc., Humana, Kaiser, Molina Healthcare, UnitedHealth Group, & WellPoint, Inc.**
- **Sponsored by AHRQ, RWJF**

Getting From Point A to B?

Steps From A to B



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Obtaining R/E data & linking to quality measures necessary, but not sufficient for reducing disparities

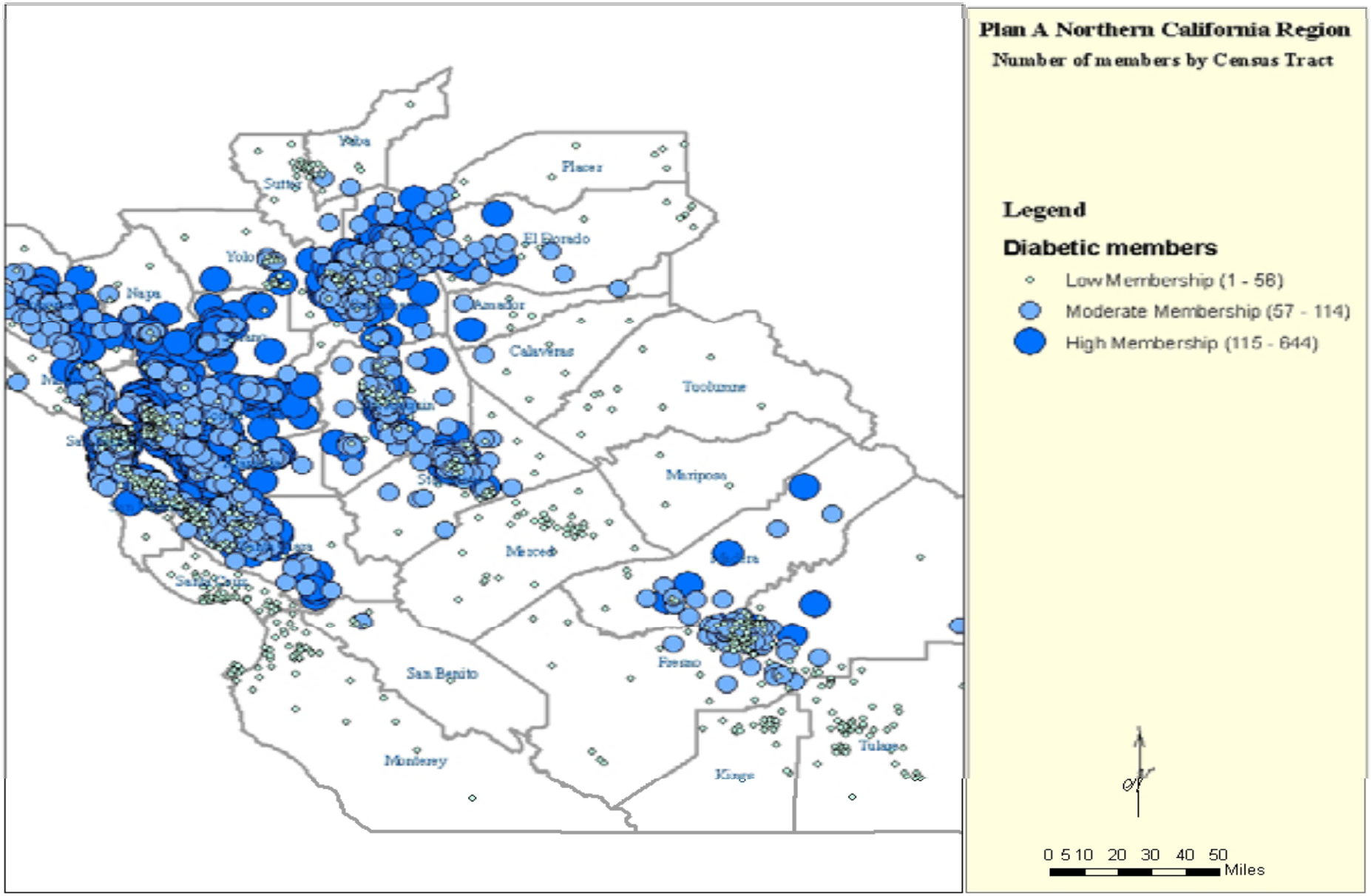
- **“Awash in a sea of data”, “…Where to begin?”**
- **Current infrastructure does not support efficient targeting of disparities and effective interventions**
- **Available knowledge does not translate easily into cost-effective changes**

Emerging GIS tools are helping plans use their data more efficiently and effectively

- **Map distribution of patient subgroups nationally, regionally, locally**
- **Rapidly identify and characterize populations and areas for potential interventions**
- **Clarify contributing factors and cost-effective interventions**
- **Can act as Disruptive Innovation***

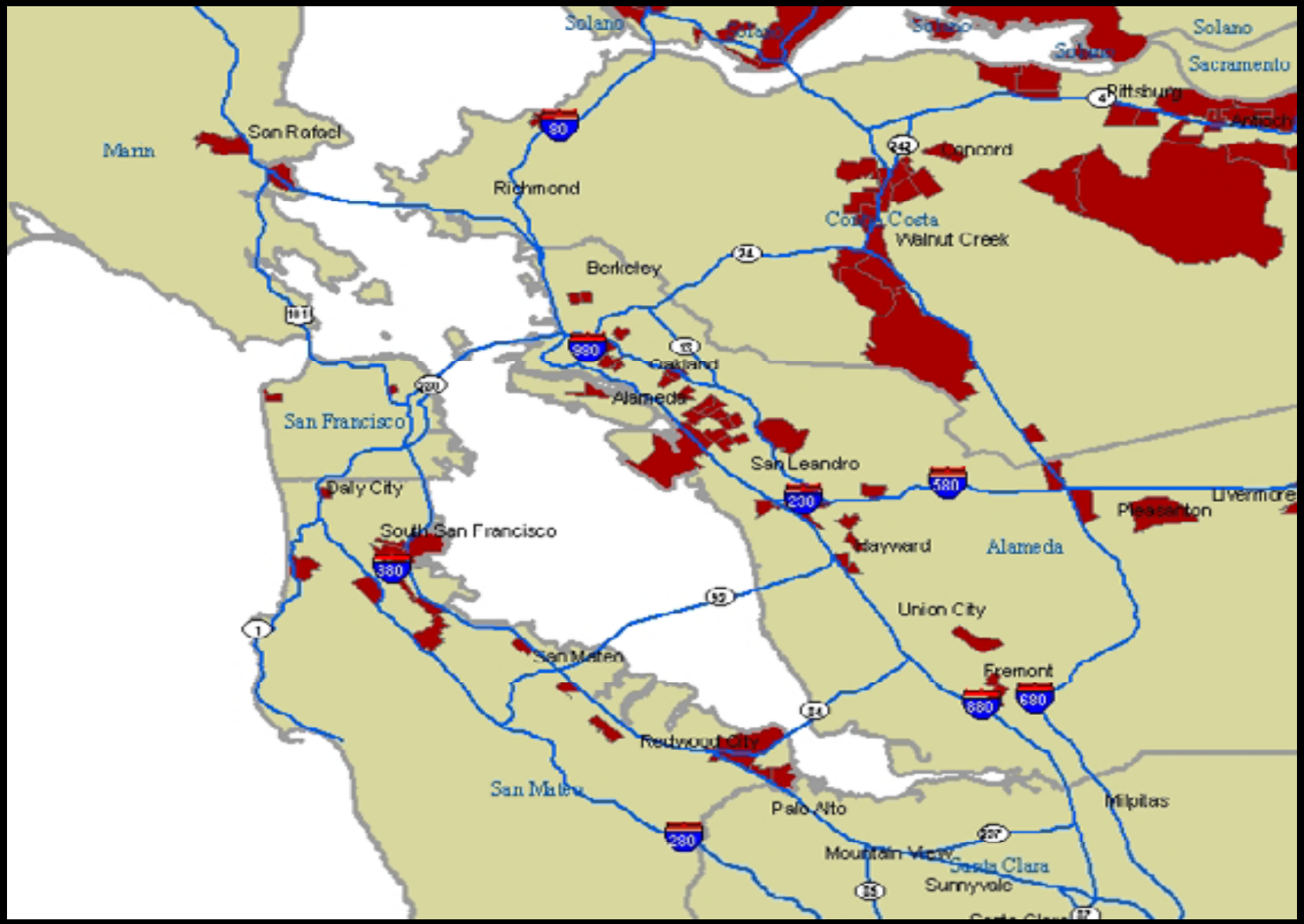
*Health Affairs 26, no.3, 2007

Plan A: Distribution of Diabetics in Northern California



Can use queries and filters to highlight areas of interest

>66% not receiving LDL test & large # of diabetics in census tract



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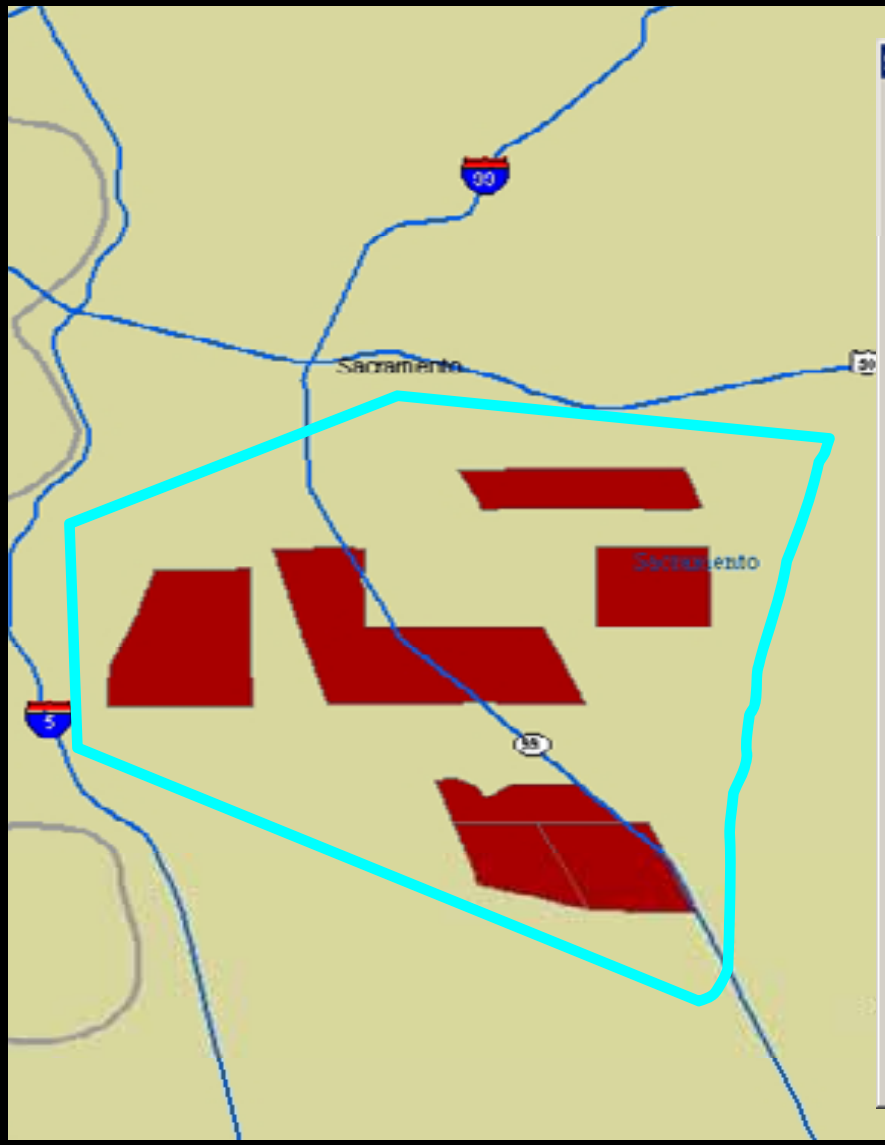
Users can instantly access salient information by selecting or clicking on areas of interest



