Psychotropic medication use among Medicaid-enrolled children with autism

David S. Mandell, ScD

University of Pennsylvania School of Medicine

Collaborators

- Knashawn H. Morales,ScD
- Steven C. Marcus, PhD
- Aubyn C. Stahmer, PhD
- Jalpa Doshi, PhD
- Daniel E. Polsky, PhD

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Autism

- ## Defined by a trio of symptom types
  - Social impairments
  - Communication impairments
  - Stereotyped behaviors or routines
- ## Treatment
  - Intensive behavioral intervention
  - Medication to treat ancillary symptoms
    - Aggression, self-injurious behavior, anxiety, hyperactivity, sleep problems

Why focus on medication?

- ## Medication use itself
  - Debate regarding its use in treatment of autism
  - Use is common and increasing
  - Previous studies based on small-area parent report surveys with considerable non-response
- ## As a proxy for treatment in general
  - Expect high variability by region
  - Claims data more accurate than for other services
  - Results more interpretable

Current study

- Estimates psychotropic medication use among Medicaid-enrolled children with autism

- Examines child, county and state characteristics associated with their use

Data and Sample

- ## Data
    - ❑ National 2001 Medicaid Analytic Extract data files
    - ❑ Area Resource File for county-level resource variables
    - ❑ US Dept. of Education for number of children in each state served through the special education autism category

- ## Sample
    - ❑ All 60,641 children 0-21 years with primary or secondary diagnosis on any claim for autistic disorder or Asperger's disorder / PDD-NOS
    - ❑ Classified as having autistic disorder or other spectrum disorder based on the most commonly occurring diagnosis

Variables

- *Psychotropic Medication Use*
  - Neuroleptics, antidepressants, stimulants, anticonvulsants, anxiolytics, hypnotics
  - Prescriptions ≥3 medications in different classes overlapping ≥30 days.
- *Child Characteristics*
  - Demographics (age, race/ethnicity, sex and county of residence)
  - Medicaid eligibility (poverty, disability, foster care and other programs)
  - Clinical characteristics (number of claims other than pharmacy claims, other psychiatric diagnoses)
- *County and State Characteristics*
  - ASD Medicaid service use penetration
  - County healthcare resources (primary care pediatricians and pediatric specialists
  - County demographics (% in urban areas, % of each racial and ethnic group, and median household income)
  - ASD education penetration
- *Census Region*

Analysis

- ## Bivariate associations

  - estimated using random effects logistic models that accounted for clustering of children within county and county within state.

  - Bonferroni corrections for multiple comparisons in the bivariate analyses ($p < 0.002$)

- ## Adjusted model

  - GLIMMIX macro in SAS for random effects models.

Sample description

- 78% male
- Age (years)
  - 0-2   2%
  - 3-5   17%
  - 6-11   45%
  - 12-17   28%
  - 18-21   8%
- Ethnicity
  - Black   22%
  - White   50%
  - Latino   7%
  - Asian   1%

