

7/17/2002

### 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%

White  
Black  
State

Race Table

- 1) 11 controls were missing their entire vaccination record
- 2) 14 cases were missing their entire vaccination record

1

Race \* BC \* MMR interact

2

Rotate out schools

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%
	<del>MISSING</del> Total	1876	100%	629	100%
Sex	Male	1506	80%	505	80%
	Female	370	20%	124	20%
	<del>MISSING</del> Total	1876	100%	629	100%
Race **	White	930	52%	336	55%
	Black	674	38%	232	38%
	Other	175	10%	40	7%
	<del>MISSING</del> Total	1779	100%	608	100%

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

\* All cases are confirmed cases

\*\* Race was missing on 97 children

**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

BC Sample Distribution

Figure 1: Age of 1st MMR Vaccination by Case Status

Fig 1b!

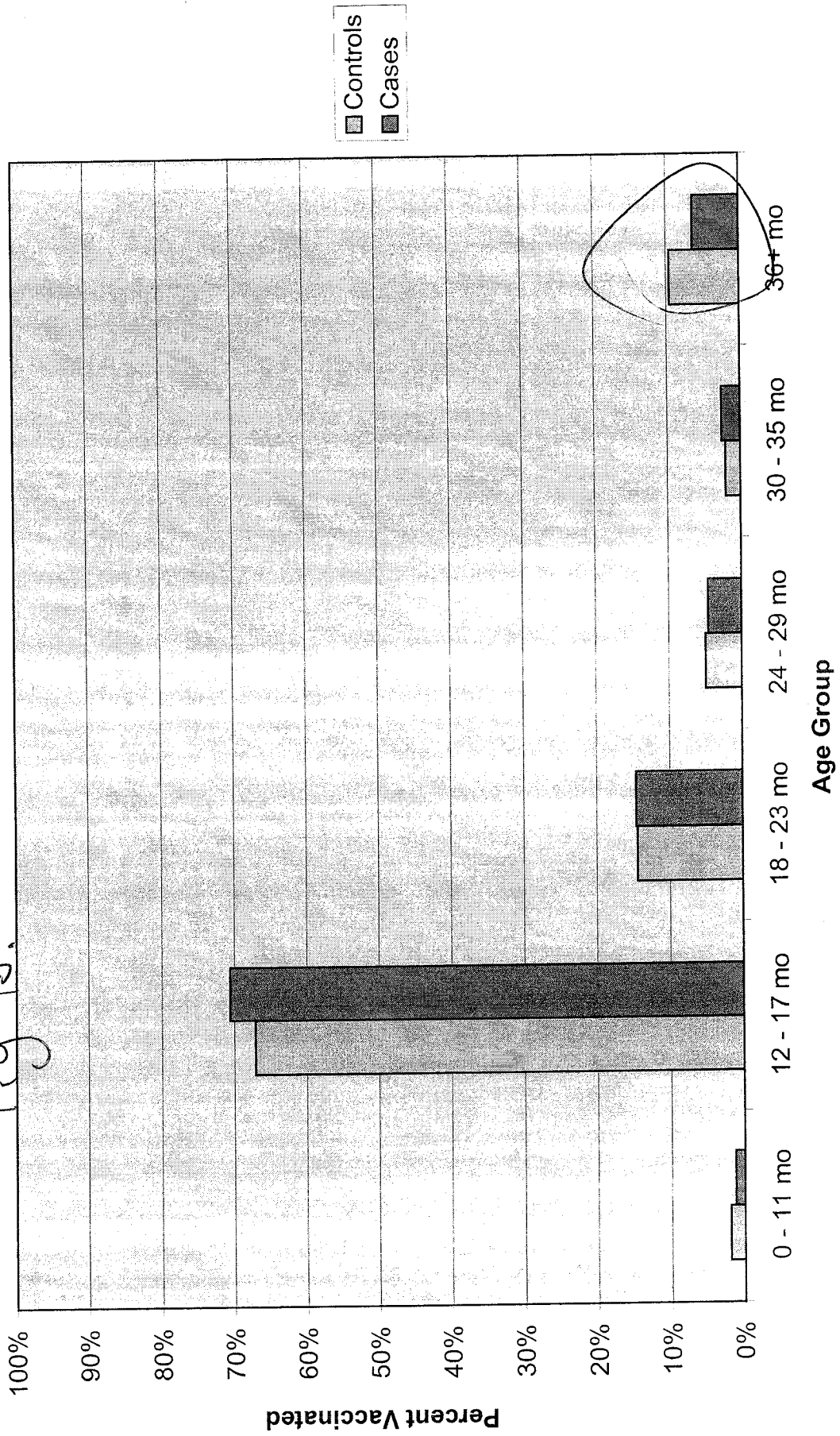


Table 3: Age of 1st MMR Vaccination and Case Status

Age Group	Controls	Controls	Cases	Cases	OR	L95CI	U95CI
0 - 11 mo	37	2.0%	8	1.3%	0.64	0.29	1.38
12 - 17 mo	1258	67.1%	444	70.6%	1.00	NA	NA
18 - 23 mo	271	14.4%	92	14.6%	0.96	0.74	1.25
24 - 29 mo	93	5.0%	29	4.6%	0.94	0.60	1.45
30 - 35 mo	38	2.0%	16	2.5%	1.19	0.66	2.15
36+ mo	179	9.5%	40	6.4%	0.64	0.45	0.92
Total	1876	100.0%	629	100.0%			

Insert Odds Ratio

Table 4: 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

**Table 5: Matched Statistical Analyses**

Sample	Exposure	Cases	Crude OR			Adjusted OR		
			OR	L95CI	U95CI	OR	L95CI	U95CI
Total	MMR < 18 Mo	629	1.13	0.92	1.39			
	MMR < 24 Mo	629	1.23	0.95	1.60			
	MMR < 36 Mo	629	<b>1.53</b>	<b>1.07</b>	<b>2.19</b>			