Summary Statistics for Selected Area

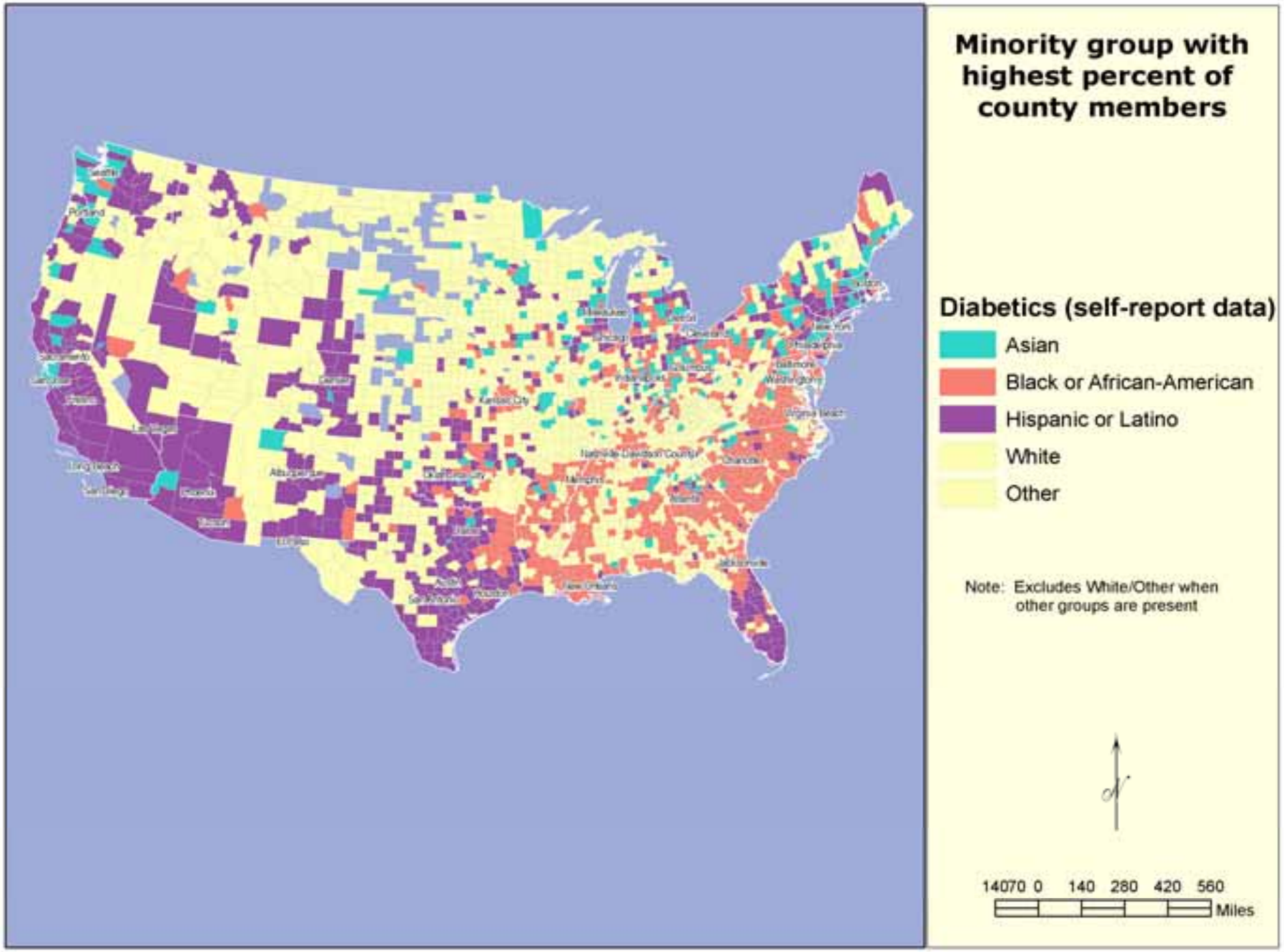
Overall | African-American | Asian-American | Hispanic | White

Total members in area: 5981
Total members in region: 240354
Percent of all members in area: 2.5%

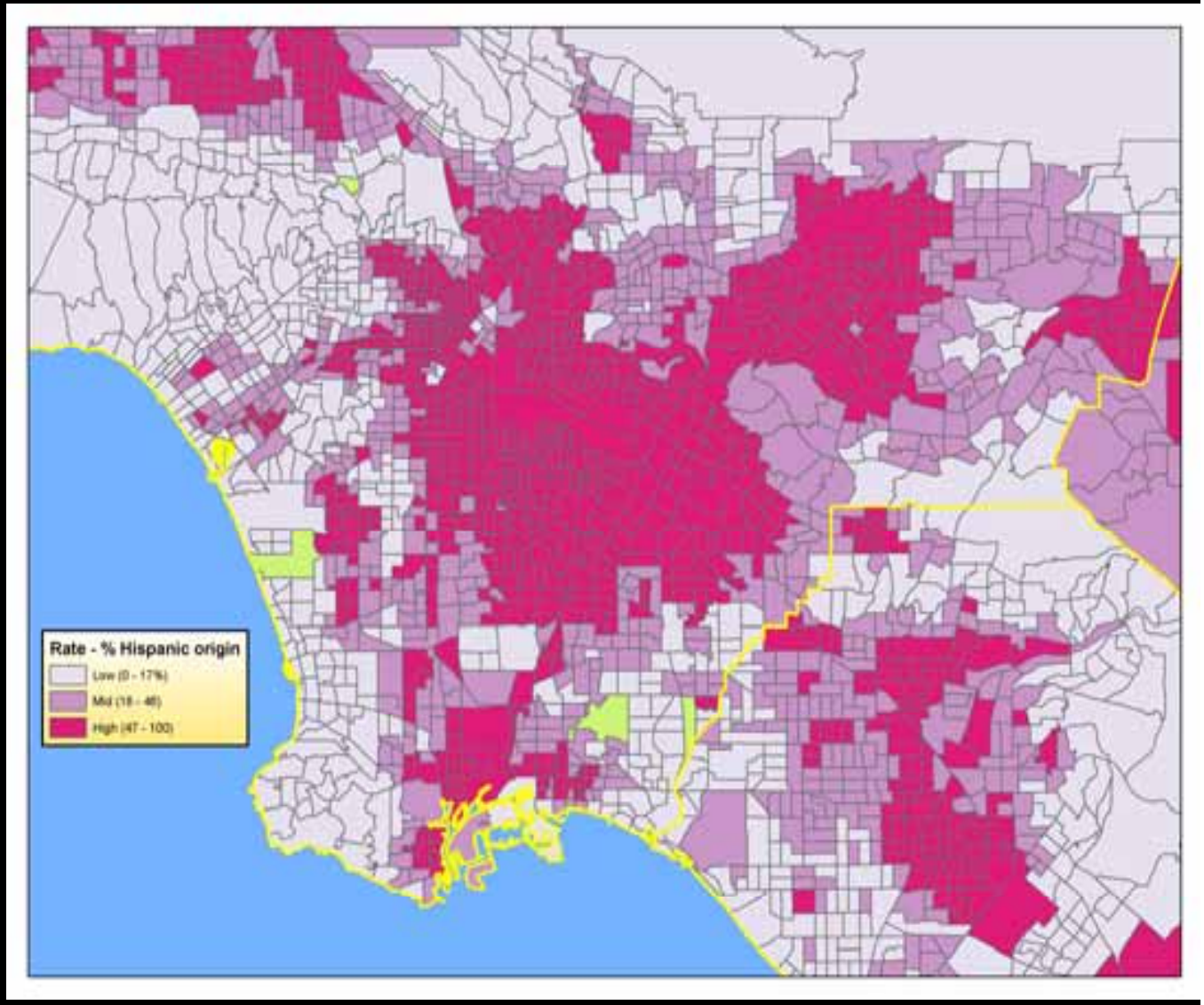
Percent African-American members in area: 0%
Percent Asian-American members in area: 6.5%
Percent Latino members in area: 21.2%
Percent White members in area: 69.8%

Total members not receiving ldl test in area: 1743
Percent of members in area not receiving ldl test: 29.1%
Percent of all members not receiving ldl test: 3%
Percent in region not receiving ldl test: 24.6%

Done


Minority group with highest percent of county members
Diabetics (self-report data)
Asian
Black or African-American
Hispanic or Latino
White
Other
Note: Excludes White/Other when other groups are present
N
14070 0 140 280 420 560
Miles

