

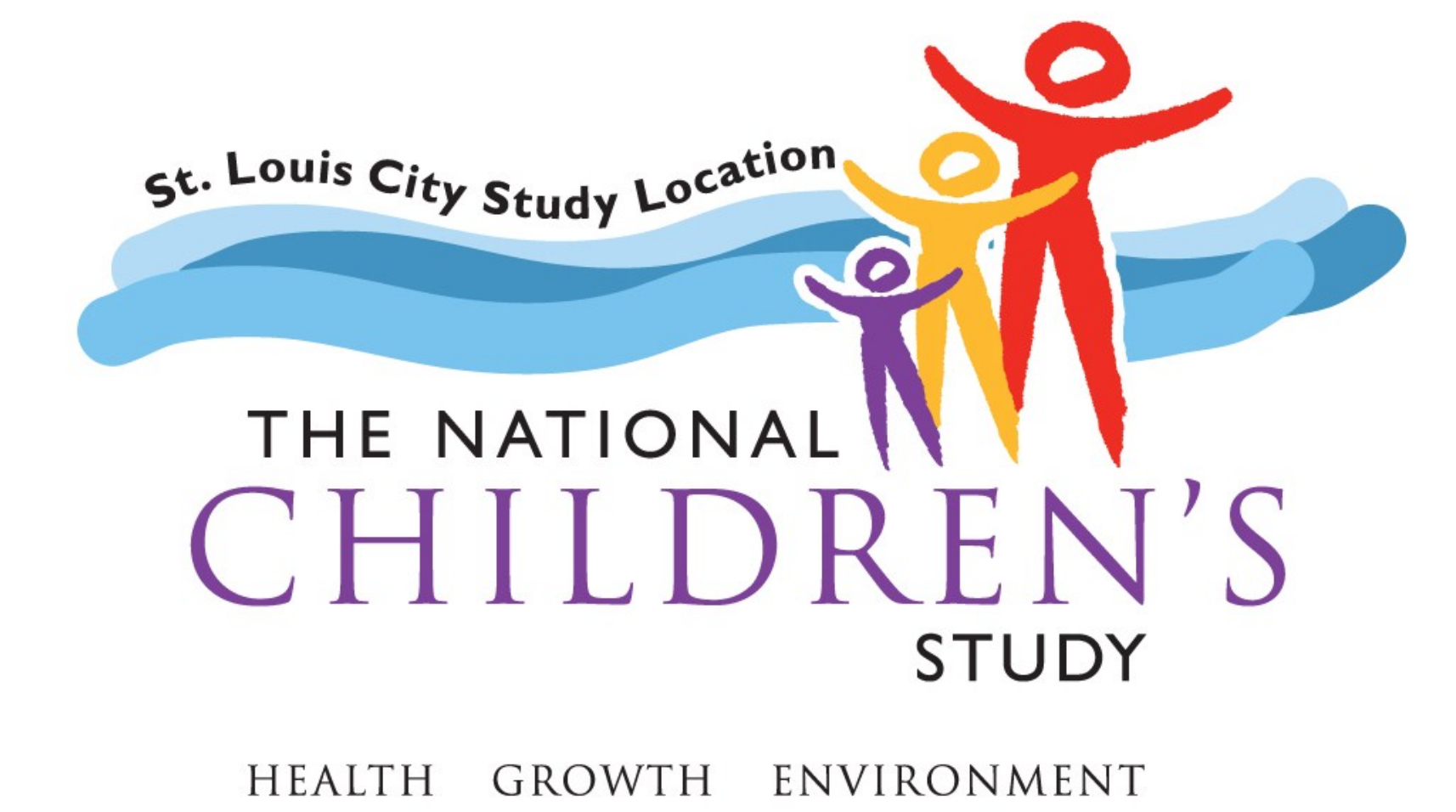
PROBABILITY SAMPLING PREGNANT WOMEN IN AN URBAN CORE: A CASE STUDY FROM THE NATIONAL CHILDREN'S STUDY

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For more information on the Gateway Study Center call 314-977-8334



THE NATIONAL CHILDREN'S STUDY GATEWAY STUDY CENTER

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STUDY LOCATION

St. Louis City, Missouri

OVERVIEW

The National Children's Study is the largest, long-term, observational study of children's health ever conducted in the United States.

The Study is designed to improve the health and well-being of children by examining the effects of

environmental variables (chemical, biological, physical, psychosocial), as well as gene-environment interactions on pregnancy outcomes, child health and development, and precursors of adult disease in 100,000 children across the United States over a 21-year period.