- Diagnosis
  - autistic disorder   62%
  - PDD-NOS   38%
  - co-occurring dx   54%
    - 21% mental retardation
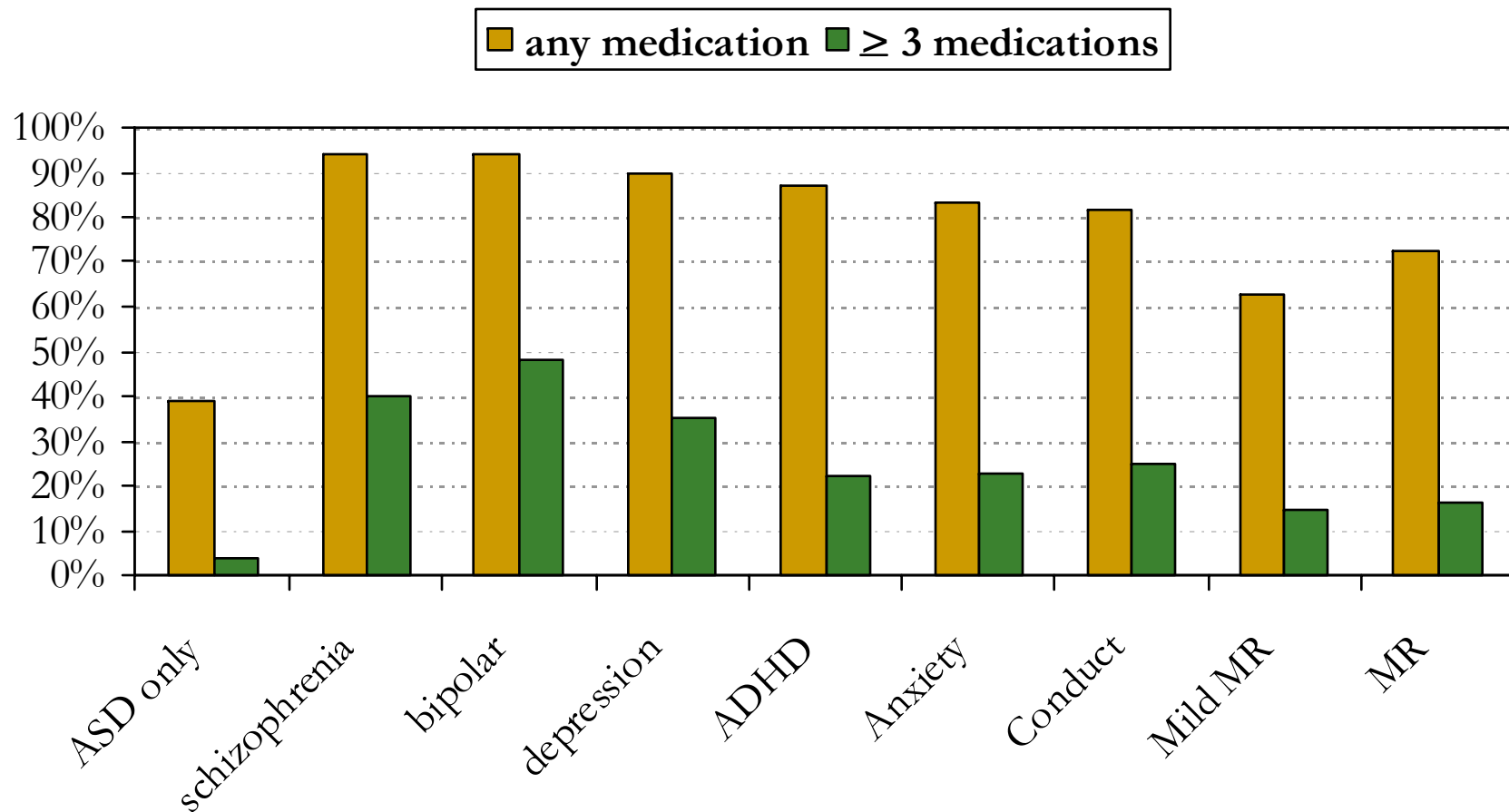   - 20% ADHD