Percent Hispanic in Census tracts with diabetic members: Southwest Los Angeles



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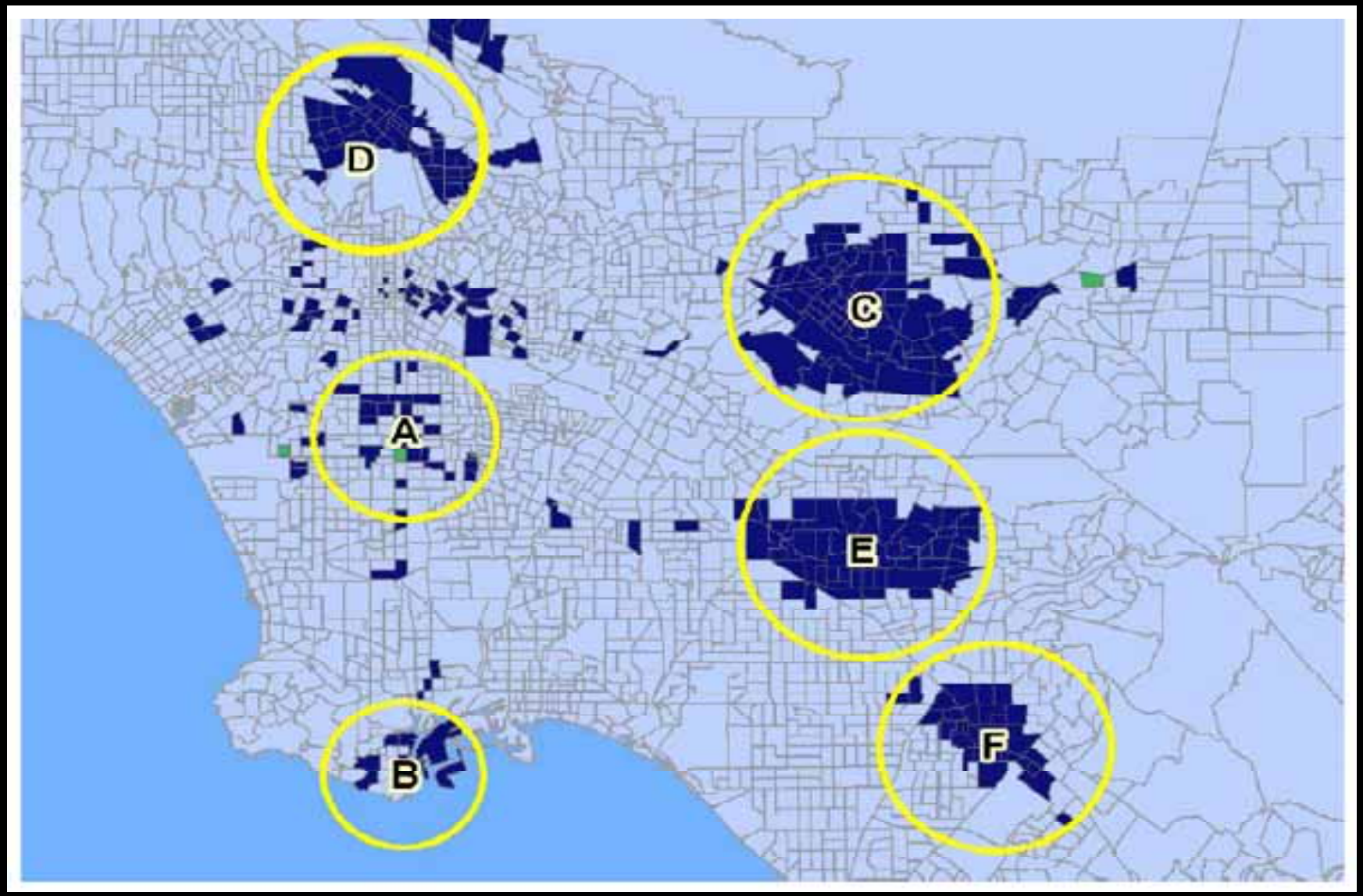
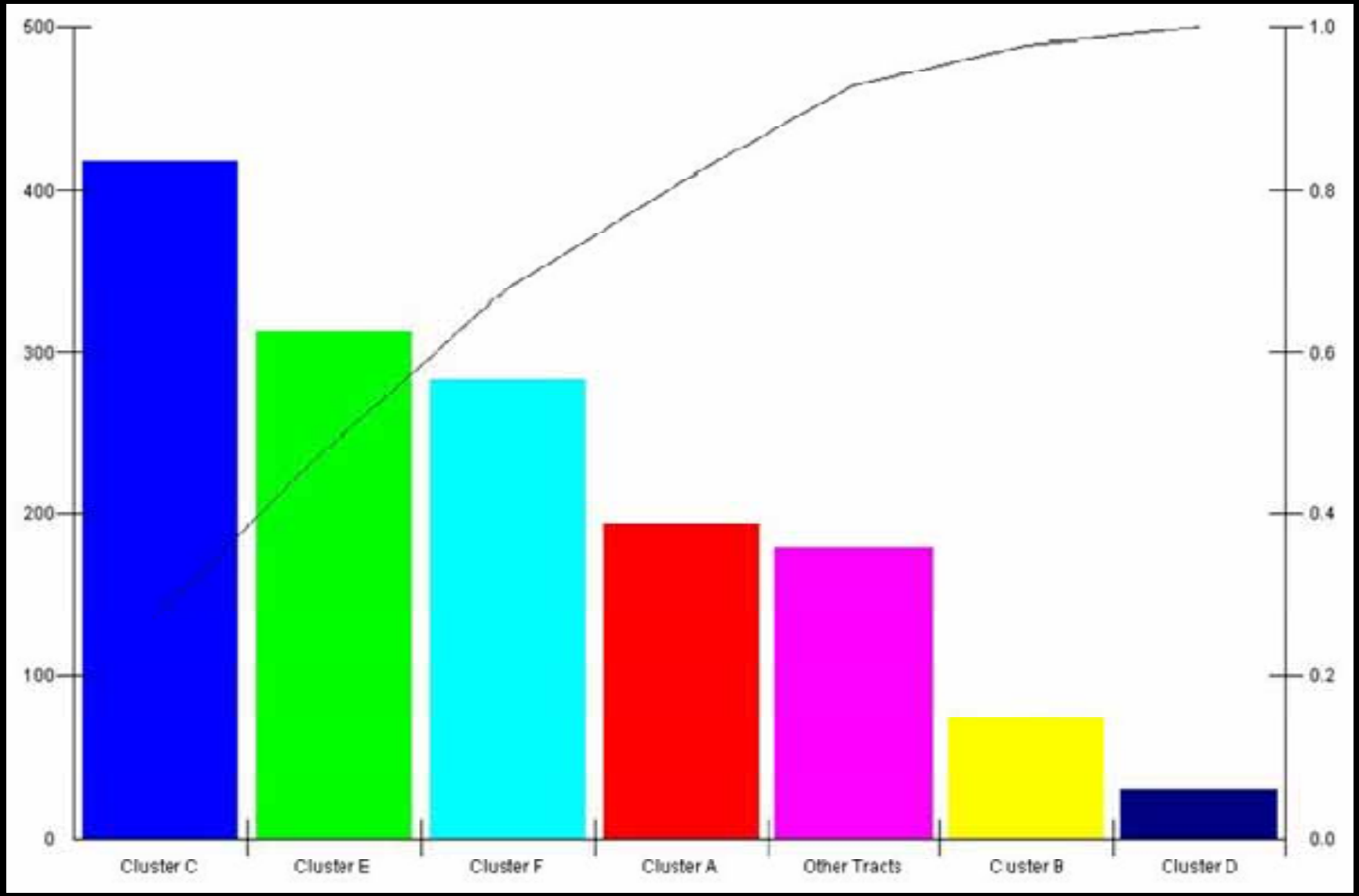
Clusters of Tracts with High Numbers of Hispanic Diabetic Members Without LDL Test in Plan Service Area



Count and Proportion of Hispanic Diabetic Members Not Receiving LDL test for each Cluster and Other Tracts



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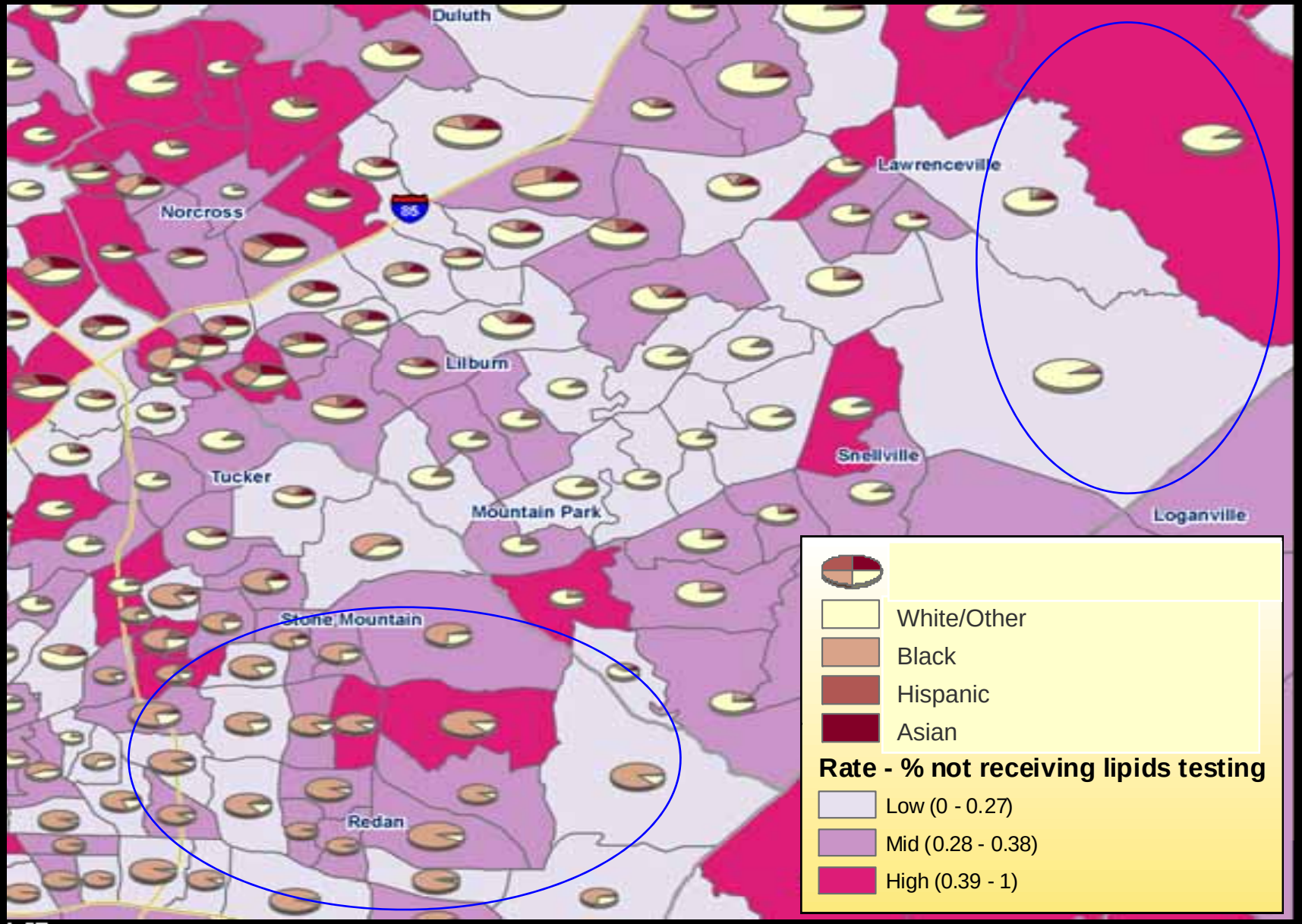
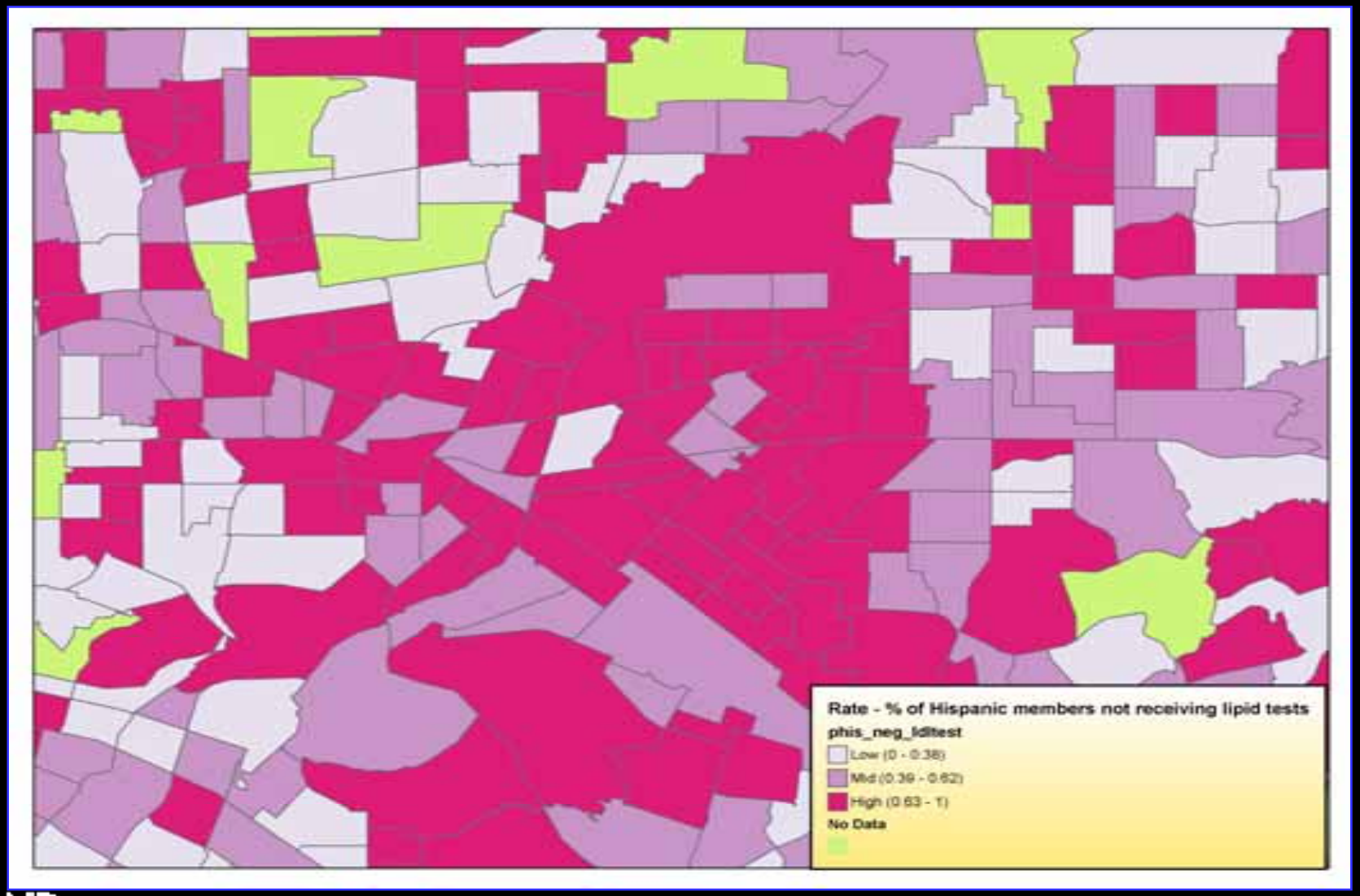
Quality varies by place and R/E – Plan D