STUDY DESIGN

MAIN STUDY

- ◆ Prospective cohort
- ◆ Geographic probability sample, stratified by urban/rural status
- ◆ 105 counties across the US
- ◆ Target: 100,000 children, 20% recruited before conception

VANGUARD STUDY

A 21-year pilot study involving 40 counties to test:

- 1) Feasibility, acceptability and cost of four methods of recruitment
 - Enhanced Household-Based Recruitment
 - Two-Tiered Recruitment (High Intensity/Low Intensity)
 - Provider-Based Recruitment
 - Provider-Based Sampling
- 2) Aspects of the Main Study protocol

ST. LOUIS CITY, MO

- ◆ "Gateway to the West"
- ◆ On the western shore of the Mississippi River
- ◆ Both a city and a county
- ◆ Highly urbanized
- ◆ 61.9 square miles
- ◆ 79 diverse neighborhoods
- ◆ Population 319,294 (US Census, 2010)
- ◆ 50% African American, 45% White, 3.6% Hispanic
- ◆ 26% below poverty (US Census 2006-2010)

BACKGROUND

Obtaining a probability sample of pregnant women presents challenges, particularly in an urban core. We summarize the challenges encountered during a pilot study of the National Children's Study (NCS), the methods used, and how similar the sample was to city births.

Current data stem from a

recruitment pilot testing door-to-door recruitment in one inner city Primary Sampling Unit (PSU). Eligible women within the PSU are pregnant or trying to conceive. Challenges included multiple native languages, poverty, low literacy levels, and mistrust of research.

SAMPLING WITHIN ST. LOUIS CITY (PSU)

- 15 Strata
 - Similar total births
 - Include major demographic groups
- 15 Segments in each Strata
 - ~ equal births per year (25-30)
 - Based on 2002-2005 annual births
- Program Office randomly selected one segment per strata
- Goal: Recruit all eligible women in each segment
- Listed all 13,478 households (HH)
- Door-to-door enumeration and recruitment from 1/15/2011 to 2/28/2012
- Entered all segments at once, except
 - Delays obtaining Spanish language measures
 - Delays from locked buildings in one segment
- Enumeration
 - Contacted 72% of HHs
 - Enumerated 29% HHs
 - Identified women between 18 and 49 years old
- Enumeration & recruitment halted before completed
- Screened age-eligible women for pregnancy or trying to conceive
- Recruited all eligible women trying to conceive or pregnant

The National Children's Study St. Louis City Study Location



ENHANCEMENTS TO DOOR-TO-DOOR RECRUITMENT

- Media campaign
 - Radio, newspaper, posters on bus shelters and on the backs of buses
- Community engagement activities
- Direct mailing to areas just before knocking on doors
- Spanish and Bosnian language interviewers
- Other languages by telephone interpreter

METHODS

QUESTIONS

- How well did we cover the births in the segments?
- Does our sample resemble the total births in the city?
- If it does not, where did the variance occur?
 - Changing birth rates in the segments?
 - Shifts in the demographics in the segments?
 - At a particular stage in recruitment (enumeration, screening or consent)?

COMPARISON DATA

Missouri Birth Certificates (BC) for St. Louis City:

- Years 2006-2010 (most recent available)
- Geocoded to identify births within each segment
- Did not link NCS participants to their specific BCs
- 2010 BCs used for comparisons to NCS sample characteristics

