



The Johns Hopkins University's

 **2010 ACG International
Risk Adjustment Conference**



MAY 10-12 
Tucson, Arizona
Loews Ventana Canyon

Socioeconomic Status, Health and Health Care Utilization in Israel

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Additional Project Team Members:

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Background

Remarks by Angel Gurría, OECD Secretary-General:
Jerusalem, Israel, 20 January 2010

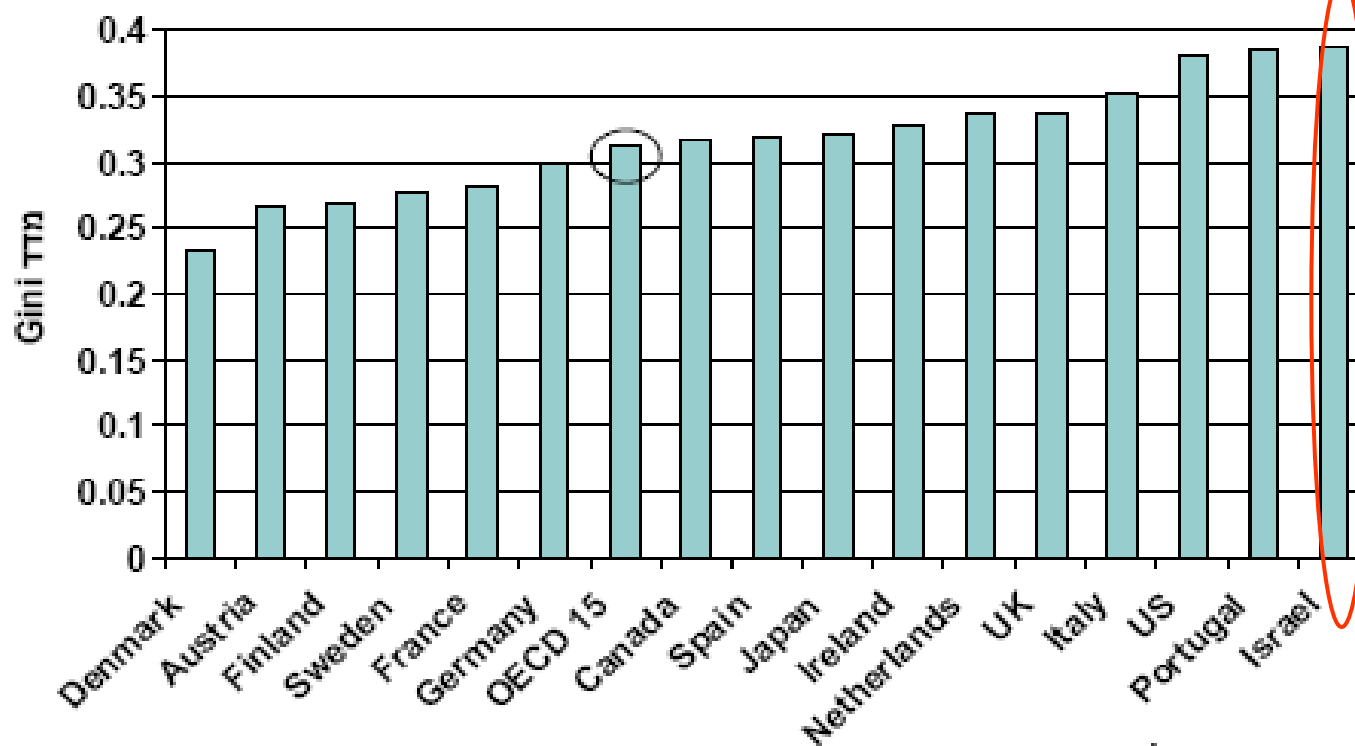
- “In contrast with most OECD countries, Israel has weathered the recent global downturn well. Indeed, GDP growth in 2009 is now estimated at 0.5% (that is in the positive side) contrary to what happened in many other countries and above the projections made by many, including ourselves .