Focusing on a poor quality of care neighborhood



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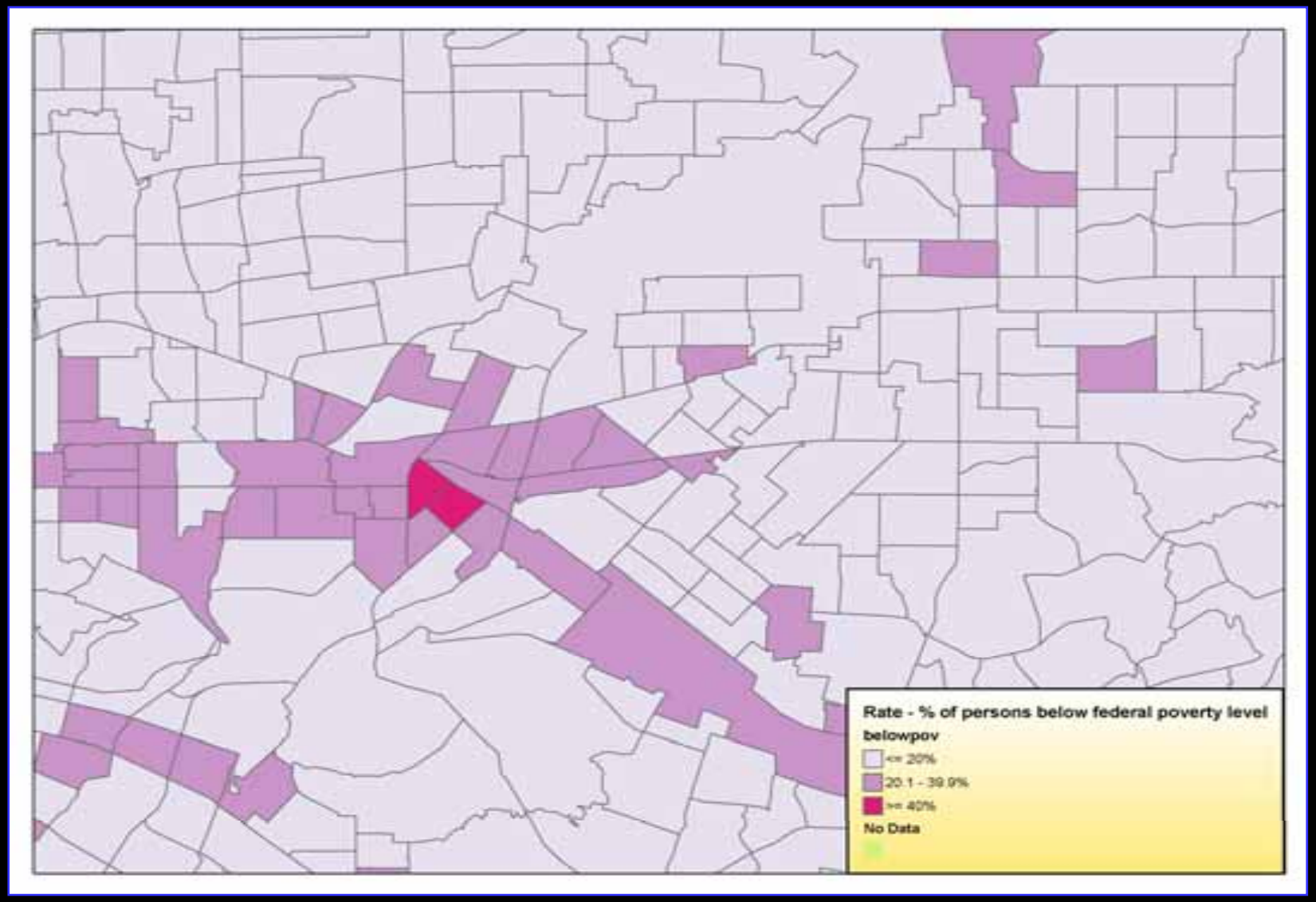
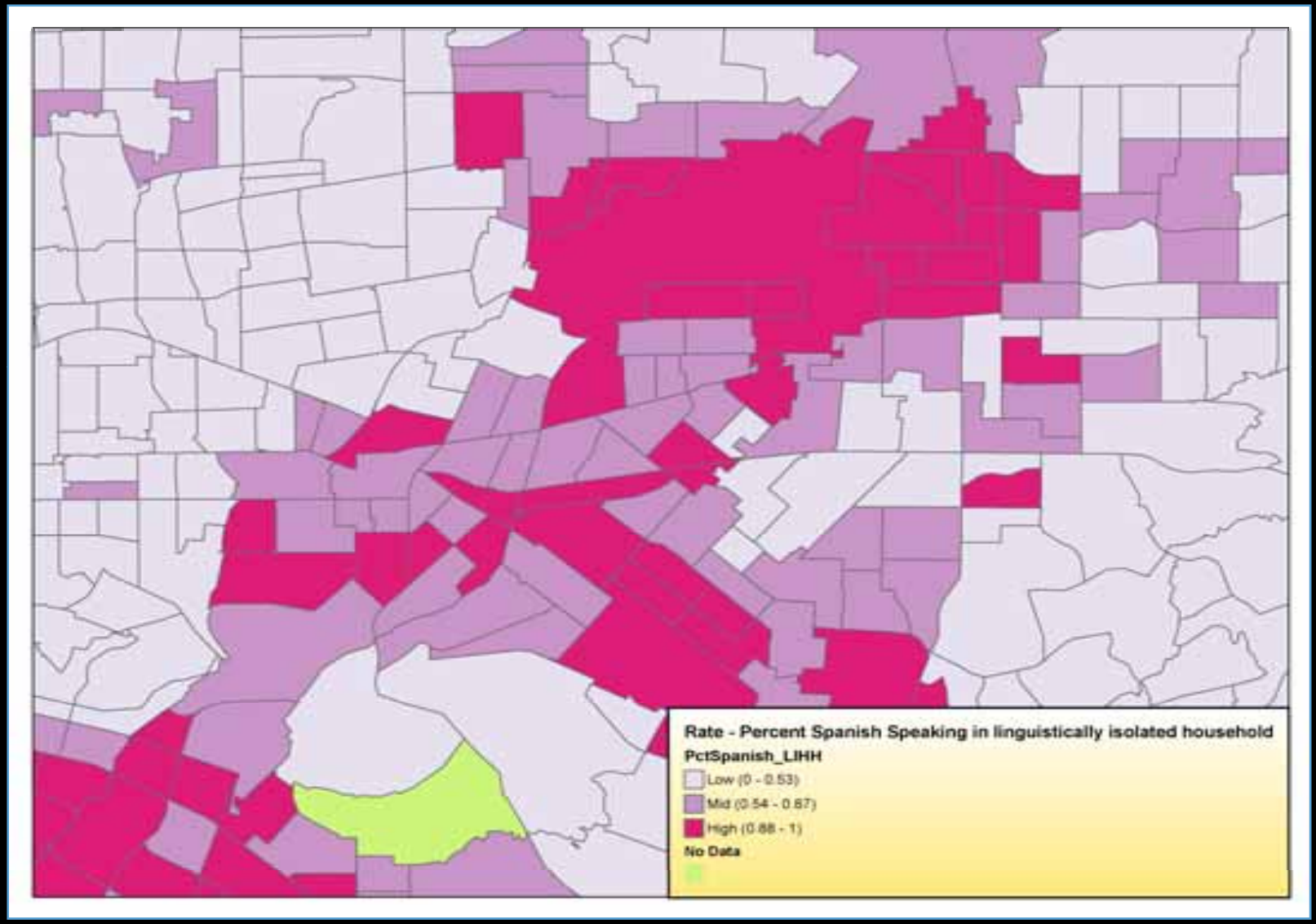
SES is not the only answer

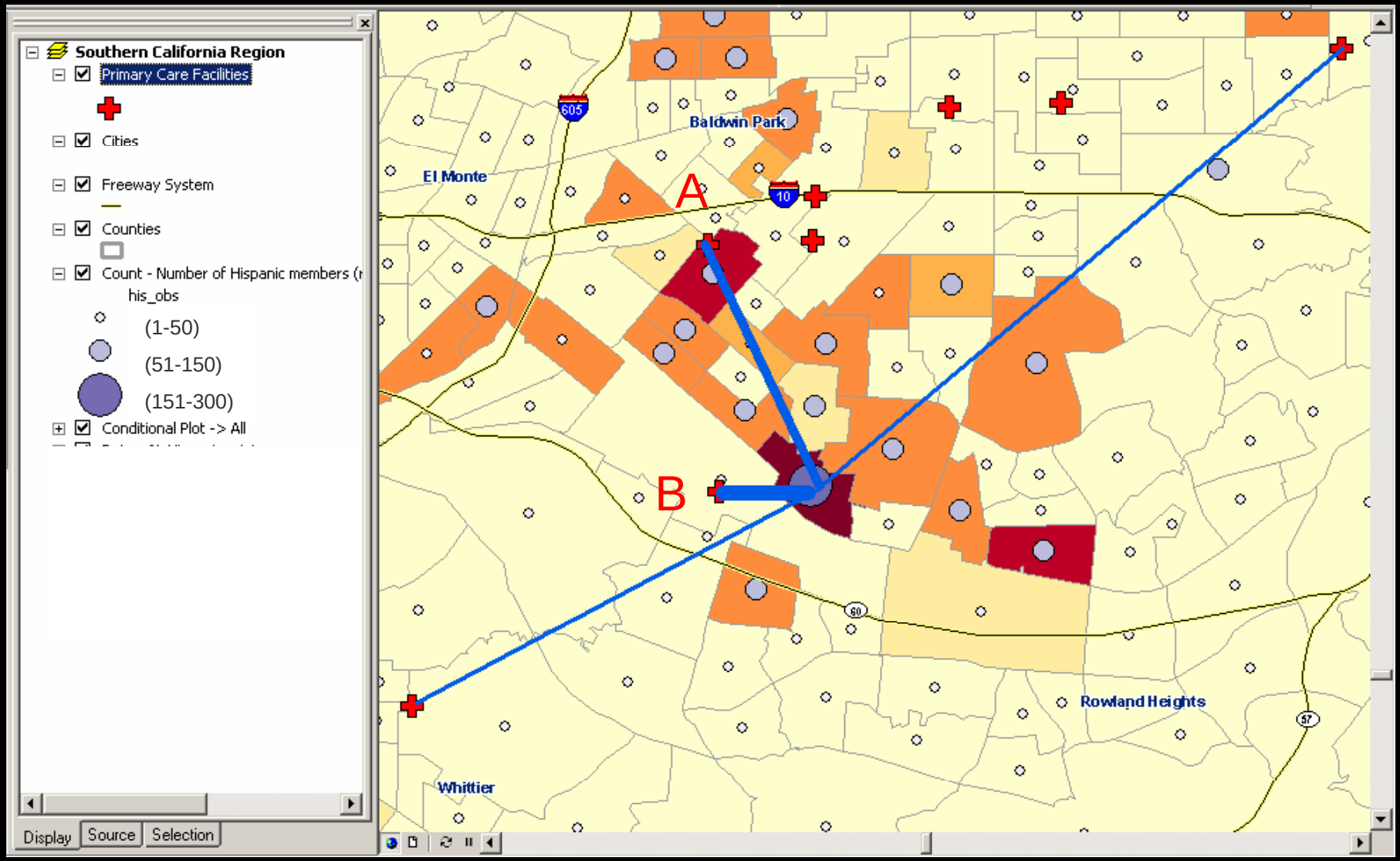


Ability to communicate matters for quality



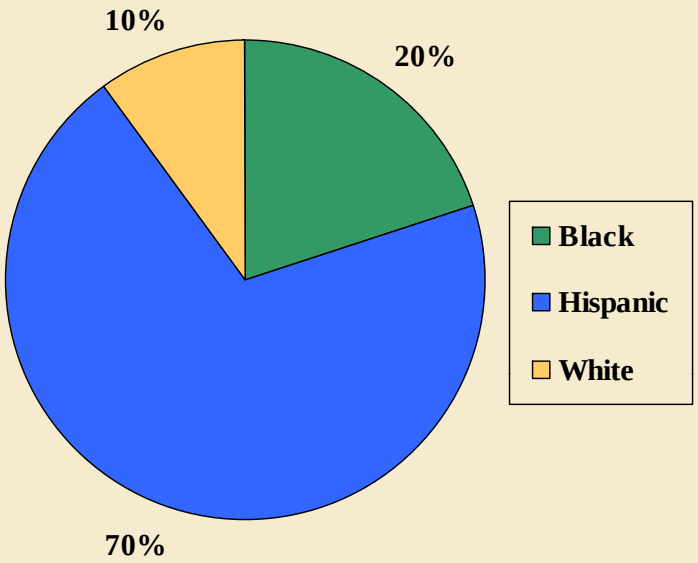
GIS tools can help assess factors contributing to disparity