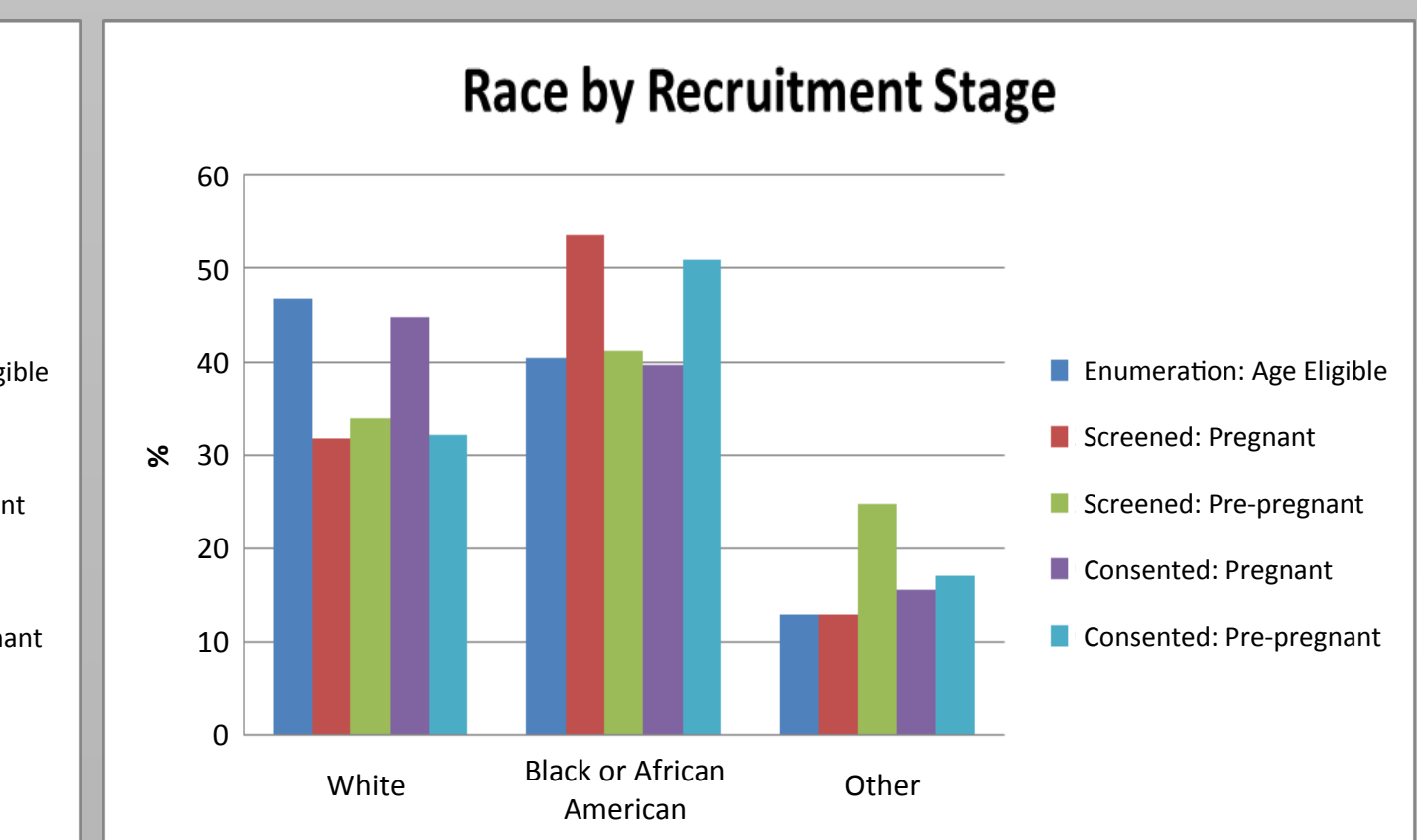
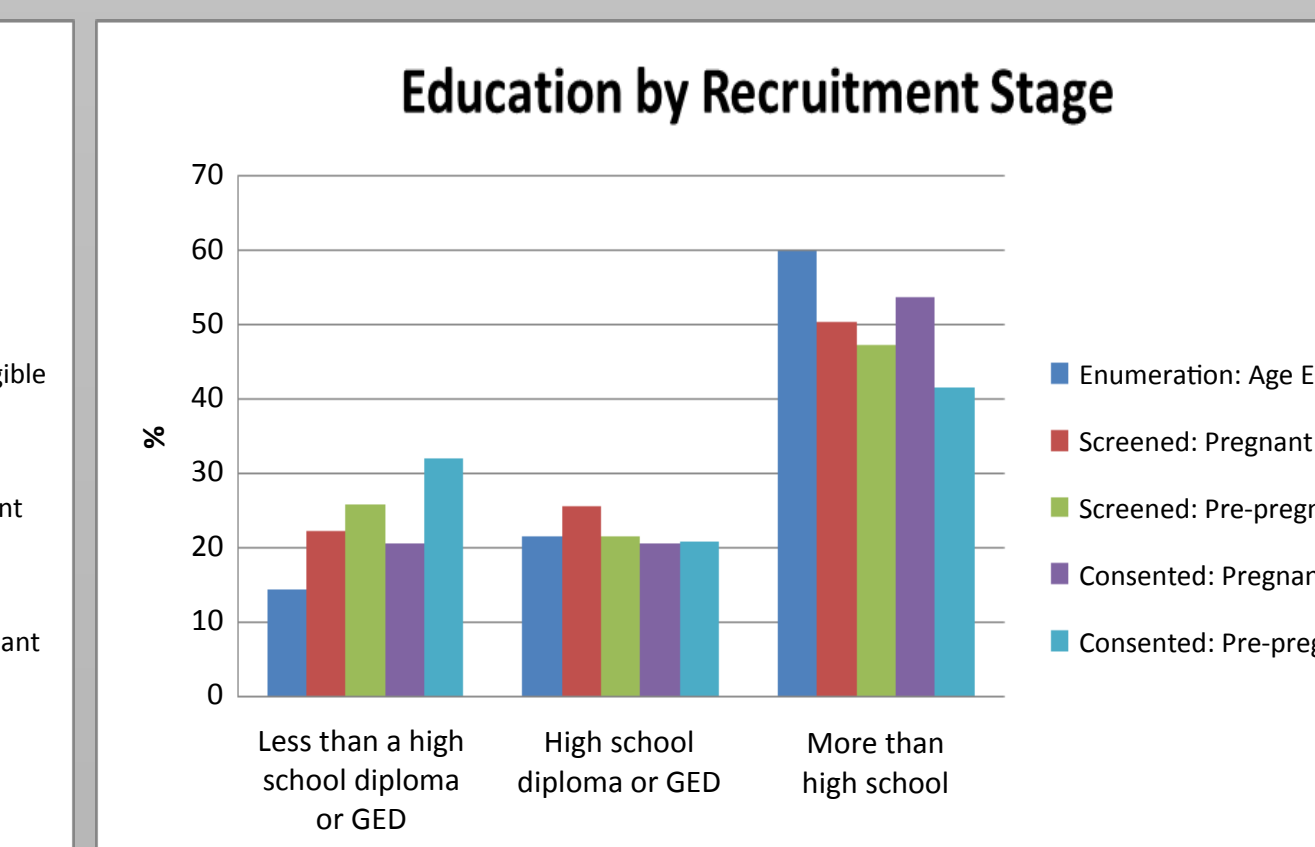
