Environmental Health Tracking in the State of Florida

Project Director

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The studies are conducted under an agreement with the Florida Department of Education.

Aims

1. Assist in planning for the provision of services.
2. Help identify groups that would benefit from the provision of early intervention.
3. Help identify conditions that lead to the need for special education services.

Florida has

- Universal electronic records on all children attending public schools.

- Electronic Birth Certificate Records on all births in the state.

University of Miami School/Birth Data Set

- Cleaned

- Archived

Confidentiality/Security

- Stand-Alone Server
  - shielded from university network
  - all internet and networking protocols disabled
- Multi-level Password Security
  - Windows NT validation
  - Microsoft SQL Server validation
- Limited Physical Access
  - secure room with ID card access only

Linked Data Set

FL School Records

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
2002-2003	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2001-2001	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2000-2001	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1999-2000	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1998-1999	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1997-1998	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1996-1997	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1995-1996	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1994-1995	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1993-1994	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1992-1993	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

FL Birth Records

FL Birth Records: 139,000-196,000 records/yr   FL Public School Data: 2.3-2.8 million records/yr

Birth Certificate Records 1980-1988

Key Child Variables

- Birthweight
- Gestational Age
- Apgar Score
- Gender
- Plurality
- Race/ethnicity

Key Maternal Variables

- Education
- Age
- Race/ethnicity
- Prenatal Care
- Marital Status
- Concurrent Illness
- Complications of:
  - Pregnancy (y/n)
  - Labor/Delivery (y/n)

Key Paternal Variables

- Education
- Age
- Race/ethnicity

Additional Variables Available in Birth Certificate Records After 1988

- **Maternal Variables**
  - Tobacco Use, Alcohol Use
  - 16 specific Medical History Factors
    - e.g., anemia, diabetes
  - 15 specific Labor/Delivery Complications
    - e.g., breech presentation, fetal distress

- **Child Variables**
  - 8 specific Abnormal Conditions of Newborn
    - e.g., ventilation, anemia
  - 20 specific Congenital Anomalies
    - e.g., Down syndrome, spina bifida

FDOE Public School Records

- Demographics
  - school number, district, race/ethnicity, sex, dob, grade, native language, free lunch eligibility
- End of Year
  - type of diploma, cumulative GPA, date/reason for withdrawal
- Attendance
  - days present/absent

- Exceptionality
  - primary exceptionality, IEP date, PK early intervention services, anticipated supports on school exit
- Discipline
  - suspensions (gang, alcohol, drug, hate crime, or weapon-related)

