

Date: June 28<sup>th</sup>, 2002

Wednesday

1:30

Agenda

- 1) Review Analysis Plan
  - a. Update Power Calculations
    - i. Birth Certificate Sample
      - 1. Original Controls with Birth Certificate N=1049
      - 2. Matched Controls with Birth Certificate N=576
    - ii. Subgroup Analyses
      - 1. Matched Analyses
      - 2. Unmatched Analyses
- 2) Review Data Issues
  - a. Sample Selection - See Table
  - b. Descriptive Data for Cases - Table 2
    - i. Subgroups
    - ii. Dropped epilepsy from table
- 3) Preliminary Results
  - a. Table 4 - Primary Analyses
  - b. Table 5 - Unmatched Subgroup Analyses
- 4) Creation of Public Use Data Set
  - a. Data privacy Issues
    - i. NCHS Model
    - ii. Other Model
  - b. Code Book
  - c. SAS Programs
- 5) Select Data to Present Preliminary Results to Bob Chen and David Shay

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July 15th Absence 2:00 PM

17th 1:00

- list of Variables Used in Analysis

Intro Methods Results

## Sample Selection for MMR/Autism Study

Selection Criteria	Controls		Cases			
	Yes	No	No%	Yes	No	No%
Available Sample	2143			706		
Valid CASENUM	2113	30	1%	706	0	0%
Confirmed Autism Case	2113	0	0%	660	46	7%
Matched Cases and Controls	1912	201	10%	647	13	2%
Original 3 Controls	1891	21	1%	647	0	0%
Missing Age Data	1890	1	0%	647	0	0%
Missing MMR Vaccine Date (1,2)	1876	14	1%	629	18	3%

1) 11 controls were missing their entire vaccination record

2) 14 cases were missing their entire vaccination record

Table 1: Descriptive Statistics For Entire Sample \*

Variable	Category	Controls		Cases	
		N	Percent	N	Percent
Age 1996	3 - 5 yrs	635	34%	215	34%
	6 - 8 yrs	973	52%	321	51%
	9 - 10 yrs	268	14%	93	15%
	Total	1876	100%	629	100%
Sex	Male	1506	80%	505	80%
	Female	370	20%	124	20%
	Total	1876	100%	629	100%
Race	White	930	52%	336	55%
	Black	674	38%	232	38%
	Other	175	10%	40	7%
	Total	1779	100%	608	100%

\* All subjects reported in table had date of receipt of MMR vaccine

\* All cases are confirmed cases

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**Table 2: Associated Conditions for Autism Cases**

Associated Conditions	Yes	%	No	%	Total
Low Functioning (MR)	378	60%	251	40%	629
Low Functioning (MR) DX <= 1 Year	10	2%	619	98%	629
Cerebral Palsy DX <= 1 Year	7	1%	622	99%	629
Visual Impairment DX <= 1 Year	1	0%	628	100%	629
Hearing Impairment DX <= 1 Year	3	0%	626	100%	629
Major Birth Defects	28	4%	601	96%	629
Other Pre-existing conditions <= 1 Year *	212	34%	417	66%	629
Any Pre-Existing Conditions <= 1 Year	235	37%	394	63%	629
Regression or Plateau	80	13%	549	87%	629