■ However...

- “...Overall poverty rate is high – at 20% it is higher than in any OECD country and strongly concentrated”.

Israel: Inequalities in Income



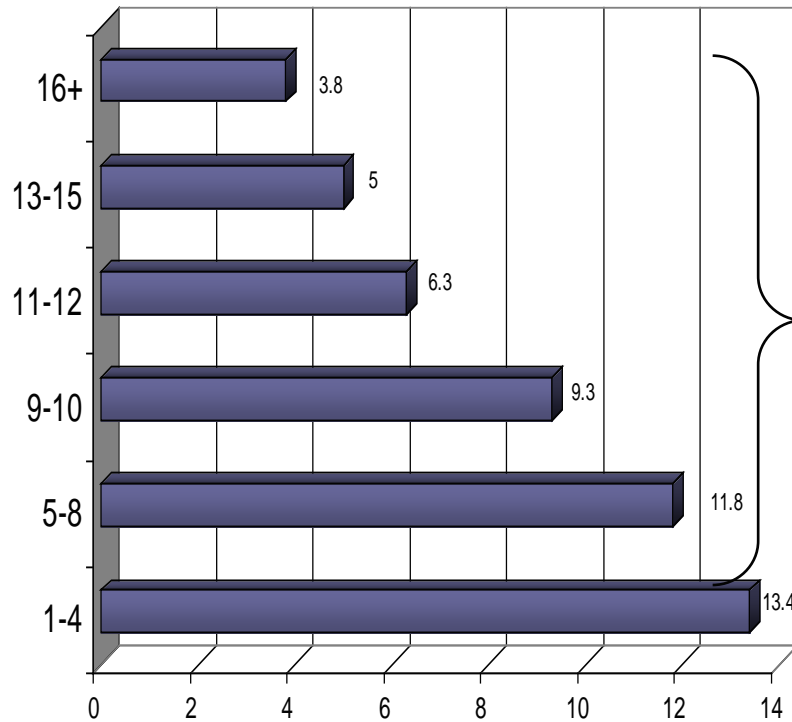
מקור: עיבודים של מרכז טאוב

Makeup of Israeli Society

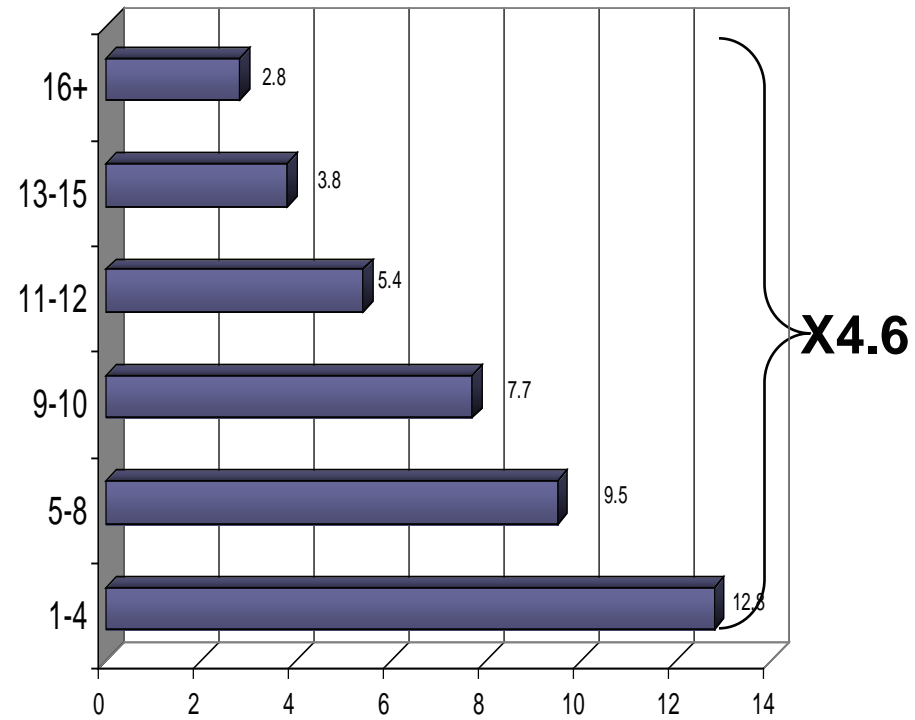
- **7 million citizens**
- **Heterogeneous society, different sub-groups by religion, country of origin, rural / urban, and socioeconomic status**
- **National Health Insurance Law since 1995**
- **Health Status:**
 - ❖ **Life expectancy: M- 77.6, W-81.8 (OECD = M-74.6, W-80.7)**
 - ❖ **Infant mortality - 5.1 per 1000 live births (OECD = 6.1)**