Birth Certificate	MMR < 18 Mo	311	1.00	0.72	1.38	0.95	0.67	1.33
	MMR < 24 Mo	311	1.14	0.74	1.75	1.04	0.66	1.63
	MMR < 36 Mo	311	1.45	0.76	2.76	1.30	0.67	2.55

Table 6: Matched Subgroup Analyses

Exposure	Sample	Case Subgroup	Cases	Crude OR			Adjusted OR		
				OR	L95CI	U95CI	OR	L95CI	U95CI
MMR < 18 Mo	Total	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			
		High Functioning (No MR)	251	1.26	0.90	1.77			
		Birth Certificate	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		
High Functioning (No MR)	132	0.80	0.49	1.33	0.74	0.43	1.26		
MMR < 24 Mo	Total	Males	505	1.31	0.98	1.77			
		Females	124	0.98	0.56	1.71			
		No Pre-Existing Conditions Before Age 1 Year	394	1.15	0.83	1.59			
		Regression or Plateau	80	1.45	0.69	3.04			
		Low Functioning (MR)	378	1.10	0.80	1.52			
		High Functioning (No MR)	251	1.52	0.97	2.39			
		Birth Certificate	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
		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		

MMR < 30 Mo  
*[Handwritten signature]*



Table 7: Unmatched Subgroup Analyses

Exposure	Case Subgroup	Cases			Crude OR			Cases			Adjusted OR		
		OR	L95CI	U95CI	OR	L95CI	U95CI	OR	L95CI	U95CI	OR	L95CI	U95CI
MMR < 18 Mo	White/Other	376	1.02	0.78	1.34	220	0.93	0.63	1.36				
	Black	232	1.25	0.91	1.70	139	0.90	0.61	1.32				
	Maternal Age 35+ Years	61	0.99	0.69	1.41		0.81	0.53	1.22				
	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				
	White/Other	376	1.08	0.75	1.55	220	0.86	0.49	1.51				
	Black	232	1.51	1.02	2.24	139	0.99	0.59	1.66				
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				
	Blacks With Birth Certificate	139	0.99	0.61	1.61								
	Blacks Without Birth Certificate	93	2.94	1.48	5.81								