\* These conditions were identified through chart review

\*\* Dropped epilepsy from descriptives because it is picked up through

Table 3: Descriptive Statistics for Birth Certificate Variables

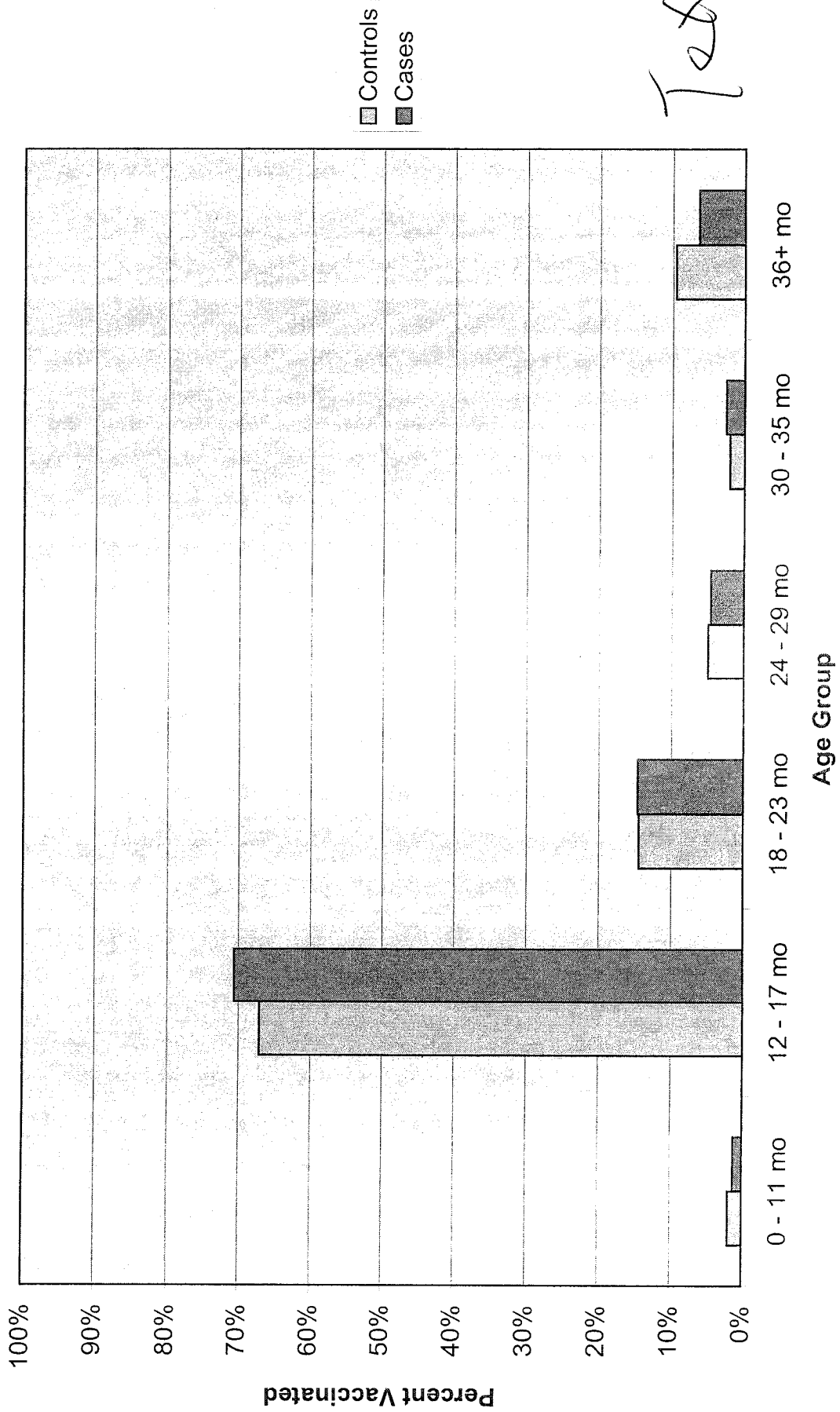
Variable	Category	Controls		Cases	
		N	Percent	N	Percent
Age in 1996	3 - 5 yrs	382	36%	127	35%
	6 - 8 yrs	552	53%	182	51%
	9 - 10 yrs	115	11%	50	14%
	Total	1049	100%	359	100%
Sex	Male	834	80%	286	80%
	Female	215	20%	73	20%
	Total	1049	100%	359	100%
Race	White	578	55%	201	56%
	Black	405	39%	139	39%
	Other	66	6%	19	5%
	Total	1049	100%	359	100%
Maternal Age	< 20 yrs	102	10%	16	4%
	20 - 34 yrs	823	78%	282	79%
	35+ yrs	124	12%	61	17%
	Total	1049	100%	359	100%
Maternal Race	White	618	59%	209	58%
	Black	399	38%	138	38%
	Other	30	3%	12	3%
	Total	1047	100%	359	100%
Maternal Educ	<= 12 yrs	485	46%	138	38%
	13 - 15 yrs	259	25%	100	28%
	16+ yrs	305	29%	121	34%
	Total	1049	100%	359	100%
Birth Weight	0 - 1499 gms	11	1%	12	3%
	1500 - 2499 gms	55	5%	37	10%
	2500 + gms	983	94%	310	86%
	Total	1049	100%	359	100%
Multiplicity	Singleton	1017	97%	333	93%
	Twin +	32	3%	26	7%
	Total	1049	100%	359	100%
Parity	1st Born	462	44%	151	42%
	2nd or Higher	578	56%	206	58%
	Total	1040	100%	357	100%