Large and Growing Inequalities in Health

Infant Mortality according to the mother's education 1993-96 vs. 2000-02



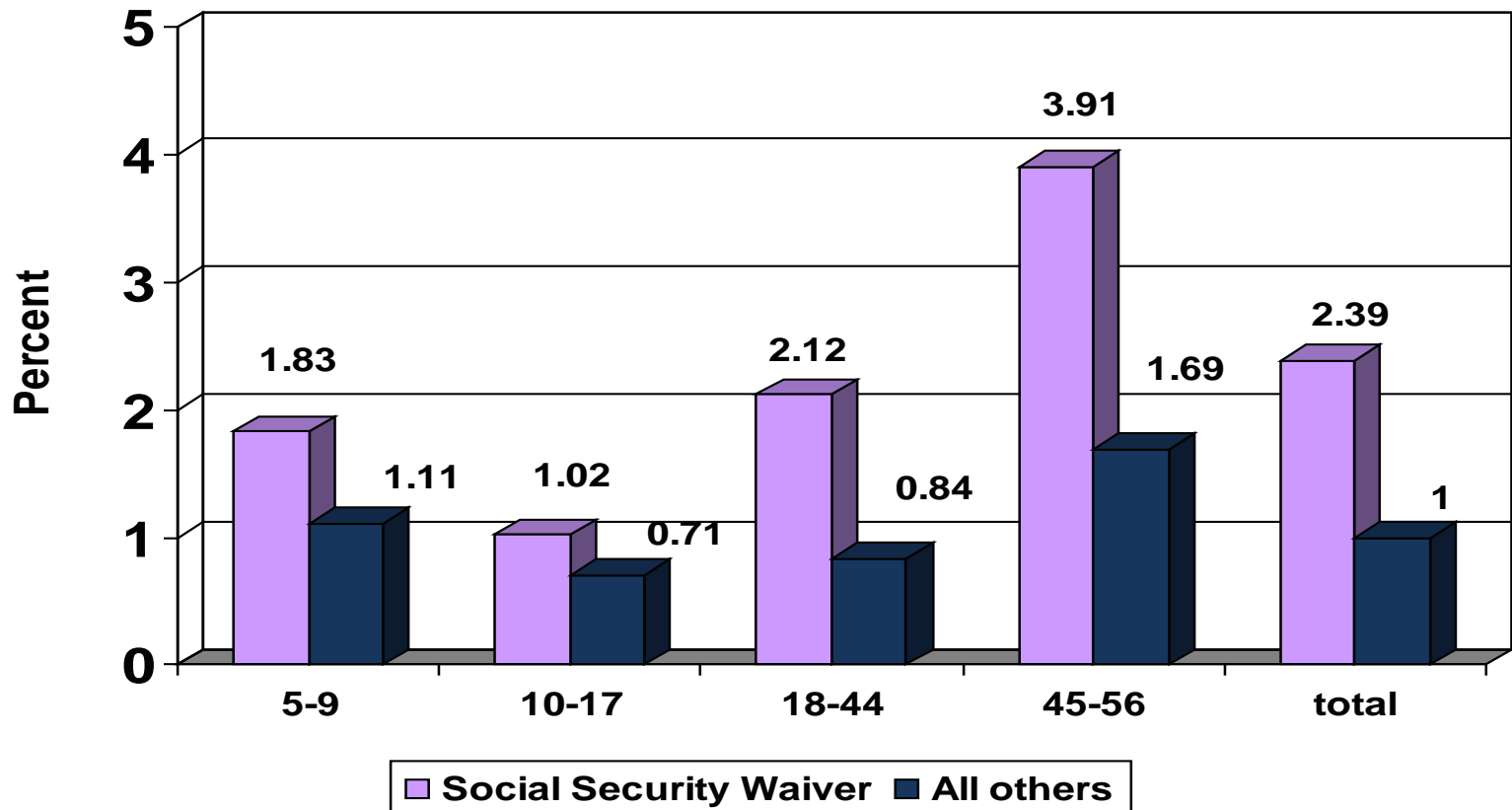
1993-1996



2000-2002

Differences between Rich and Poor (I) (pro-rich)