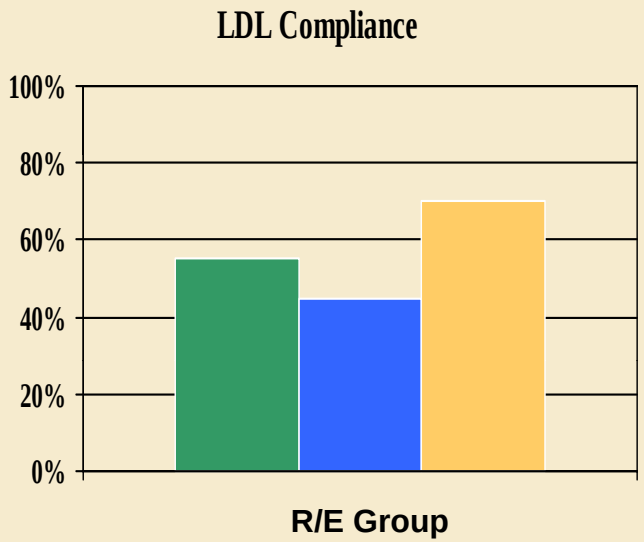
Where are diabetic members who are not receiving LDL tests obtaining care?



GIS allows instant access to other salient information:

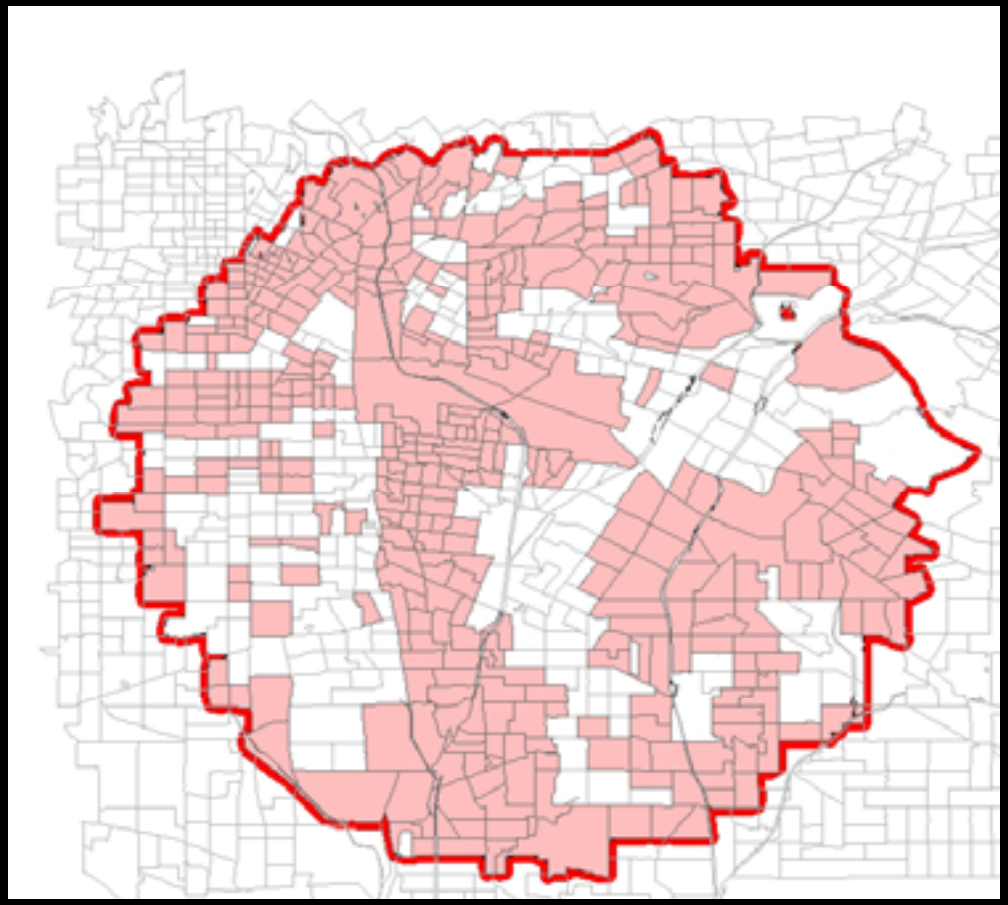
Pop-up neighborhood dashboard example: Clinic B





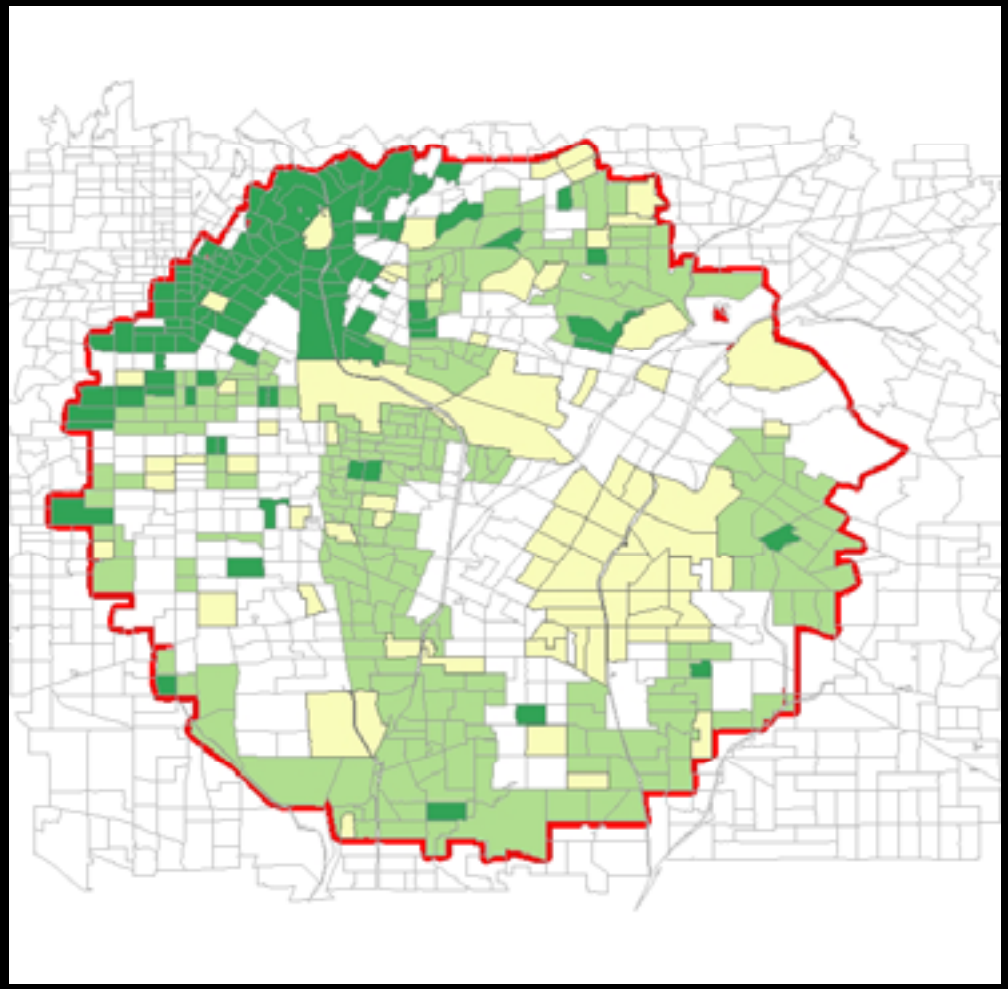
Household Income	Number of members in area	Percent of members in area by income	Percent members receiving LDL test by income
Low	81	27%	61%
Medium	219	73%	65%
High	0	0	0

Targeting entire and all groups may not make sense



- **Some areas within cluster may be more important than others**
  - **Some areas may have few plan members**
  - **Other areas may have plenty of diabetic members but high rates control**
- **Can use GIS or conventional analytics to target more precisely**

Members within cluster may not be homogenous



- **In this cluster, three salient groups:**
- **Hispanic (Low SES +/- LEP)**
- **Hispanic (High SES; English speaking)**
- **White/Other, High SES)**

Hispanic - poor **Hispanic – affluent** **White/Other**

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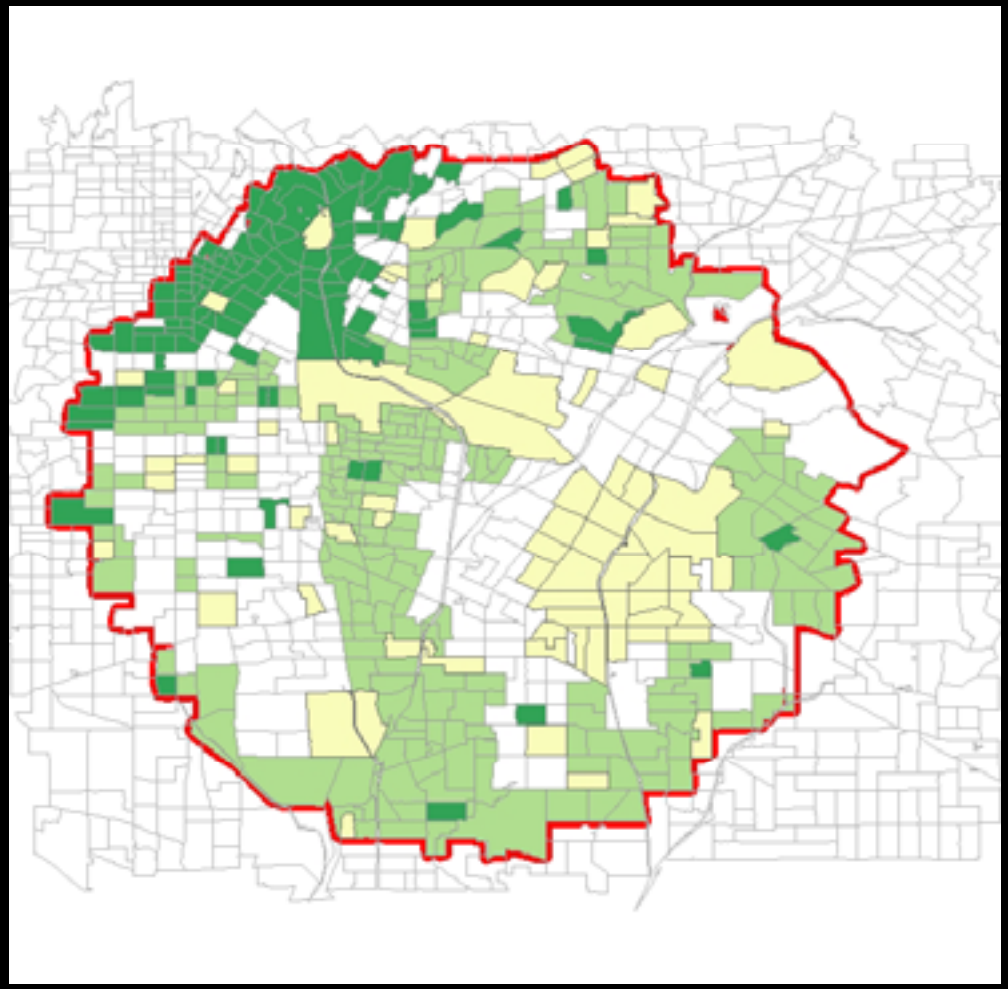
How might cost-effectiveness vary depending on intervention approach and targeting?



