

4/17/2002

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%

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 *

	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

Table 2: Descriptive Statistics for Autism Cases

Conditions	Yes	%	No	%	Total
Comorbid Conditions	405	64%	224	36%	629
Any Comorbid Condition	405	64%	224	36%	629
Cerebral Palsy	31	5%	598	95%	629
Mental Retardation	378	60%	251	40%	629
Visual Impairment	8	1%	621	99%	629
Hearing Impairment	7	1%	622	99%	629
Epilepsy	49	8%	580	92%	629
Birth Defects	5	1%	624	99%	629
Delay < 3 Years of Age	400	64%	229	36%	629
Delay < 1 Year of Age	174	28%	455	72%	629
Regression or Plateau	80	13%	549	87%	629
Pre-existing Condition	79	13%	550	87%	629
Delay < 1 or Pre-Existing Condition	212	34%	417	66%	629
Any Comorbid or Pre-Existing Conditions	475	76%	159	25%	629

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%
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%

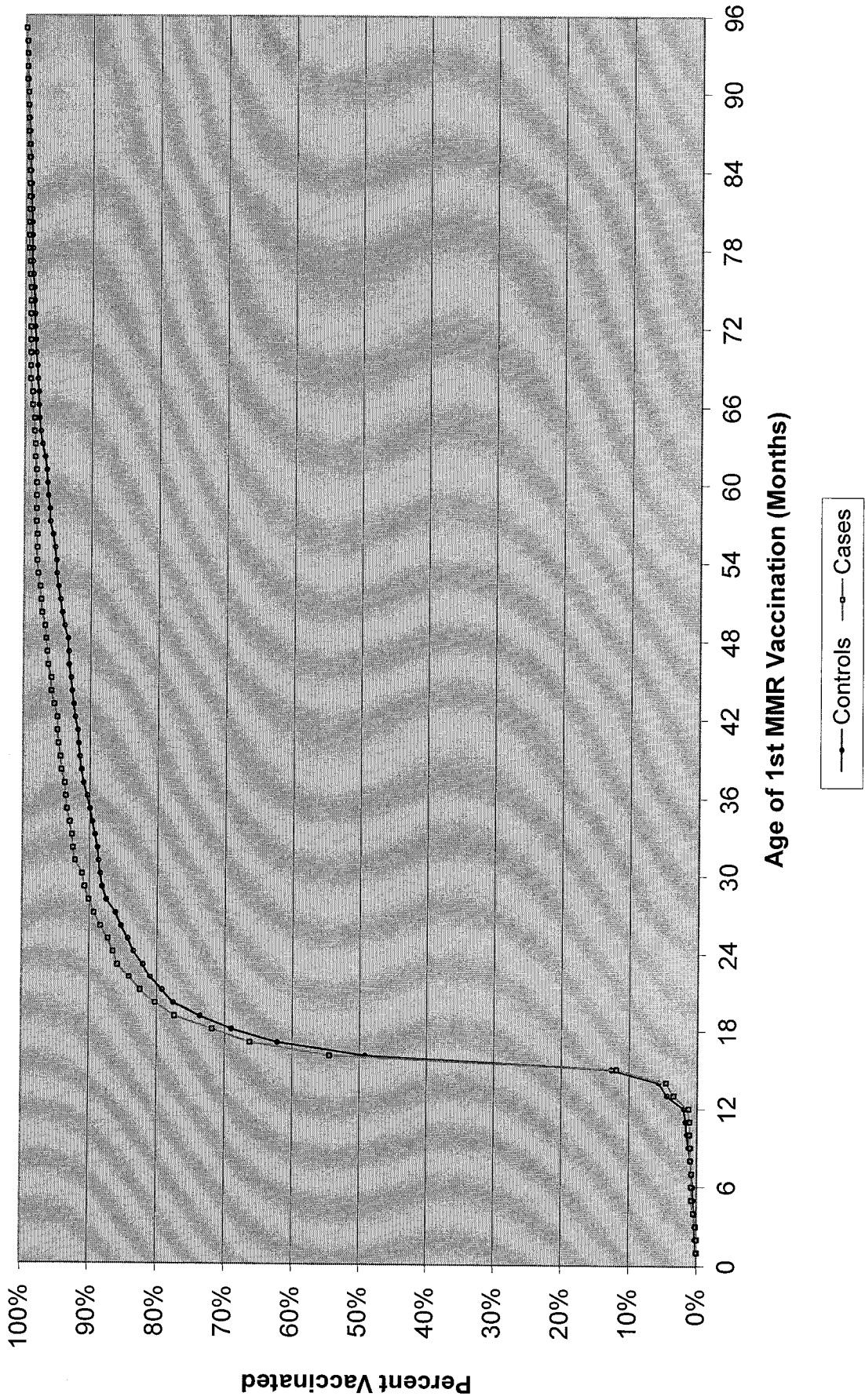
* All subjects reported in table had date of receipt of MMR vaccine