    - 14% conduct disorder
- Eligibility
  - 72% disability
  - 18% poverty
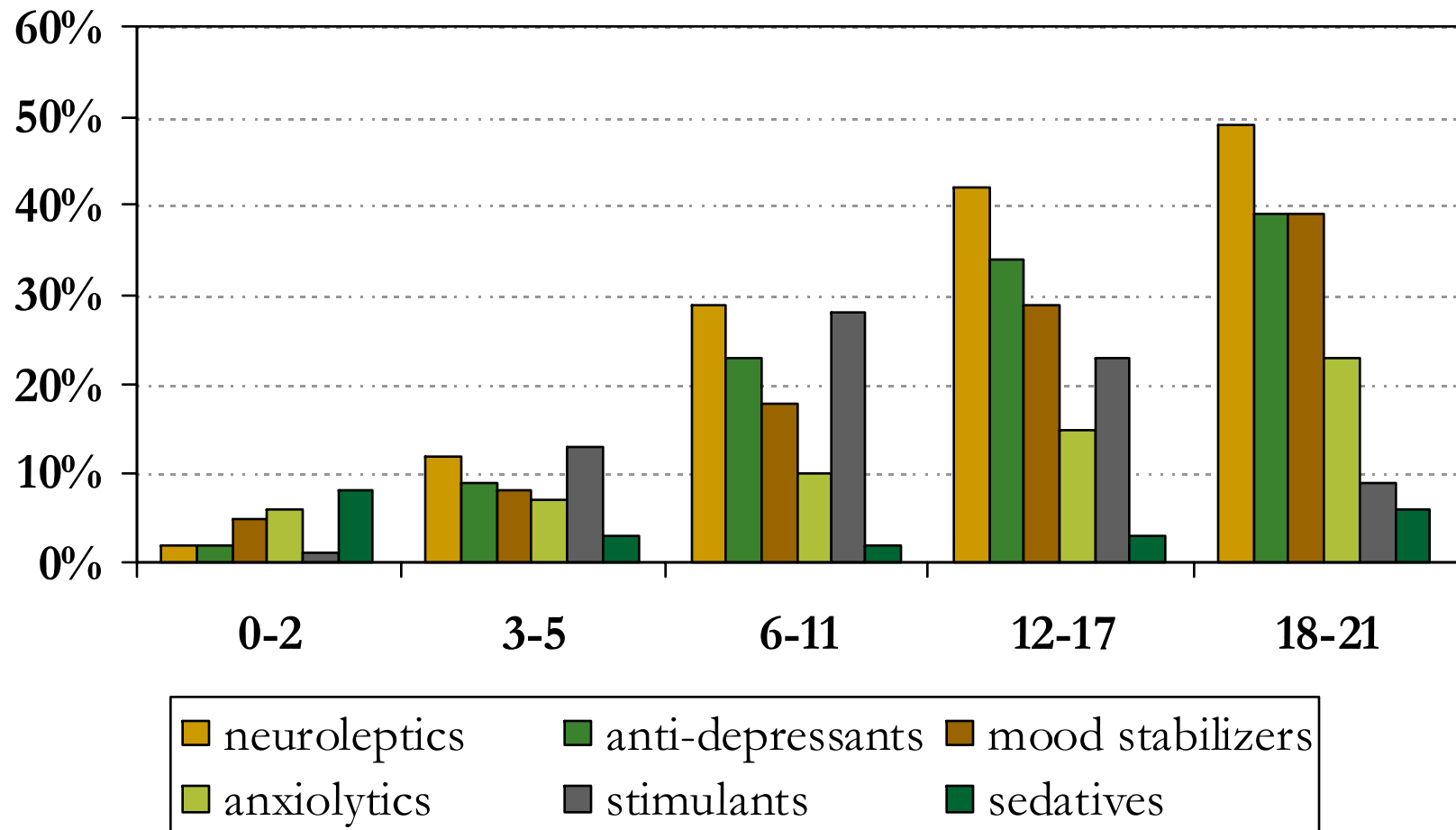 - 7% foster care
- 7% had psych hospitalization