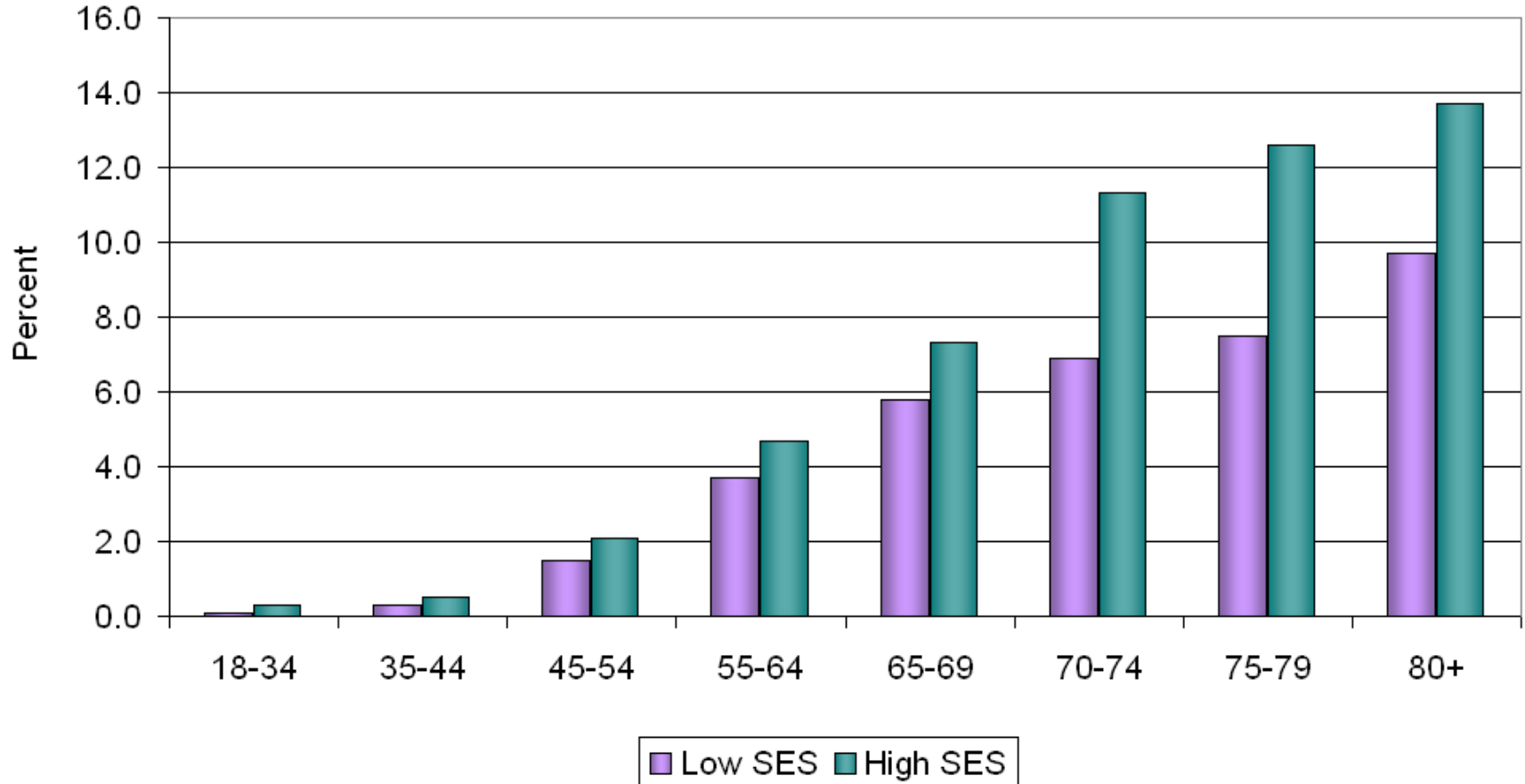
Prevalence of Chronic Persistent Asthma



Differences between Rich and Poor (II)

(pro-poor)

Cancer Prevalence by Socioeconomic Status



Differences in Use of Health Care Services in Israel

- ❖ Differences in the ability to purchase medications and visits to specialists (Bramli-Grinberg et al, 2003)
- ❖ Differences in healthcare utilization by immigration and minority status (Baron-Epel et al, 2007)