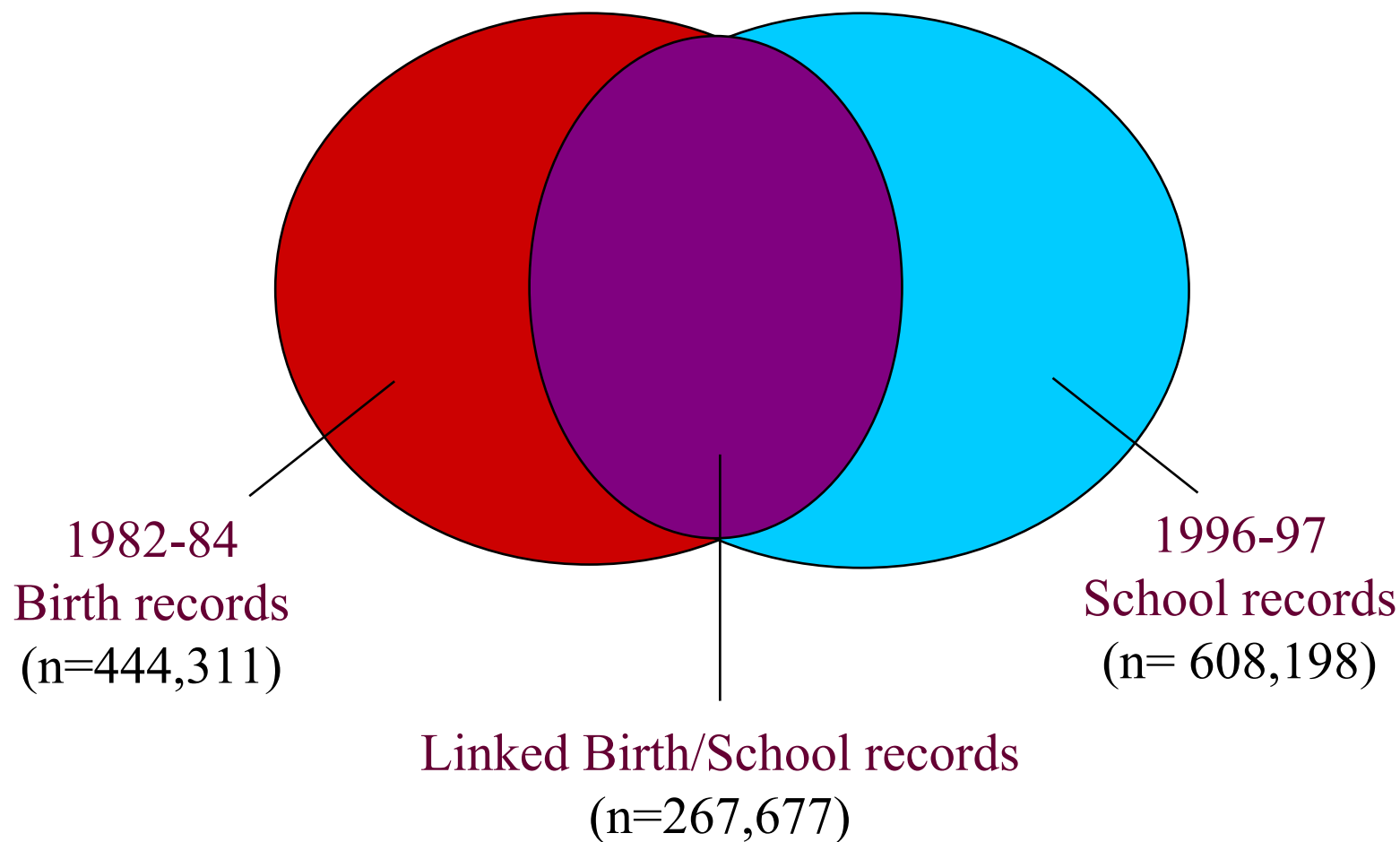# Exceptionality Classifications

- Educable Mentally Handicapped
- Trained Mentally Handicapped
- Profoundly Mentally Handicapped
- Orthopedically Impaired
- Speech Impaired
- Language Impaired
- Deaf or Hard of Hearing
- Visually Impaired
- Emotionally Handicapped
- Severely Emotionally Disturbed
- Specific Learning Disabled
- Gifted
- Hospital/Homebound
- Dual-Sensory Impaired
- Autistic
- Traumatic Brain Injured

Epidemiological Methods

- Focus on proportions of cases
  - Low incidence conditions
  - Policy decisions
- Separate risk to individual from risk to the population

Risk Factor	Individual-Level	Population-Level
Rare (VLBW)	High	Low
Common (Poverty)	Low	High

Linked Dataset

1982-84
Birth records
(n=444,311)

1996-97
School records
(n= 608,198)

Linked Birth/School records
(n=267,677)

Administrative Prevalence of MR

	IQ DEVIATION	NUMBER OF CASES	PREVALENCE (PER 1,000)
Mild MR	-2 to -3 SD	4,295	16.1
Moderate/Severe MR	-3 to -5 SD	969	3.6
Profound MR	Below -5 SD	315	1.2
TOTAL		5,579	20.9

Administrative Prevalence of Autism

School Year	Total # of children	Children w/ Autism	per 1000 children
1996-1997	373,728	657	1.76
1997-1998	379,116	771	2.03
1998-1999	385,779	892	2.31
1999-2000	396,609	1071	2.70
2000-2001	405,563	1130	2.79
2001-2002	407,150	1279	3.14

Geographic Variation

Level of Risk

	Low (0-1 Risk Factors)	Moderate (2-3 Risk Factors)	High (4-6 Risk Factors)
Clay	50%	46%	4%
Gadsden	6%	60%	34%
Hamilton	8%	65%	28%
Madison	8%	61%	31%
STATEWIDE	**39%**	**46%**	**15%**

Population Attributable Fractions (PAF%) for Risk Factors

Risk Factor	MR	LD	EH
Mom Ed<12	49.2%	18.6%	37.9%
Mom Ed=12	27.9%	14.1%	25.6%
Dad Ed<12	36.1%	15.5%	25.3%
Dad Ed=12	30.3%	15.6%	29.6%
Teenage Mother	13.6%	2.4%	13.7%
Teenage Father	4.3%	0.5%	3.6%
Unmarried	45.8%	8.6%	37.8%
No Father Listed	25.8%	4.5%	21.3%
1 Min APGAR<8	10.9%	2.1%	4.3%
5 Min APGAR<8	3.6%	0.6%	1.0%
Birthweight<2500g	14.5%	2.5%	1.8%
Prenatal Visits <9	26.6%	7.0%	19.4%

Other Data Sets

- **ADDM**   Autism and Developmental Disabilities Monitoring Network
  Project Data Set
  Miami Dade County 30,000 Births (Validation Study)
- **CARD**   Center for Autism and Related Disabilities
- **CHRIS**   Children's Registry and Information System
  3-5 yrs Active Case management/surveillance

Advantages of MADDSP Type Surveillance

- Confirmed diagnoses
- Diagnostic rather than administrative service categories
- Detail information about cases not contained in school records
- Medical information about cases available

Advantage of School Records

- Large population at very low cost
- Information on all children not only those with a disability
- Allows longitudinal tracking across years
- Large sample size allows for analysis of multiple risk factors for low incidence conditions
- Changes in prevalence tracked over time

Disadvantage of School Records

- Difficult to know validity of classifications
- Restricted to classifications used in the educational system
- Data quality concerns with a distributed input
- Concerns about security and confidentiality
- Difficult to manage and clean very large data sets

Plan for Environmental Mental Health

1. Can not "re release" individual data even if de-identified: FERPA

2. Florida Department of Education represented on advisory

3. MOU allows release of data aggregated to at least 10 individuals

4. Long-term aim to prevent need for special instructional services

Link

Birth Certificate

→ School Record

→ Longitude and Latitude

→ Census Tract

↓ Environmental Data

Provide environmental health project prevalence data for school exceptionalities by census tract.