\* All subjects reported in table had date of receipt of MMR vaccine

\*\* All cases are confirmed cases

\*\*\* Subjects are unmatched. There are significantly fewer matched cases and controls

# Age of 1st MMR Vaccination by Case Status



Jeff

Table 4: Preliminary Matched Statistical Analyses

Sample	Exposure	Case Definitions	N	Crude OR			Adjusted OR		
				OR	L95CI	U95CI	OR	L95CI	U95CI
Total	MMR < 18 Mo	Total Matched Cases	629	1.13	0.92	1.39			
		Males	505	1.24	0.98	1.56			
		Females	124	0.82	0.52	1.30			
		No Pre-Existing Conditions Before Age 1 Year	394	1.08	0.83	1.40			
		Regression or Plateau	80	1.46	0.83	2.60			
		Low Functioning (MR)	378	1.06	0.82	1.38			
	MMR < 24 Mo	High Functioning (No MR)	251	1.26	0.90	1.77			
		Total Matched Cases	629	1.23	0.95	1.60			
		Males	505	1.31	0.98	1.77			
		Females	124	0.98	0.56	1.71			
Birth Certificate	MMR < 18 Mo	Total Matched Cases	311	1.00	0.72	1.38	0.95	0.67	1.33
		Males	243	1.03	0.71	1.48	0.98	0.67	1.44
		Females	68	0.92	0.45	1.90	0.77	0.32	1.82
		No Pre-Existing Conditions Before Age 1 Year	187	1.09	0.71	1.66	1.06	0.68	1.64
		Regression or Plateau	31	1.02	0.39	2.67	1.16	0.41	3.28
		Low Functioning (MR)	179	1.16	0.76	1.79	1.12	0.71	1.77
	MMR < 24 Mo	High Functioning (No MR)	132	0.80	0.49	1.33	0.74	0.43	1.26
		Total Matched Cases	311	1.14	0.74	1.75	1.04	0.66	1.63
		Males	243	1.19	0.73	1.93	1.08	0.65	1.80
		Females	68	0.96	0.37	2.47	0.80	0.24	2.68
MMR < 24 Mo	No Pre-Existing Conditions Before Age 1 Year	187	1.10	0.62	1.95	1.04	0.57	1.89	
	Regression or Plateau	31	0.93	0.27	3.25	1.17	0.31	4.41	
	Low Functioning (MR)	179	1.06	0.62	1.81	0.94	0.53	1.68	
	High Functioning (No MR)	132	1.30	0.61	2.75	1.21	0.55	2.69	

*Separate Table*

*Male Subgroup*

Table 5: Unmatched Subgroup Analyses

Exposure	Case Definitions	N	Crude OR			Adjusted OR		
			OR	L95CI	U95CI	OR	L95CI	U95CI
MMR < 18 Mo	Maternal Age 35+ Years	61	0.99	0.69	1.41	0.56	0.27	1.16
	Maternal Age < 35 Years	298	1.02	0.76	1.35	0.92	0.68	1.24
	Maternal Education 16+ Years	121	0.65	0.37	1.12	0.68	0.38	1.20
	Maternal Education <16 Years	238	0.98	0.721	1.33	0.92	0.67	1.26
	Birth Weight < 2500 gms	49	0.59	0.27	1.30	0.49	0.18	1.37
	Birth Weight >= 2500 gms	310	1.01	0.76	1.34	0.92	0.68	1.23
MMR < 24 Mo	Maternal Age 35+ Years	61	0.57	0.17	1.95	0.57	0.16	2.04
	Maternal Age < 35 Years	298	1.00	0.69	1.45	0.95	0.65	1.40
	Maternal Education 16+ Years	121	0.78	0.31	1.99	0.82	0.31	2.16
	Maternal Education <16 Years	238	0.97	0.66	1.44	0.93	0.63	1.40
	Birth Weight < 2500 gms	49	0.54	0.20	1.48	0.40	0.13	1.17
	Birth Weight >= 2500 gms	310	1.11	0.75	1.63	0.97	0.65	1.45

Gender  
- Race add