Use of psychotropic medications
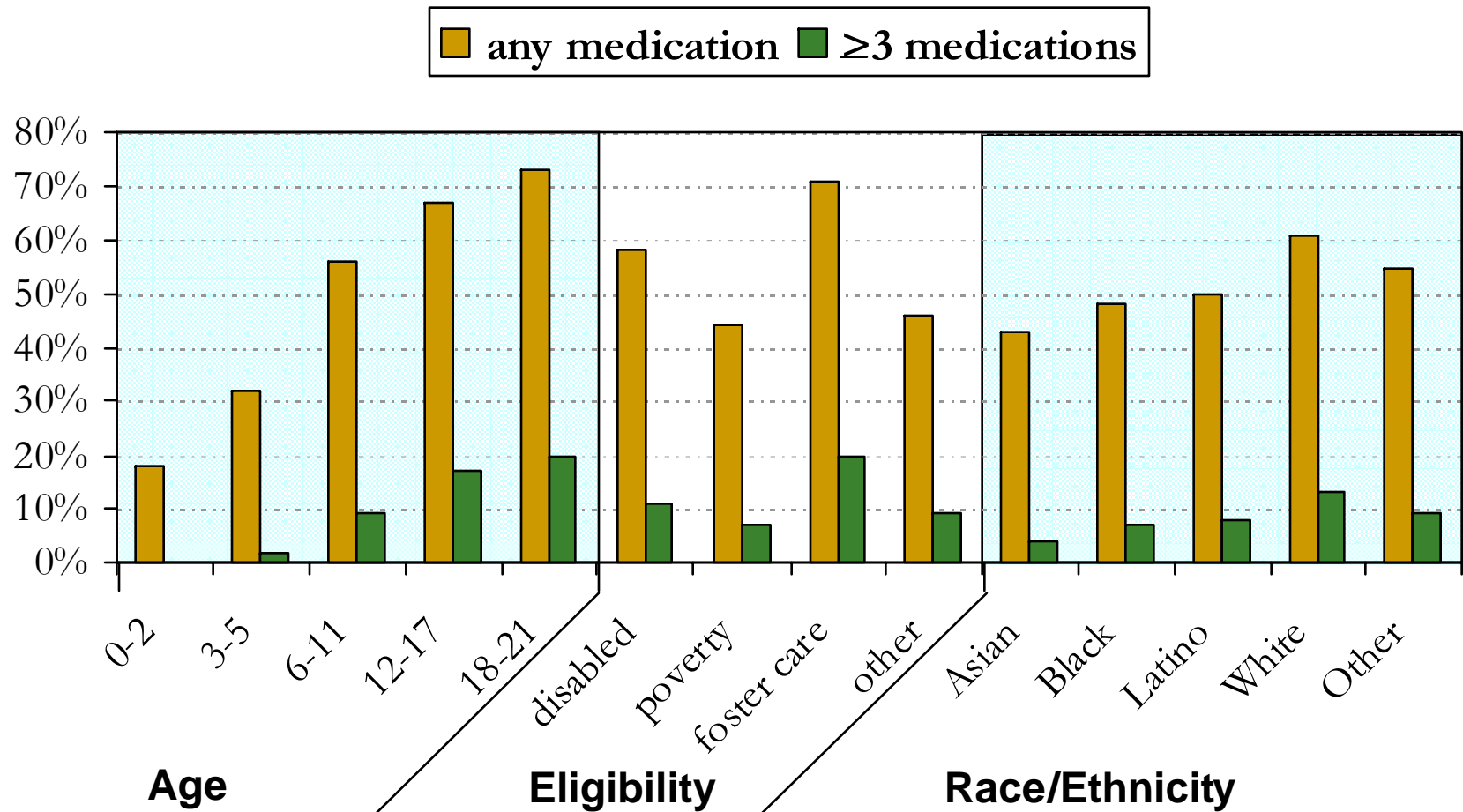
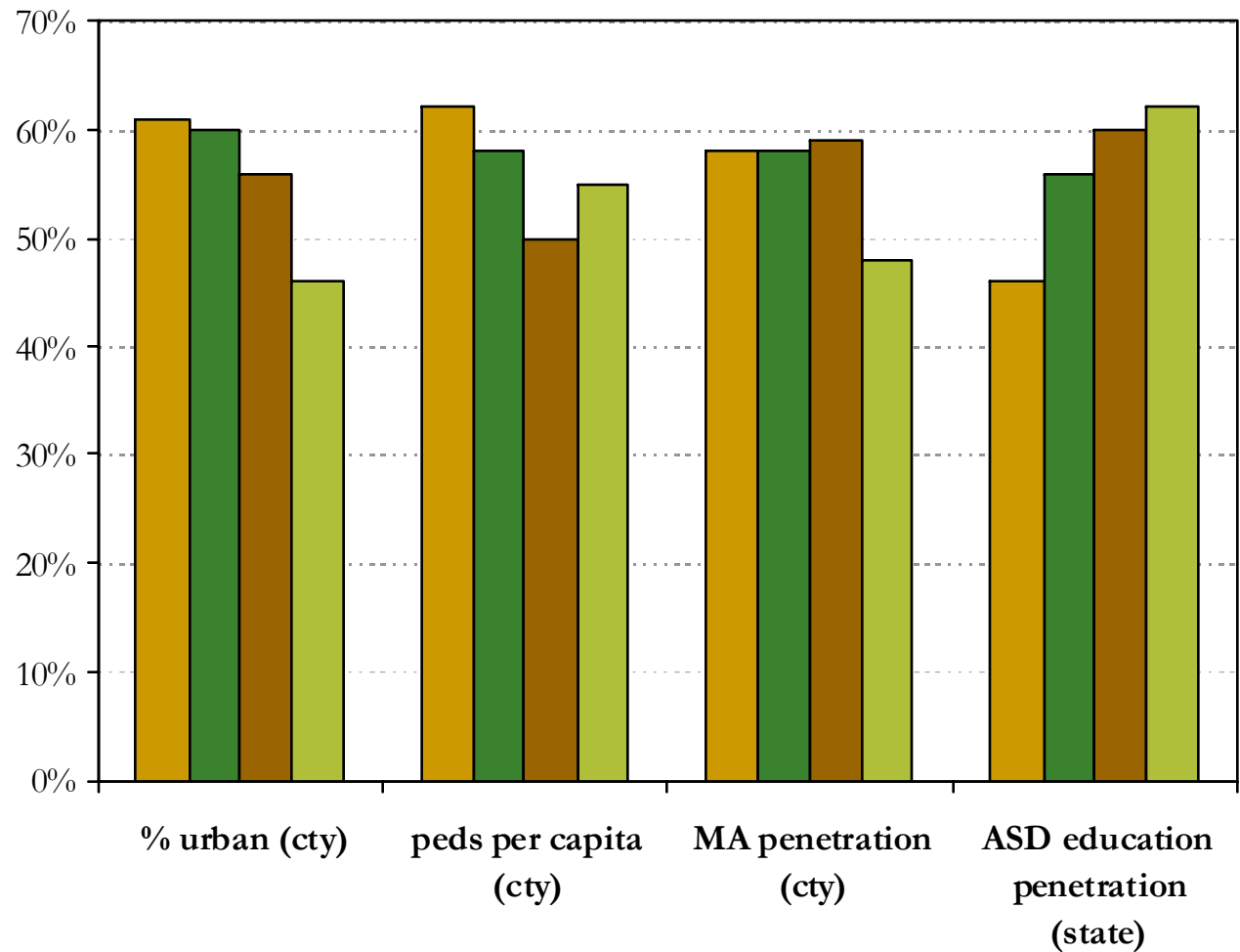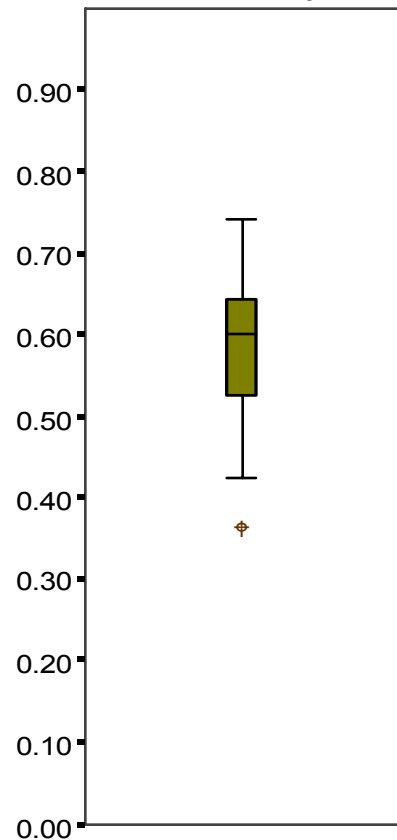# Use of medications by diagnosis