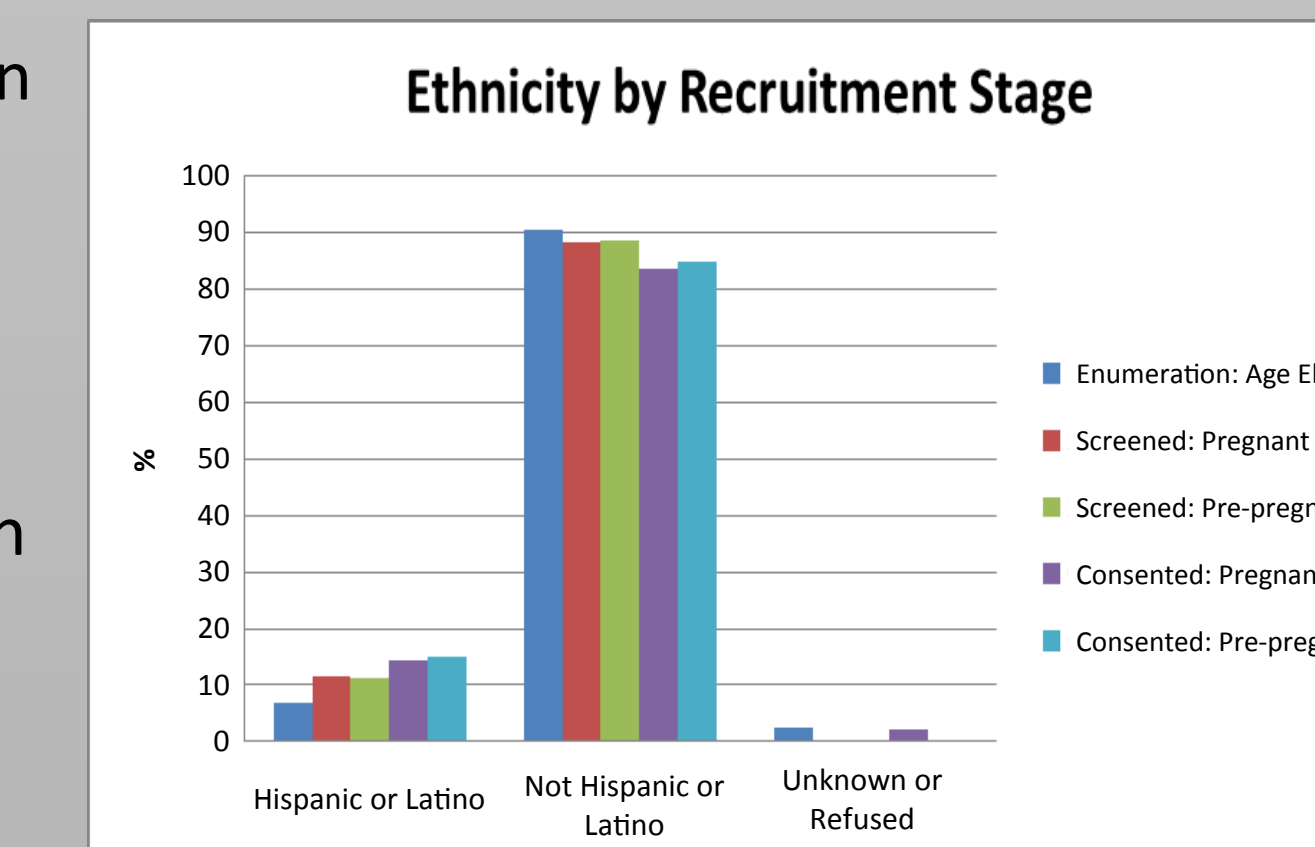