- **Target all with simple intervention?**
- **Tailor interventions depending on subgroup?**
- **Intensive intervention vulnerable subgroup only?**

Hispanic - poor **Hispanic – affluent** **White/Other**

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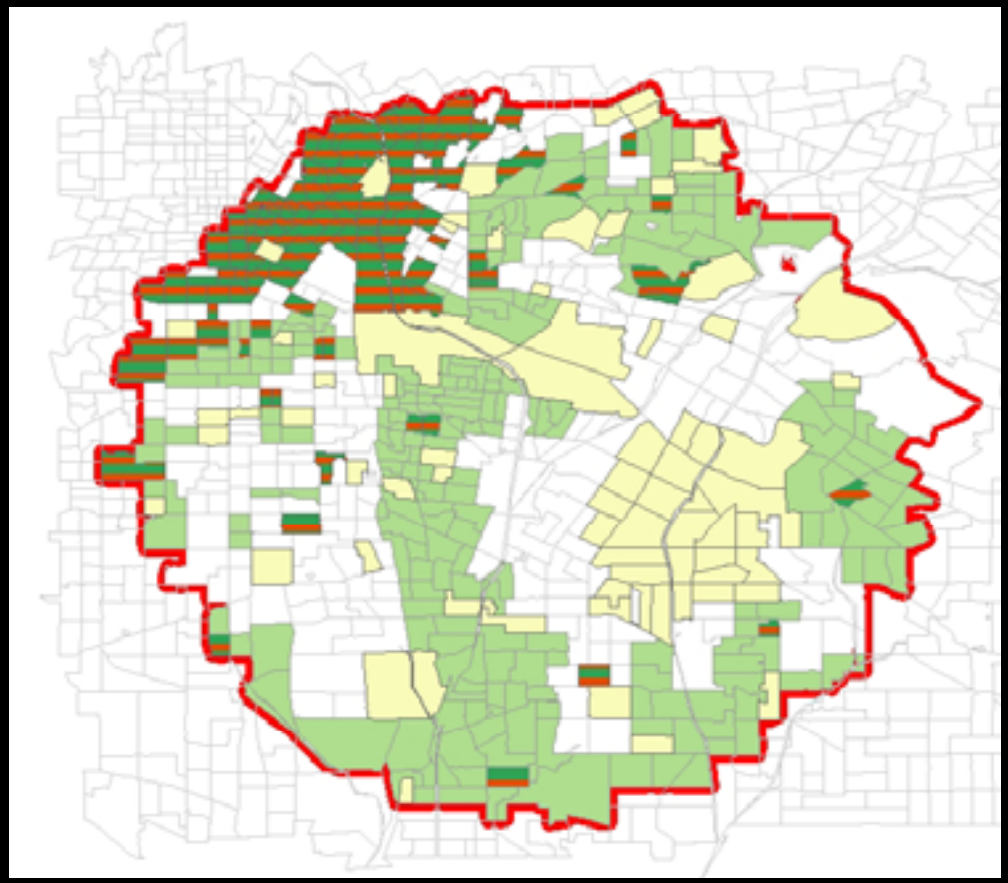
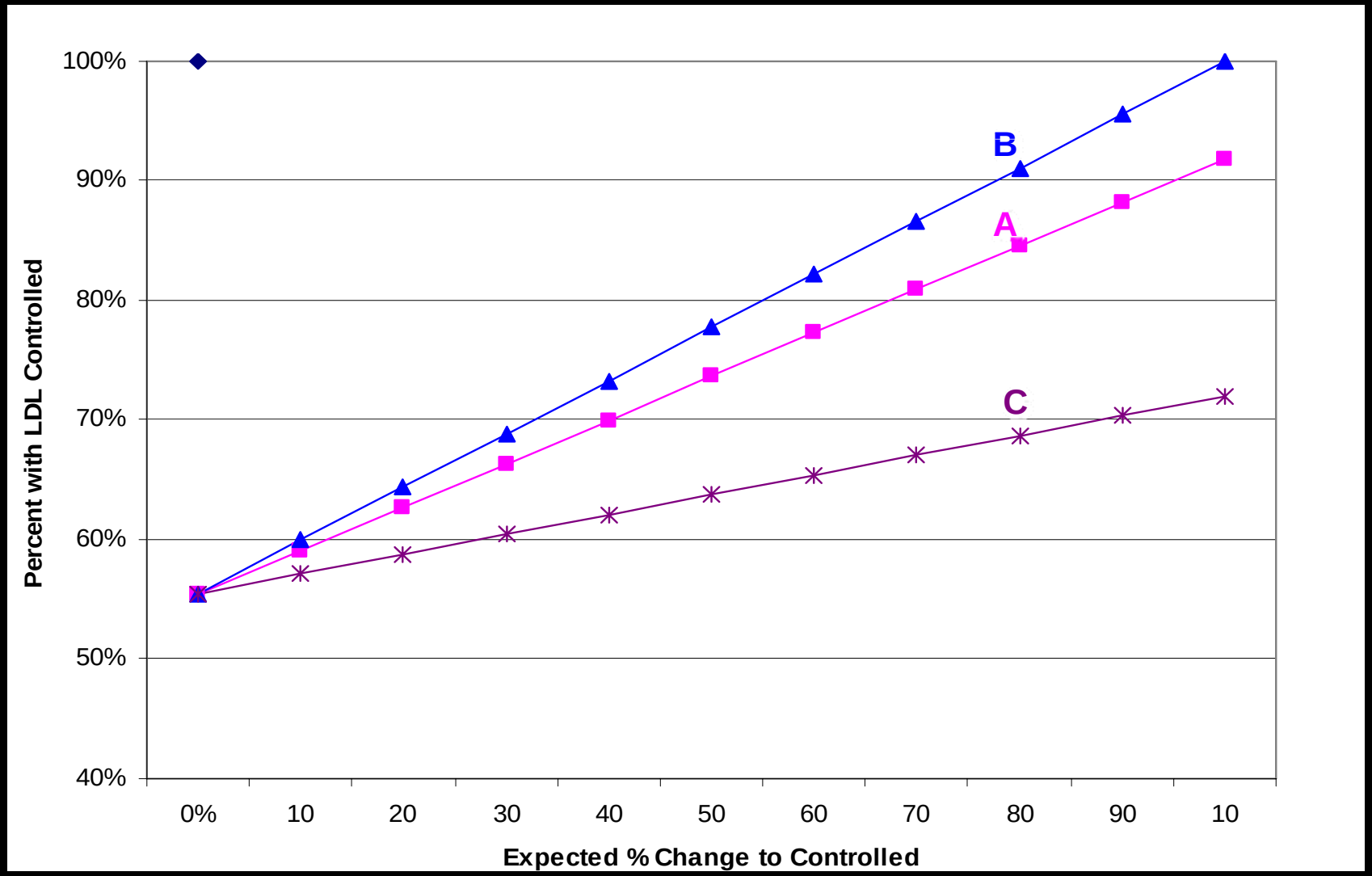
Scenario C



- **Target members without tests in hard to treat populations only**
- **Focus on reducing disparities**
- **Maintaining ROI**