Medication use by class

County and state characteristics

Proportion on any medication by state

Adjusted analyses: child characteristics
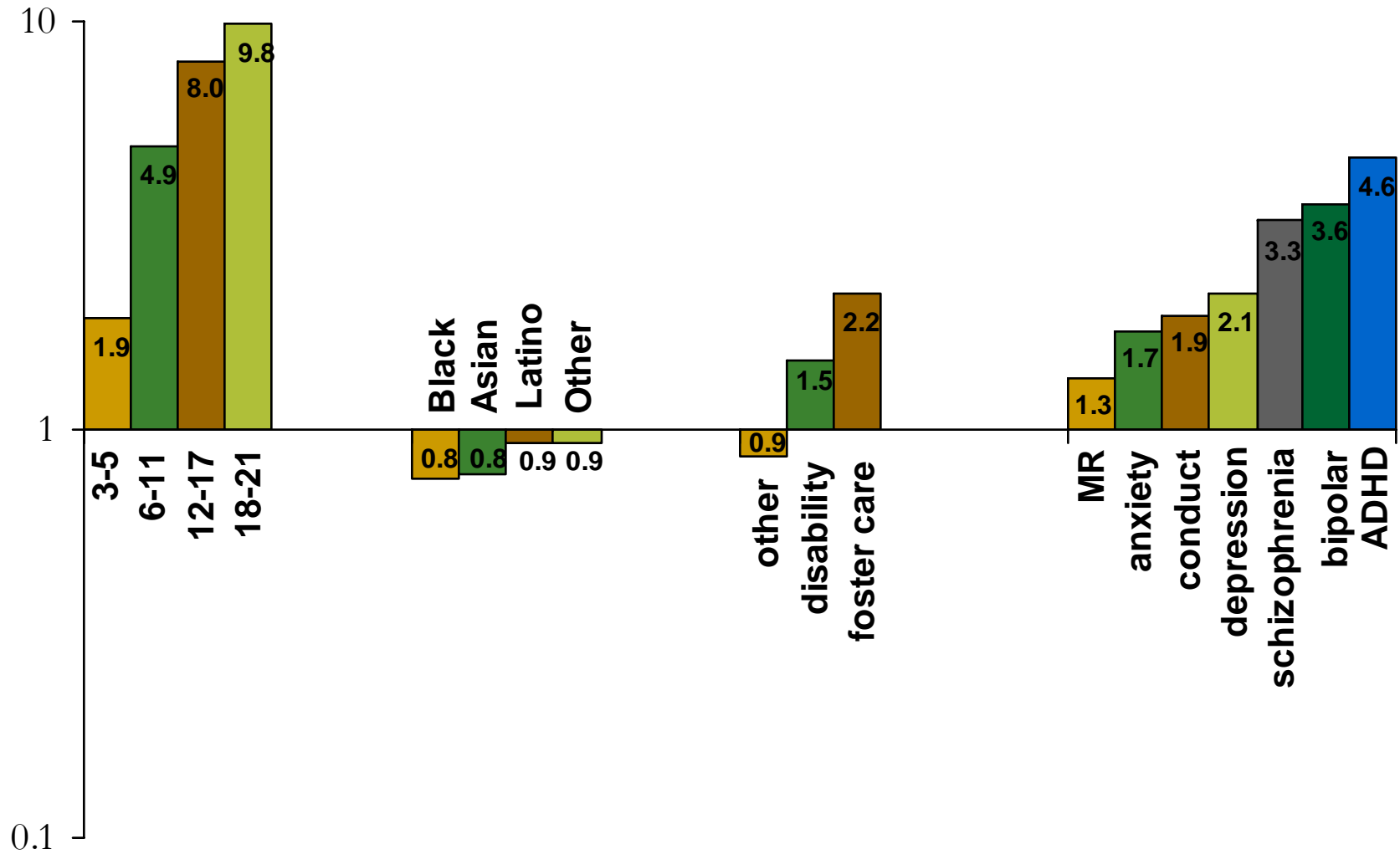
Adjusted analyses: county characteristics
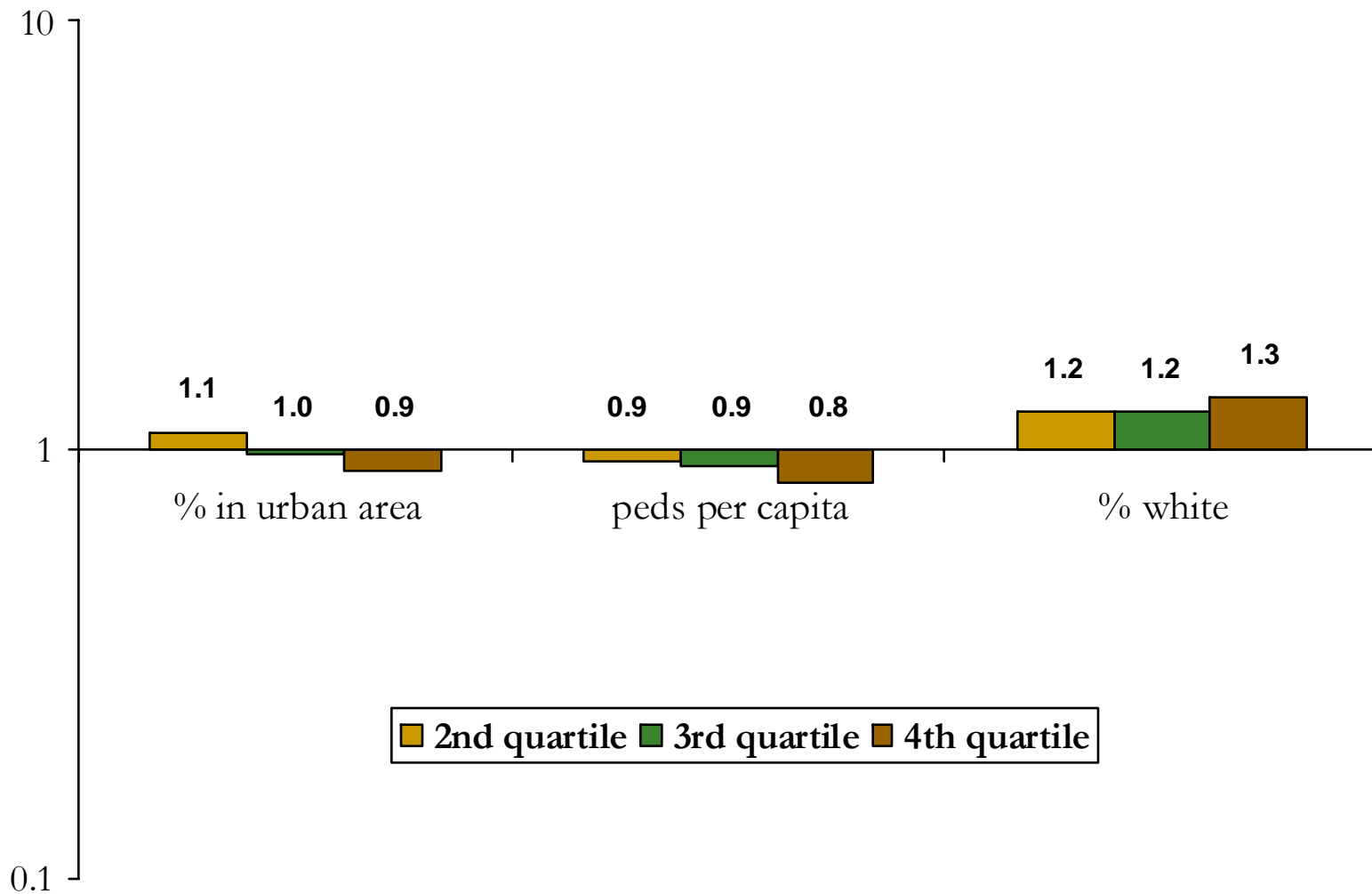
Summary

