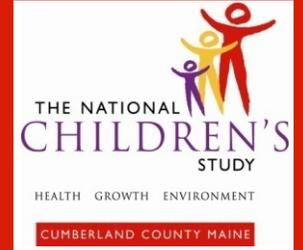


Representativeness of segments in Cumberland County, Maine, with respect to birth characteristics.

Lucas FL, Ewan Whyte C, Siewers AE,
Bancroft J

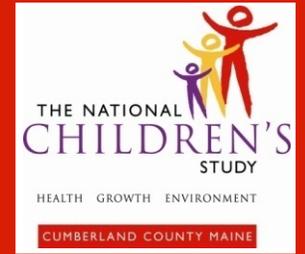
Maine Study Center

Background



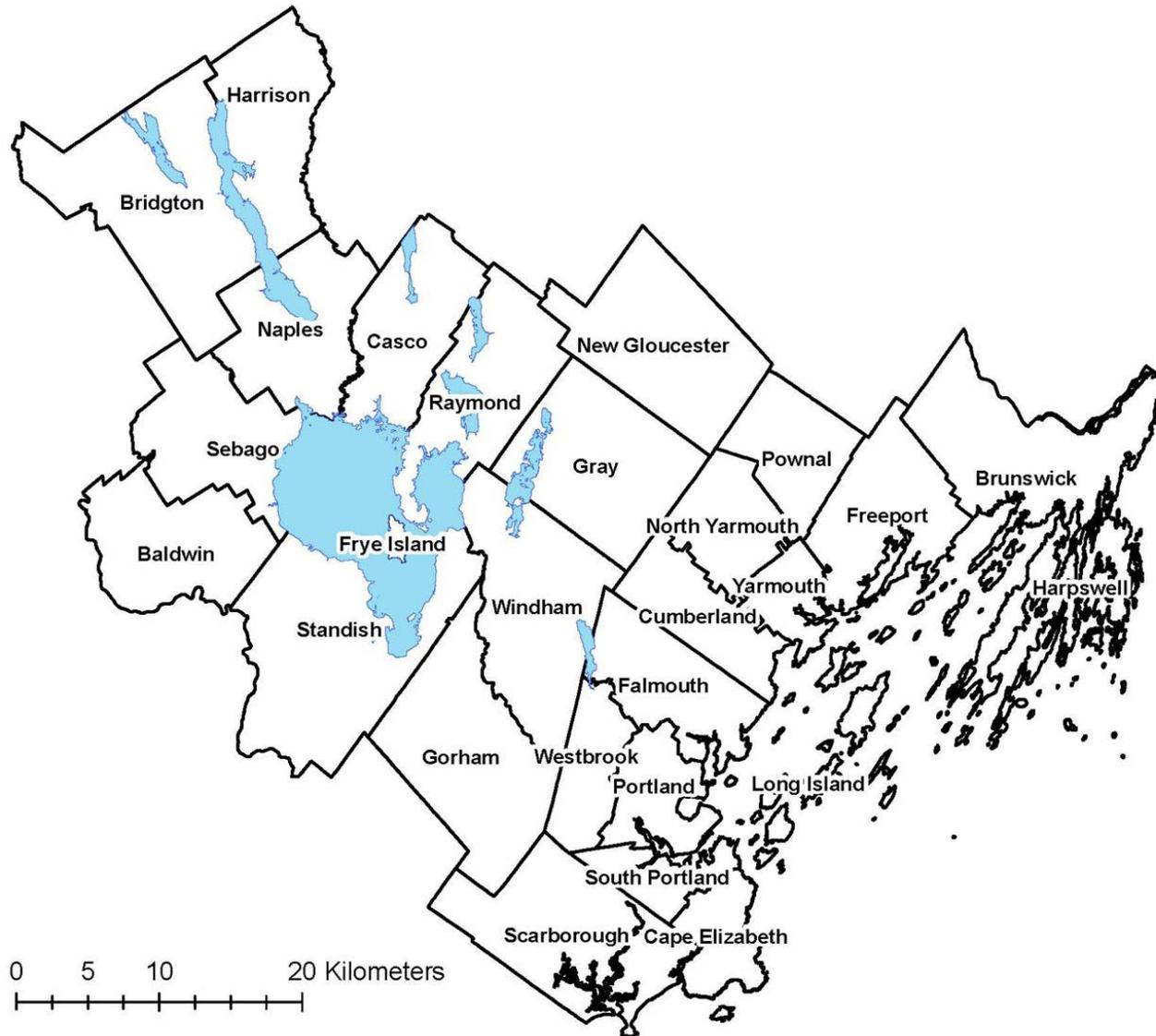
- The National Children's Study is designed as a probability sample of United States births
 - Stratified random sample of counties or groups of counties (primary sampling units)
- Cumberland County, Maine, is one of the selected primary sampling units
- Primary sampling units are divided into strata and segments (secondary sampling units)
 - One segment is randomly selected from each stratum to be included in the sample