Percent members with LDL control by intervention scenario



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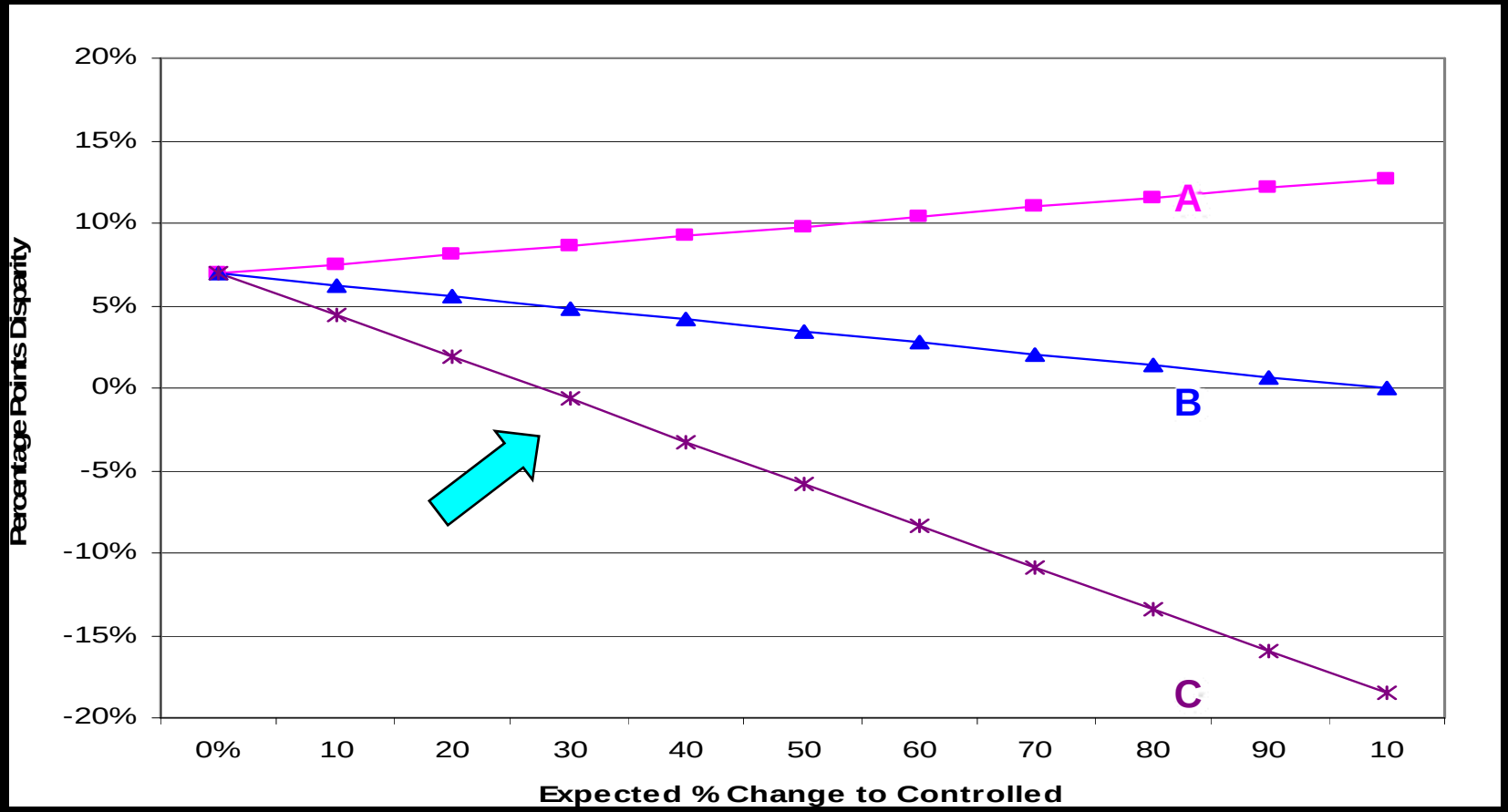
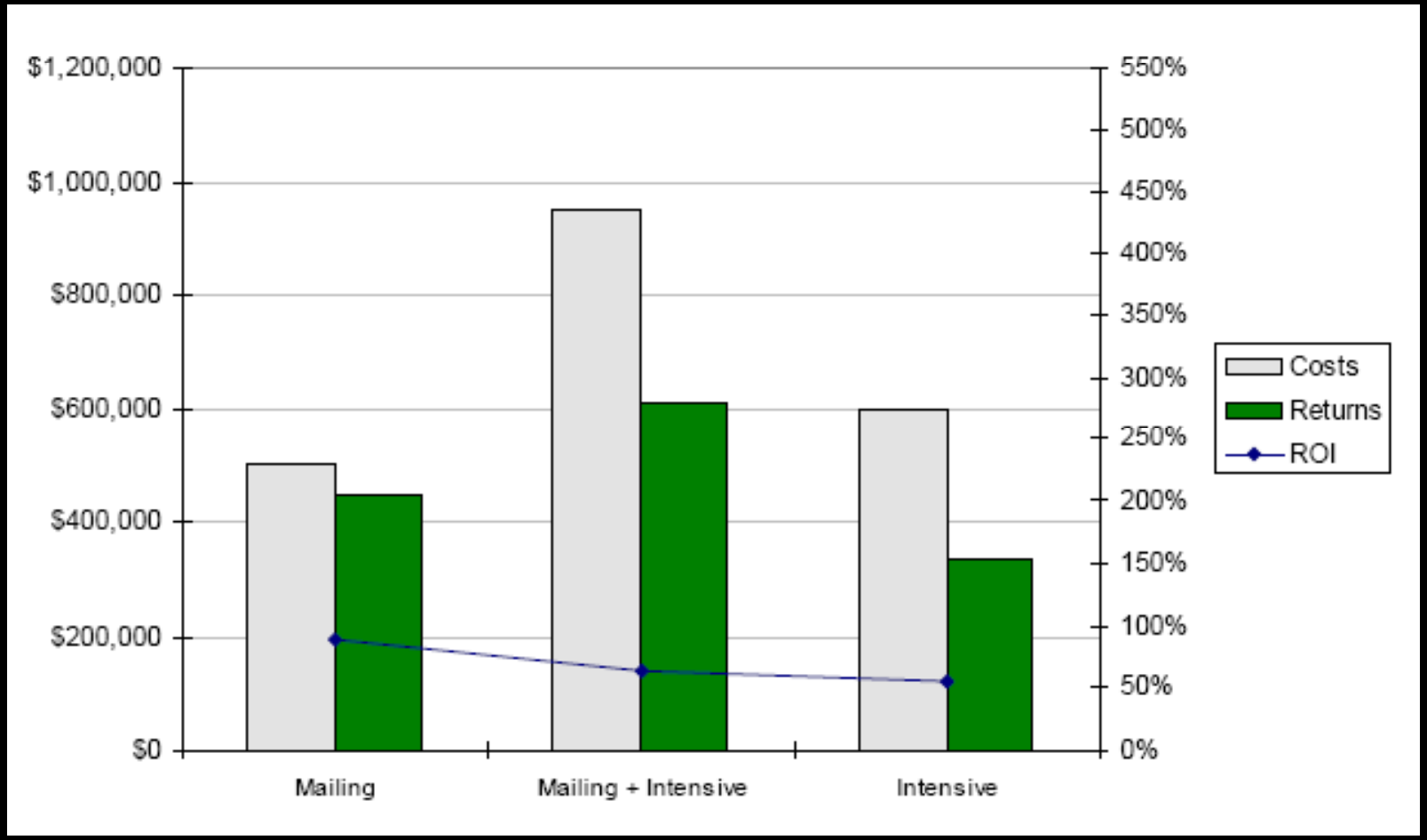
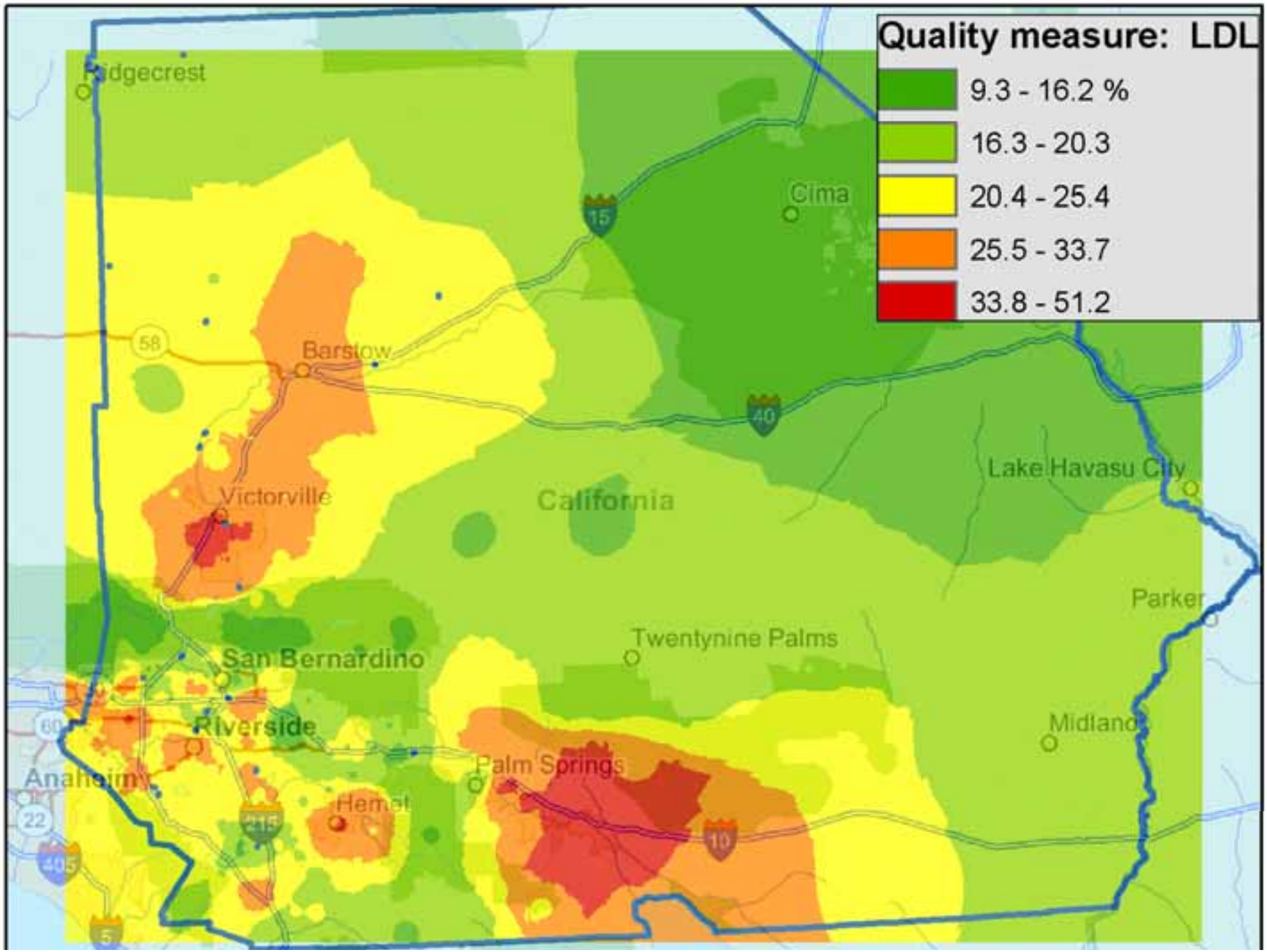
Magnitude of disparity by intervention scenario



Costs and ROI by Intervention Type

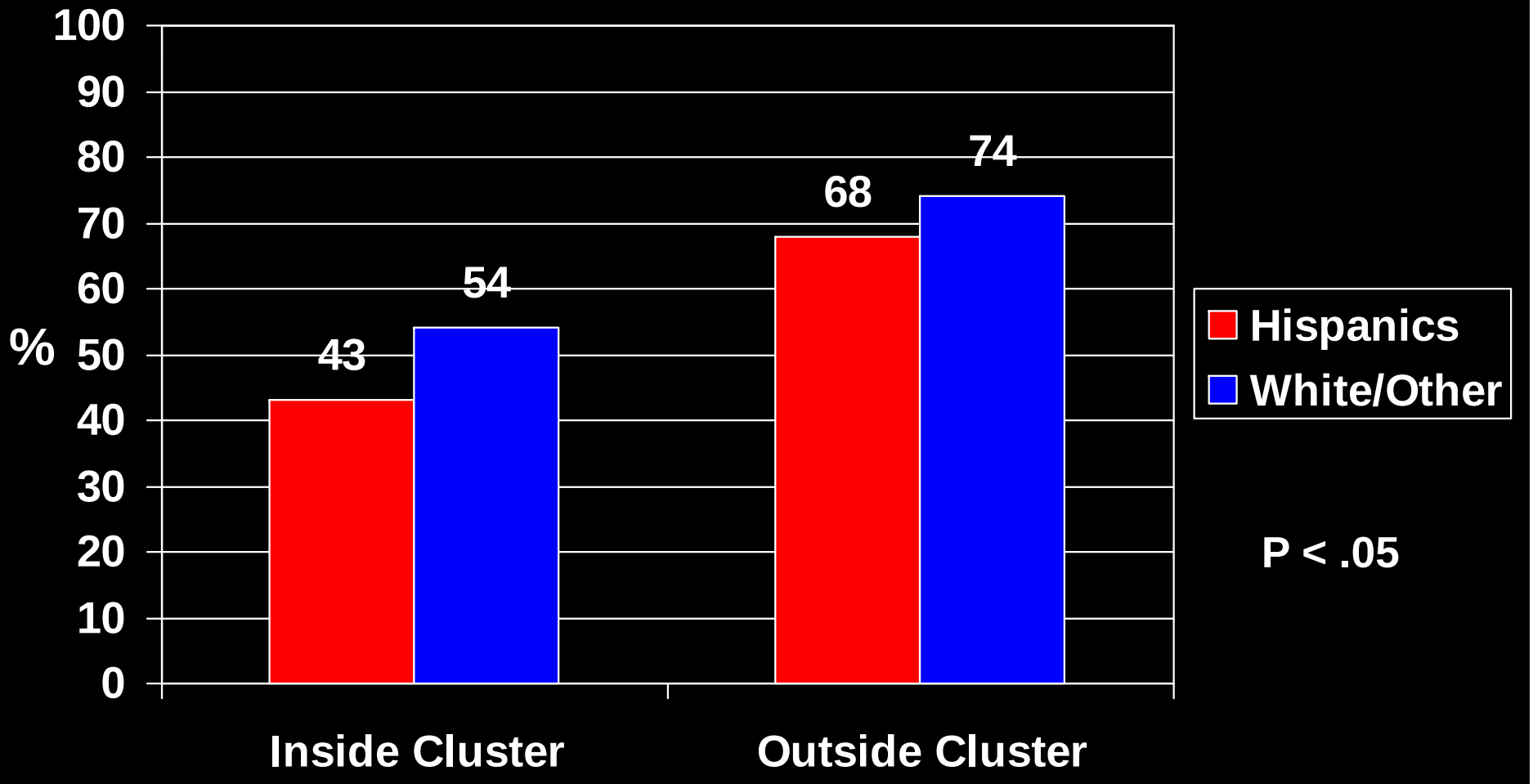



Quality measure: LDL
9.3 - 16.2 %
16.3 - 20.3
20.4 - 25.4
25.5 - 33.7
33.8 - 51.2
Ridgecrest
Cima
Barstow
Victorville
California
Lake Havasu City
Parker
Twentynine Palms
San Bernardino
Riverside
Midland
Palm Springs
Anaheim
Hemet
15
58
40
10
22
405
5

Average Neighborhood Level Characteristics

R/E Characteristics	In Cluster	Outside of Cluster
% Asian	9.66	9.66
% Black	10.32	4.28
% Hispanic	51.21	28.24
% White/Other	26.01	54.04
SES Characteristics	**In Cluster**	**Outside of Cluster**
% below poverty (persons)	20.74	11.99
% working class occupations	75.43	60.76
% professional class occupations	24.51	38.50
% low education	39.00	20.11
% high education	14.91	29.00
% below state median income (HH)	58.91	44.36
Language Characteristics	**In Cluster**	**Outside of Cluster**
% Limited English Proficiency	42.59	29.05