- More than half of Medicaid-enrolled children with ASD received a psychotropic medication and more than 1 in 10 received ≥3 concurrently.
- Use more common among:
  - White children (family and clinician beliefs about role of medication?)
  - Older children (more disruptive behaviors, fewer behavioral alternatives?)
  - Children in foster care (placement disruption, less access to behavioral programs?)
- Complex clinical picture (hospitalizations, high volume of services use, other diagnoses) associated with medication use, but nearly 40% among those with no other diagnosis use meds
- Counties with greater urban density had lower proportions of medication use.
  - May have access to academic and tertiary care settings
  - Greater access may result in less severe cases diagnosed
  - Greater urban density associated with more identification

Limitations

- Autism diagnosis in the Medicaid claims has not been validated.
  - 97% positive predictive value for chart diagnoses and a diagnosis of autism administered by a trained research team
  - 98% of children with a chart diagnosis met research criteria for ASD
- No measures of symptoms or severity
- States have different incentives for providers to submit claims
  - May affect the observed overall proportions but shouldn't affect the odds ratios associated with the logistic regression
- Missing other variables at the child level (e.g., age of diagnosis or use of behavioral interventions) and county level (e.g., ASD-specific intervention resources)
- Findings from Medicaid-eligible children may not be generalizable to other children

Implications

- The high levels of use of many different psychotropic agents, often in combination, is concerning
  - sedative use may be associated with the sleep problems
  - Little evidence for medications in combination
  - Scientific studies must keep pace with practice.
  - Test behavioral alternatives to medications
- The importance of local and regional policies and resources
  - Variation in state and county approaches and resulting service use offers an important opportunity for study and the potential to develop local and national models that maximizes the safety, efficiency and effectiveness of care delivered to children with ASD.
- Need to study interactions of different types of medical and educational services for children with ASD

Thank you!

For questions and copies:

mandelld@mail.med.upenn.edu