Background



- Cumberland County, Maine, is a relatively urban/suburban county in a rural state
 - Portland is the state's largest city at ~ 60,000 residents
- Cumberland County contains some very rural areas and pockets of rural poverty
 - Cumberland County also contains many island communities
- Portland is a refugee resettlement area, with over 50 languages and dialects represented in the public schools

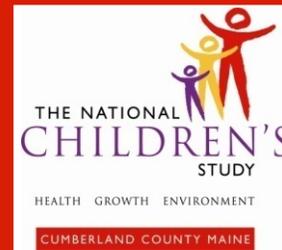
Cumberland County, Maine



Cumberland County, Maine

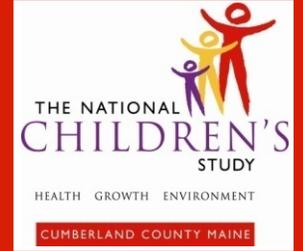


Segments



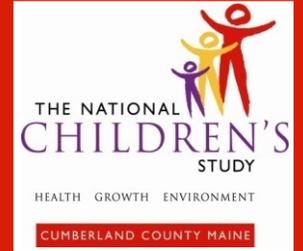
- 11 strata were defined
 - Striving for homogeneity within stratum and heterogeneity across strata
 - Strata defined by rurality, travel patterns, socioeconomic status, ethnicity and national origin
- Eight segments per stratum were defined and one segment selected from each stratum

Rationale for Analysis



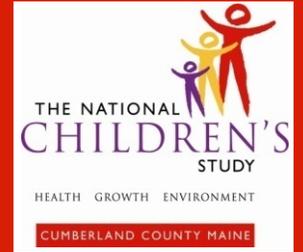
- The original recruitment goal was 250 births per primary sampling unit
 - We assessed the number of total births in the selected segments and calculated the necessary recruitment rate to reach the goal

Rationale for Analysis



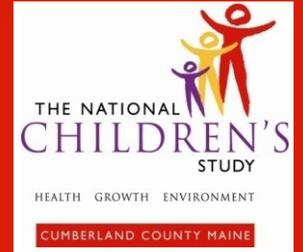
- The success of stratification and random selection in Cumberland County will depend on how well segment births represent county births and how well enrolled births represent county births
- We assessed representativeness of segment births
 - Data are limited regarding characteristics of study births
- We assessed representativeness of the distribution of births across segments
 - Proportion of enrolled study births in each segment compared with proportion of birth certificate births in each segment

Methods



- Birth certificate data for 2008 obtained from the Maine Office of Data, Research, and Vital Statistics
- Each birth geocoded to locate it within a segment or outside all segments
- Data for births within selected segments compared to births within the whole county using 95% confidence intervals
- Distribution of births across segments compared between study births to enrolled women and birth certificate births

Results



- The total number of births in the selected segments was 279
- About 20% of births could not be geocoded
- This number of births would require about a 75% recruitment success rate to meet the recruitment target

Results: Comparison of Segment Births and County Births

Characteristic	Segment Births (N=279)	All County Births (N=2779)
Maternal education >12 years	67% (61-72%)	66%
Maternal risk factors		
Gestational diabetes	4% (2-6%)	4%
Hypertension of pregnancy	4% (2-6%)	5%
Tobacco use	10% (7-14%)	9%
Alcohol use	**	0.4%
Amniocentesis	4% (2-6%)	4%
Month started prenatal care		
1-2	53% (47-59%)	55%
3	33% (27-38%)	33%
4 or later	13% (9-17%)	12%

* Note: Not all births are geocoded to segment so segment births underrepresent the number of births in segments by about 20%.