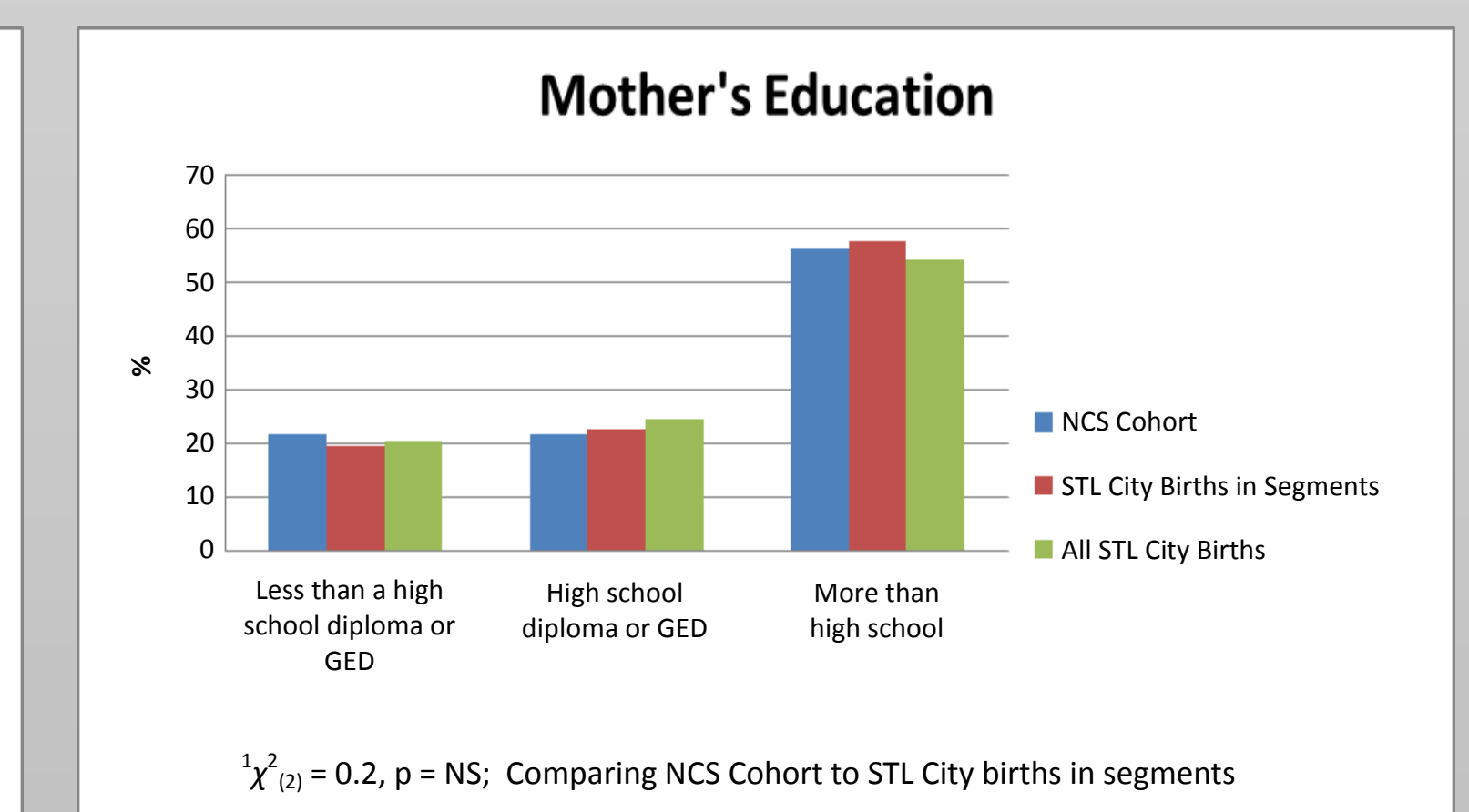
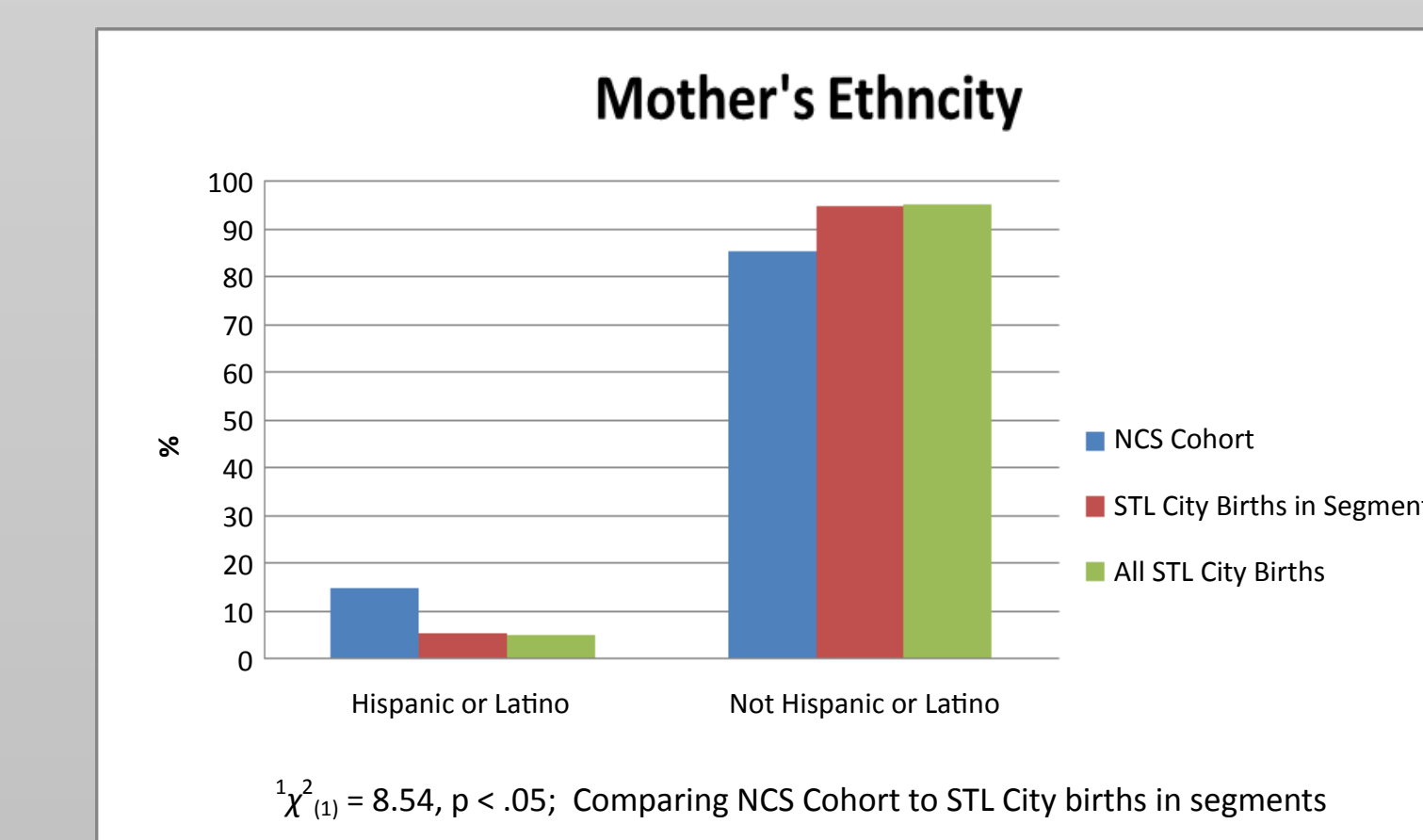