- ❖ To be tested: differences in utilization between socioeconomic groups in a population-wide sample, controlling for morbidity using validated diagnoses-based measures

Aims:

- To examine differences in overall morbidity level by socioeconomic status using ACGs
- To test gaps in health care utilization by socioeconomic status controlling for morbidity using ACGs

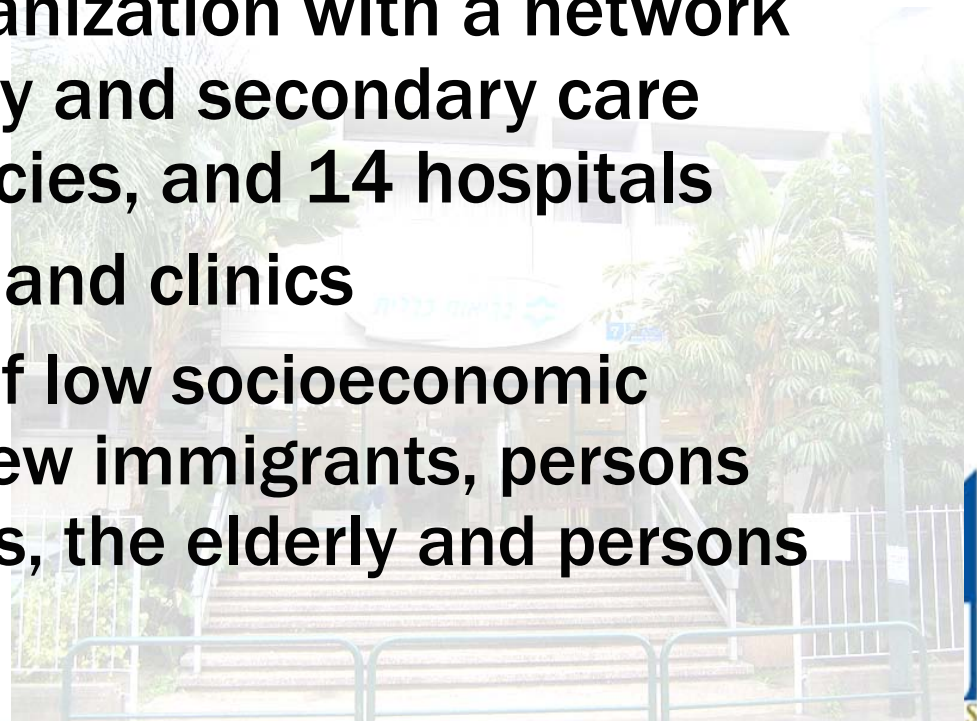


Methods (I)