**Suppressed for confidentiality.

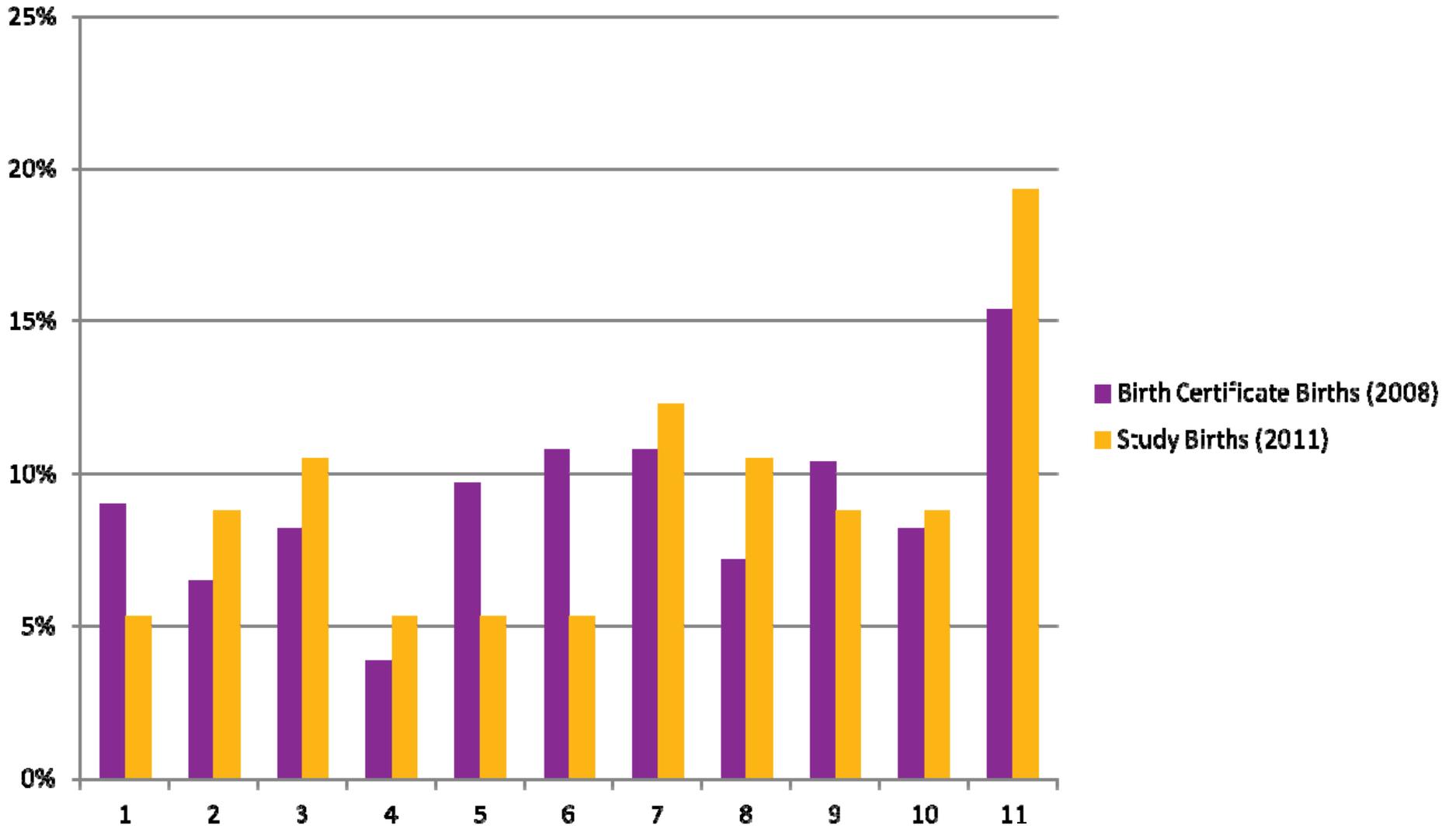
Results continued

Characteristic	Segment Births (N=279)	All County Births (N=2779)
Birthplace--Hospital	99% (98-100%)	99%
Birth attendant		
MD	78% (74-83%)	79%
DO	9% (6-13%)	8%
CNM	12% (8-16%)	12%
Delivery		
Vaginal	69% (64-75%)	69%
Primary Csection	19% (14-24%)	19%
Repeat Csection	13% (9-17%)	12%
Birth weight		
LBW	7% (4-10%)	7%
Normal	89% (85-92%)	88%
Overweight	5% (2-7%)	5%
1 minute Apgar <7	12% (8-16%)	11%
5 minute Apgar <7	**	1%
Ventilated		
<=30 minutes	**	2%
>30 minutes	**	1%

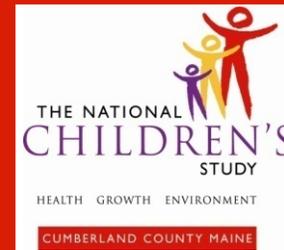
* Note: Not all births are geocoded to segment so segment births underrepresent the number of births in segments by about 20%.

**Suppressed for confidentiality.

Results: Comparison of Distribution of Study Births and Birth Certificate Births by Segment

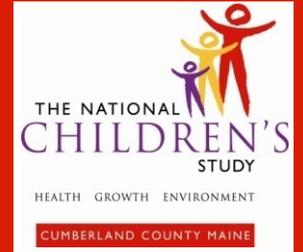


Limitations



- Date mismatch between birth certificate data and study birth data (2008, 2011)
- Inability to geocode births
 - About 20% not codable
 - Higher proportion in rural areas
- No data yet available comparable to the birth certificate data for our participants

Conclusions



- Segment births are very similar to all county births with respect to maternal characteristics, birth processes, and newborn outcomes
 - Good representativeness of segments
- Recruitment success seems variable by segment; however
 - Geocoding success varies by segment
 - Number of enrolled births is small, so chance may be a factor in any mismatch between the overall proportion of births and the study proportion of births by segment

Questions?