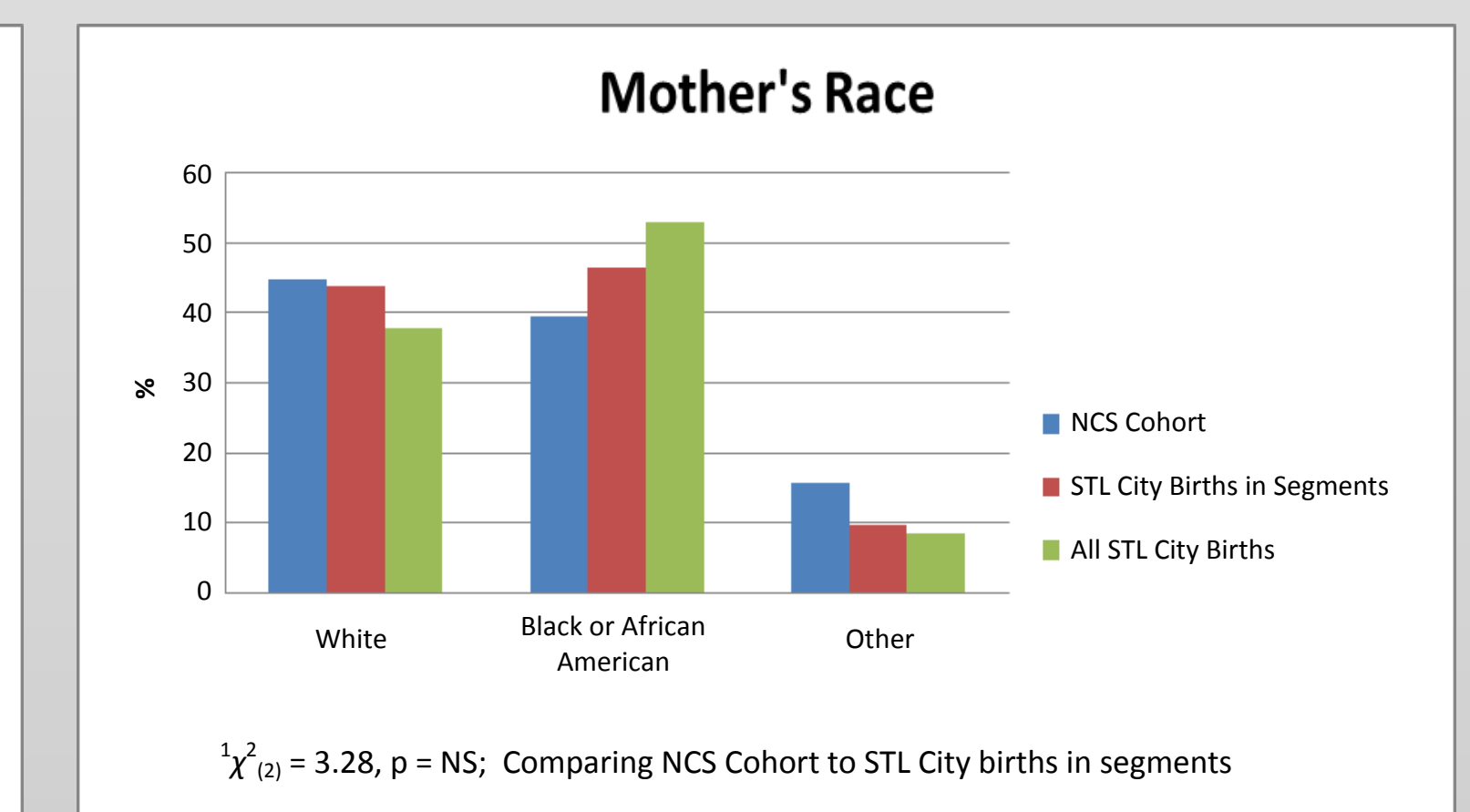
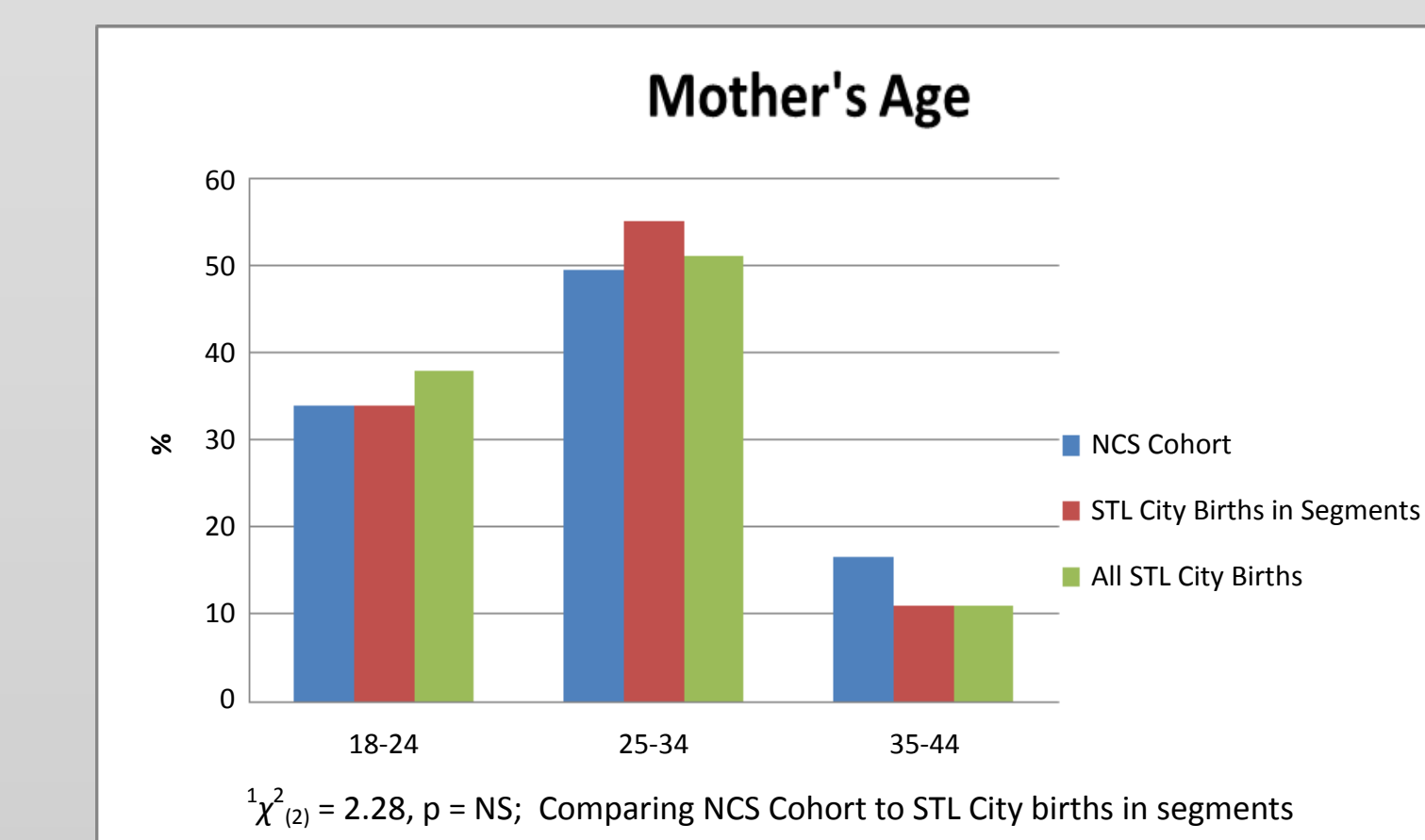
