

## MMR/Autism Agenda

Date: February 13, 2002

- 1) Data Privacy Issues
- 2) Update on Data Checks / Final Database
  - a. Original controls are in database
  - b. Missing immunization forms/data
    - i. Tanya will be following up on missing forms
    - ii. Will be getting both MMR data as well as other vaccine data
  - c. Will review exclusionary criteria once new data is available
  - d. Check why Isolated Autism cases without Delay < 1 all appear to be vaccinated < 36 months
  - e. New Variables Added
    - i. Developmental Delay < 1
    - ii. Plateau/Regression – will not be very useful for analyses
    - iii. Pre-existing Condition – was previously subset of DD < 1
    - iv. Age of 1<sup>st</sup> Concern – uncorrelated with age of vaccination
- 3) Discussion of Preliminary Descriptive Statistics
  - a. Total Sample
  - b. Birth Certificate Sample
- 4) Additional Analyses
  - a. Isolated Autism
  - b. Delay < 1
  - c. Pre-existing Condition
  - d. Age of 1<sup>st</sup> Concern
  - e. Examine influence of each school system

## Sample Selection for MMR/Autism Study

Selection Criteria	Controls			Cases		
	Remaining Sample	Removed	Percent	Remaining Sample	Removed	Percent
<b>Initial Sample</b>	1912	NA	NA	647	NA	NA
<b>Removed Extra Controls</b>	1891	21	1%	647	0	0%
<b>Missing Age Data</b>	1890	1	0%	647	0	0%
<b>Missing MMR Vaccine Date (1,2)</b>	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: Preliminary Descriptive Statistics For Entire Sample \*

	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%
Co-Existing DD	CP	NA	NA	31	5%
	MR	NA	NA	378	60%
	VI	NA	NA	8	1%
	HI	NA	NA	7	1%
	Epilepsy	NA	NA	49	8%
	Non-Isolated Autism	NA	NA	400	64%
Pre-existing Condition	Yes	NA	NA	79	13%
Delay < 1	Yes	NA	NA	186	30%
Pre-existing Condition or Delay < 1	Yes	NA	NA	222	35%
Median Age of 1st Concern	Months		103	18.1	
Age of MMR	0 - 11 mo	37	2.0%	8	1.3%
	12 - 15 mo	886	47.2%	335	53.3%
	16 - 18 mo	459	24.5%	144	22.9%
	19 - 23 mo	184	9.8%	57	9.1%
	24 - 35 mo	131	7.0%	45	7.2%
	36+ mo	179	9.5%	40	6.4%
	Total	1876	100.0%	629	100.0%

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

\* All cases are confirmed cases

Table 2: Preliminary 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%
Mothers 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

**Table 3: Analyses Using Total Sample**

Sample	Cases	Variable	Univariate		
			OR	L95CI	U95CI
Total	596	MMR < 18	1.13	0.92	1.39
		MMR < 36	1.53	1.07	2.19
		MMR Categories			
		0 - 11 mo	1.00	0.43	2.31
		12 - 15 mo	1.68	1.16	2.43
		16 - 18 mo	1.38	0.93	2.05
		19 - 23 mo	1.37	0.87	2.15
		24 - 35 mo	1.57	0.97	2.56
		36+ mo	1.00	1.00	1.00
Isolated	229	MMR < 18	1.21	0.84	1.73
		MMR < 36	2.53	1.18	5.41
		MMR Categories			
		0 - 11 mo	1.27	0.24	6.81
		12 - 15 mo	2.77	1.28	5.99
		16 - 18 mo	2.28	1.02	5.09
		19 - 23 mo	1.83	0.72	4.67
		24 - 35 mo	2.59	0.98	6.82
		36+ mo	1.00	1.00	1.00
Non-Delayed	443	MMR < 18	1.22	0.96	1.56
		MMR < 36	1.67	1.09	2.57
		MMR Categories			
		0 - 11 mo	1.29	0.48	3.46
		12 - 15 mo	1.83	1.17	2.85
		16 - 18 mo	1.54	0.97	2.47
		19 - 23 mo	1.41	0.82	2.43
		24 - 35 mo	1.71	0.96	3.04
		36+ mo	1.00	1.00	1.00

[Non-Delayed + Pre-existing]

[Non-Isolated]

**Table 4: Descriptive Race Data**

<b>Case Status</b>	<b>Race</b>	<b>MMR</b>	<b>N</b>	<b>Percent</b>
Controls	White	Early	1023	
	White	Late	82	7%
	Black	Early	589	
	Black	Late	85	13%
Cases	White	Early	351	
	White	Late	25	7%
	Black	Early	218	
	Black	Late	14	6%

Table 5: Analyses Using Birth Certificate Sample

Sample	Cases Variable	Univariate			Multivariate		
		OR	L95CI	U95CI	OR	L95CI	U95CI
Total	MMR < 18	1.00	0.72	1.38	0.95	0.67	1.33
	MMR < 36	1.45	0.76	2.76	1.30	0.67	2.55
	MMR Categories						
	0 - 11 mo	0.74	0.14	4.04	0.69	0.13	3.87
	12 - 15 mo	1.52	0.78	2.94	1.36	0.68	2.71
	16 - 18 mo	1.34	0.66	2.69	1.21	0.58	2.49
	19 - 23 mo	1.35	0.63	2.89	1.17	0.53	2.58
	24 - 35 mo	1.54	0.66	3.58	1.49	0.63	3.53
	36+ mo	1.00	1.00	1.00	1.00	1.00	1.00

Isolated

Non-Isolated

Non-Delayed + Pre-existing