- **Representative Sample of 77,000 Clalit adult enrollees**
- **Data on number of primary care and specialist visits, performance of diagnostic imaging tests, and hospitalizations during the entire calendar year of 2006**

Setting: Clalit Health Services

- Israel's largest health plan: 3.8 million ensured, 53% market share
- Integrated Care Organization with a network of over 1500 primary and secondary care clinics, 400 pharmacies, and 14 hospitals
- Full EMR in hospital and clinics
- Overrepresentation of low socioeconomic groups, minorities, new immigrants, persons residing in rural areas, the elderly and persons with disabilities



Measures

- **Morbidity level:**
 - ❖ **The Charlson Comorbidity Index**
 - ❖ **Johns Hopkins University Adjusted Clinical Groups (JHU-ACG) Case-Mix system**
- **Socioeconomic status measures:**
 - ❖ **Area level SES (determined by neighborhood level data on income and occupation)**
 - ❖ **Holding a social-security waiver (individual level marker)**



Sample (N=77,000)

- **Average age (SD): 46.4 (19.0)**
- **Female: 53%**
- **Socioeconomic status (SES) (neighborhood level characteristics):**
 - **Low SES: 42%**
 - **Medium SES: 39%**
 - **High SES: 19%**
- ❖ **Social Security Waiver: 14%**