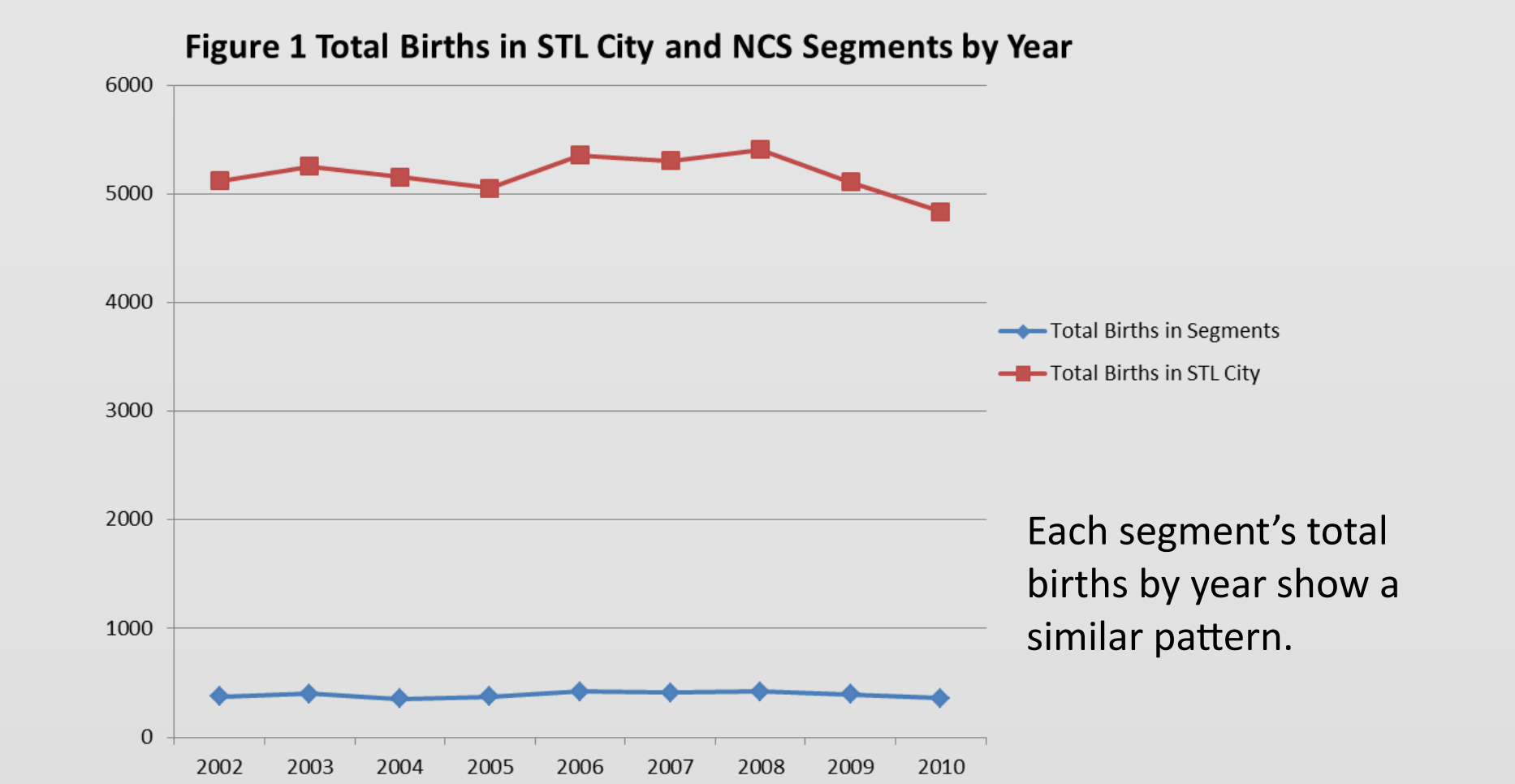
RESULTS