LDL test rates (%) by ethnicity in and out of cluster



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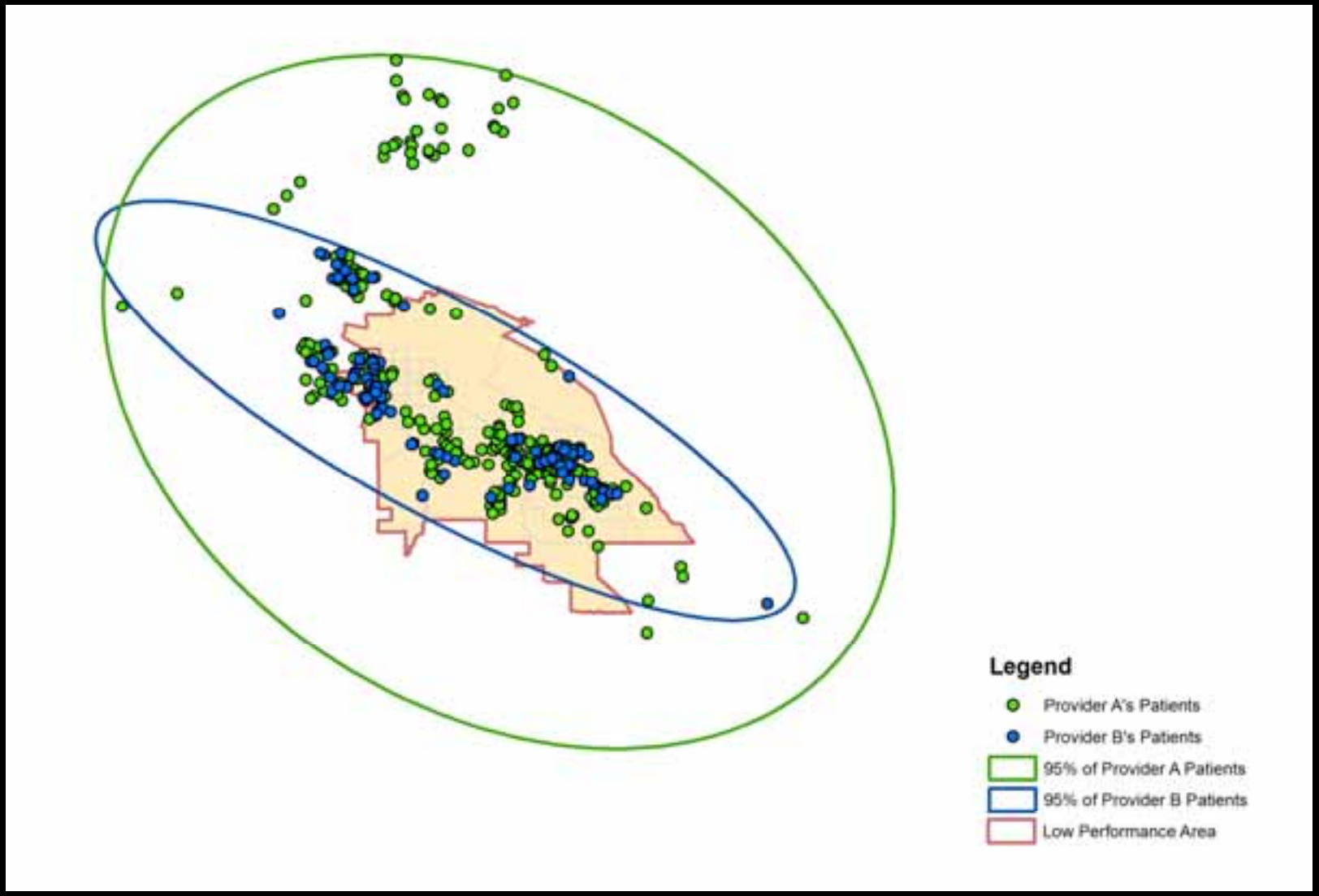
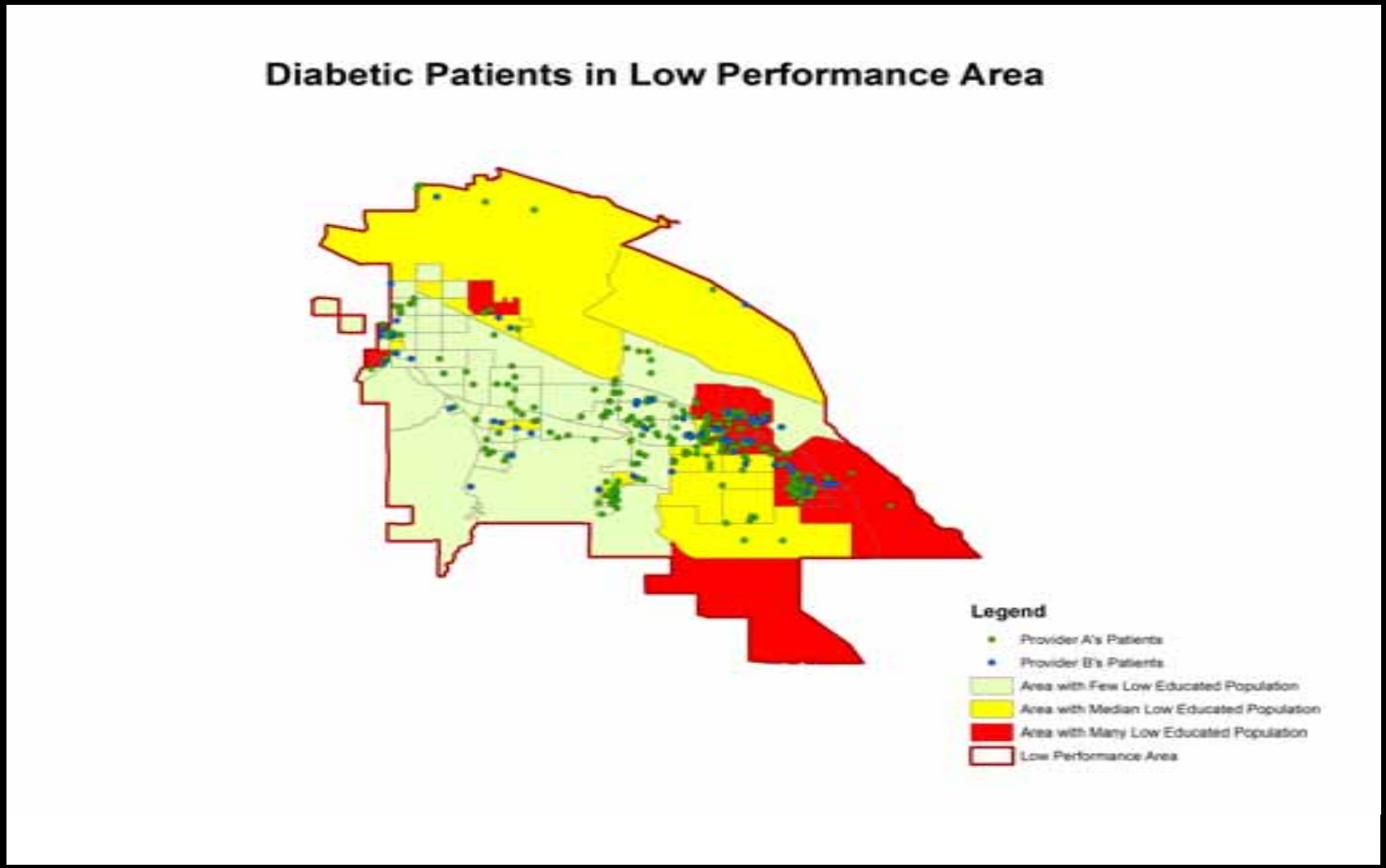
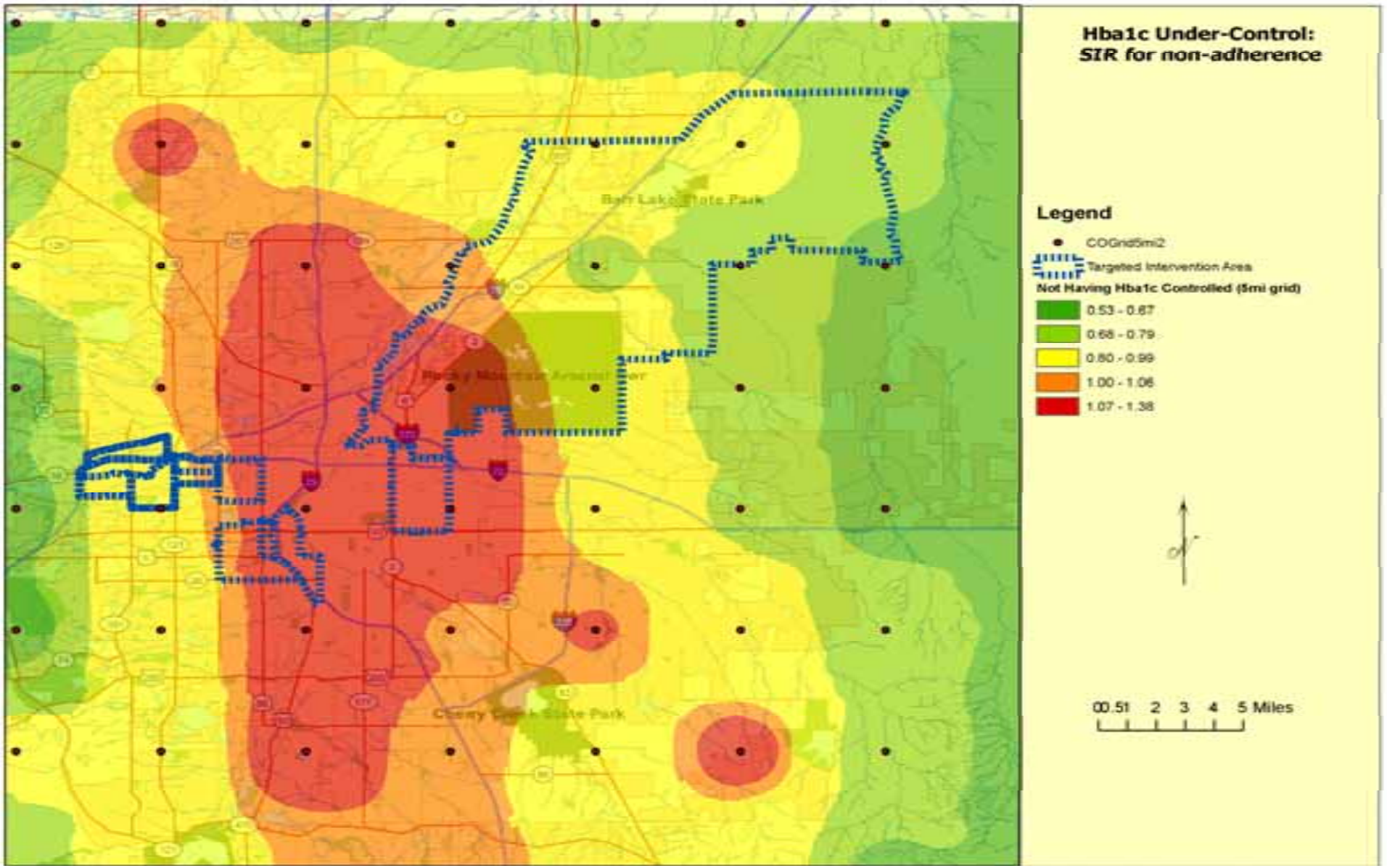
Provider Group A & B Diabetic Patients



Education levels in Area of Interest



GIS tools can help assess impact on community health interventions on clinical quality measures



New Directions

- **Indirect estimates of Health Literacy**
- **Leveraging data and expertise from RAND NIH Center for Population Health and Health Disparities**
  - **Wide array of geoenabled data available in Data Core**
  - **Expertise examining influence of neighborhood context on health behavior and health**
- **Regional multi-stakeholder, community-based initiatives**
- **Tools for local and county health agencies**

Contact information if questions or suggestions:

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