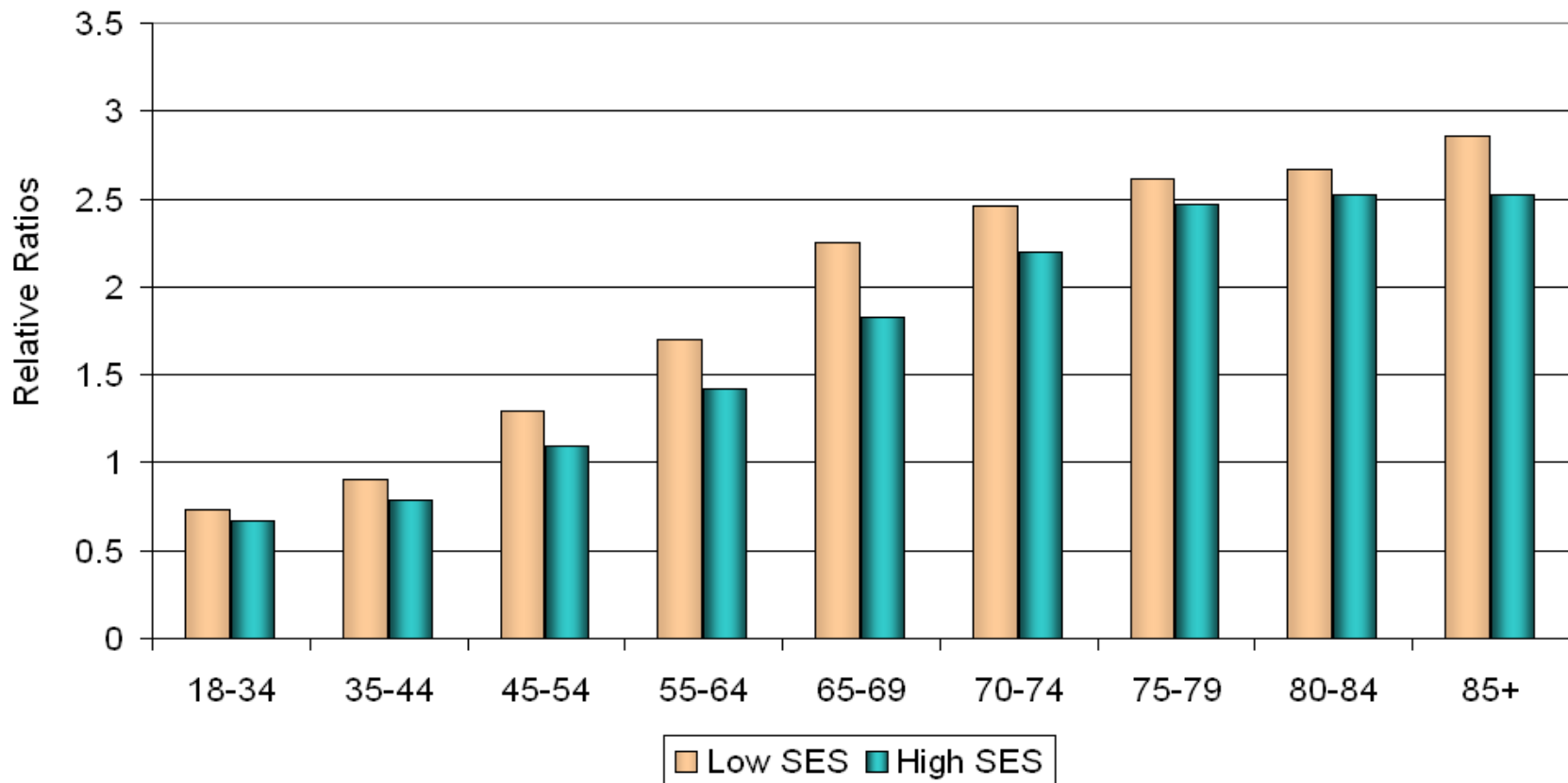
RESULTS

- **Aim 1: Association between socioeconomic status and morbidity**



Low SES associated with greater morbidity burden

Morbidity Burden by Socioeconomic Status



Odds of having at or above high morbidity according to SES

Socioeconomic Status	Odds Ratio	95% Confidence Interval
[Ref: High]		
Medium	1.22	1.13-1.32
Low	1.41	1.30-1.51

- Modeling at or above average obs/exp risk ratio using generalized estimating equation, controlling for age and gender

RESULTS

- Aim 2: Differences in health care use by socioeconomic status



Odds Ratios (95% CI) for utilization of services by receipt of Social Security Waiver*

	Above Average Number of Specialist Visits	Above Average Number of Diagnostic Tests	Above Average Number of Primary Care Visits	One or More Hospitalizations
age & gender	1.03 (0.99-1.07)	1.20 (1.14-1.25)	1.65 (1.58-1.72)	1.61 (1.51-1.70)
Charlson, age & gender	0.93 (0.89-0.97)	1.04 (1.00-1.10)	1.42 (1.36-1.49)	1.38 (1.35-1.39)
ADGs, age & gender	0.80 (0.76-0.85)	0.91 (0.86-0.96)	1.34 (1.27-1.43)	1.17 (1.09-1.26)

* Logistic Regression Model; Controlling for age, gender, and morbidity level using ACGs

MODEL FIT (ROC): explaining utilization of services by receipt of Social Security Waiver


	Above Average Number of Specialist Visits	Above Average Number of Diagnostic Tests	Above Average Number of Primary Care Visits	One or More Hospitalizations
age & gender	0.66	0.72	0.68	0.70
Charlson, age & gender	0.67	0.73	0.71	0.73
ADGs, age & gender	0.87	0.86	0.90	0.86

Conclusions

- Though for some diseases prevalence in persons of low SES is higher than in high SES groups, **overall morbidity burden is higher in persons of low SES.**
- Despite national health insurance, differences in health care utilization by socioeconomic status
- Morbidity adjustment **using ACGs** allows more accurate comparison (than adjustment with age and gender only or with the CCI) of utilization and identification of “true” disparities
- Root causes for these differences – needs to be assessed

Next Steps:

- **Assessing a wide range of barriers (access, cultural competency, language differences)**
- **Testing other measures of SES**
- **Ongoing organization-wide plan to reduce disparities utilizing ACGs to identify true discrepancies**



Thank You