- Segment-specific birth rates were stable from 2002-2010
- Consented 24.9% of the expected pregnancies in each segment (based on 2010 births)
- Consented 35% of women trying to conceive
- Recruited a lower proportion of African American women than expected
 - Demographic shifts in the city since 2005 may have led to changes in characteristics of births in some segments
- Recruited an excess of Hispanic participants: 14% in the sample compared to 4.8% in all segments
 - Relative proportion of Hispanics increased at each stage of recruitment
- Consented women trying to get pregnant, compared to pregnant women, were more likely to be:
 - Older
 - Not a high school graduate
 - African American

Table 1. Recruitment Stage	Rounded Total*	%
Total listed households (HH)	13500	
Total HHs contacted	9750	72.4
HH enumeration completed	4000	29.7
Age eligible women	2450	
Pregnancy screening completed	1700	67.9
Age eligible women	1300	
Eligible pregnant women	150	
Not pregnant, eligible for follow-up	100	
Not eligible for follow-up	1450	
Women consented	150	
Consented pregnant women	100	64.7
Consented pre-pregnant women	50	35.3

*NCS rounding rules applied.

VERY LITTLE CHANGE IN BIRTHS PER SEGMENT (2002-2012)



CHALLENGES

- Hiring and retaining enough enumerators
- Inability to match race of interviewer to participants
- Did match Spanish-speaking participants to Spanish-speaking interviewers
- Locked buildings
- 20 different primary languages, required use of telephone interpreters
- Mistrust of research

CONCLUSIONS

- Able to estimate probability of selection for pregnant women in each segment
- Recruited an average of 1 out of 4 pregnant women in the segments
- Birth rate per segment was stable from 2002 to 2010
- Sample resembles births in city except:
 - Slightly fewer African American
 - More Hispanics