* All cases are confirmed cases

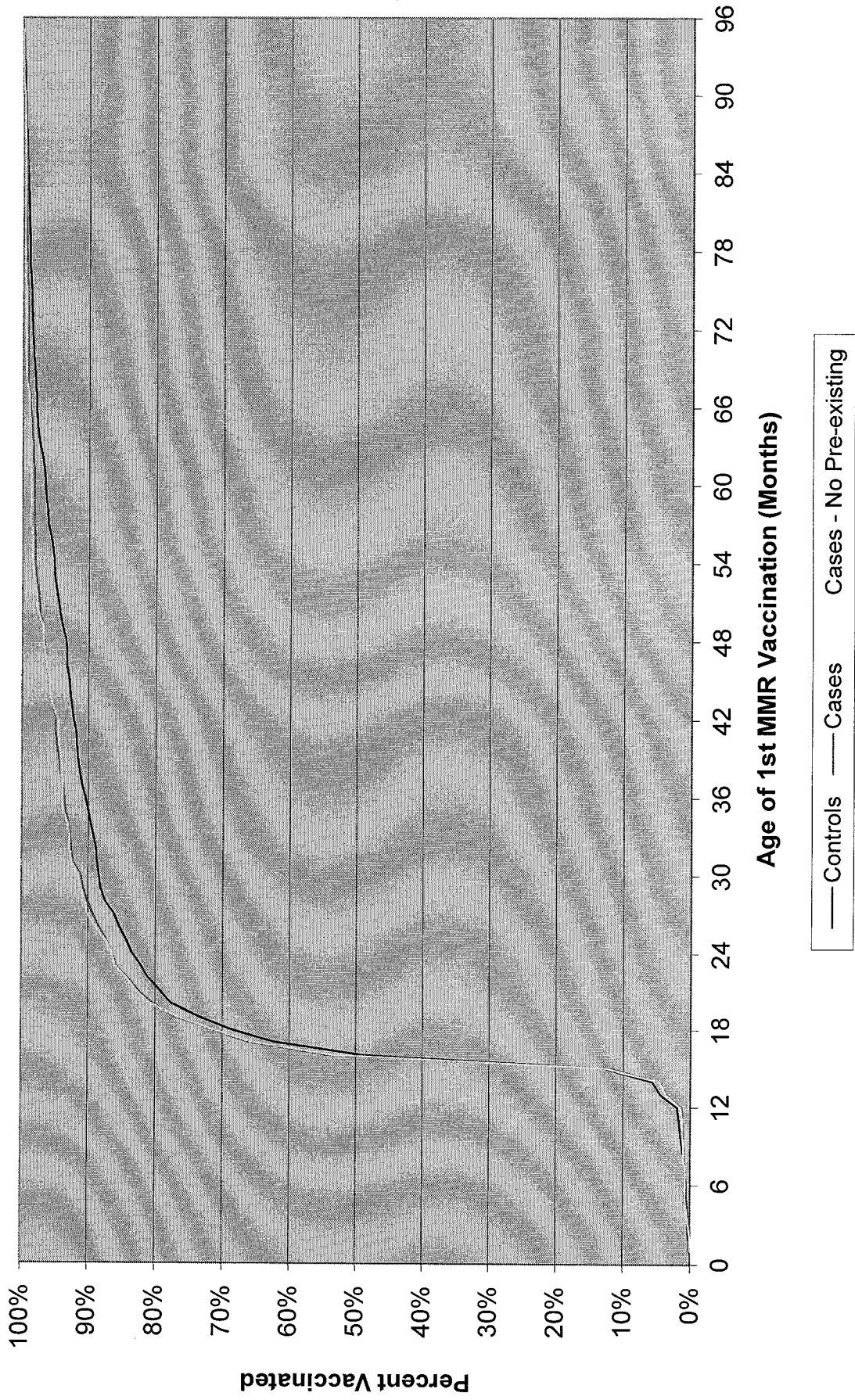
Table 4: Statistical Analyses

Sample	Exposure	Case Definitions	N	Univariate			Multivariate		
				OR	L95CI	U95CI	OR	L95CI	U95CI
Total	MMR < 18 Mo	All Subjects	629	1.13	0.92	1.39			
		No Co-morbid Conditions	224	1.21	0.84	1.75			
		No Pre-existing conditions	417	1.16	0.90	1.49			
		No Pre-existing or Co-morbid Conditions	159	1.42	0.91	2.21			
Birth Certificate	MMR < 24 Mo	All Subjects	629	1.23	0.95	1.60			
		No Co-morbid Conditions	224	1.52	0.93	2.48			
		No Pre-existing conditions	417	1.21	0.88	1.68			
		No Pre-existing or Co-morbid Conditions	159	2.21	1.17	4.18			
Total	MMR < 18 Mo	All Subjects	359	1.00	0.72	1.38			
		No Co-morbid Conditions	135	0.81	0.47	1.38			
		No Pre-existing conditions	230	1.15	0.77	1.73			
		No Pre-existing or Co-morbid Conditions	96	1.14	0.61	2.13			
Birth Certificate	MMR < 24 Mo	All Subjects	359	1.14	0.74	1.75			
		No Co-morbid Conditions	135	1.32	0.59	2.92			
		No Pre-existing conditions	230	1.20	0.69	2.11			
		No Pre-existing or Co-morbid Conditions	96	2.76	0.92	8.29			

Age of 1st MMR Vaccination by Case Status



Age of 1st MMR Vaccination by Case Status

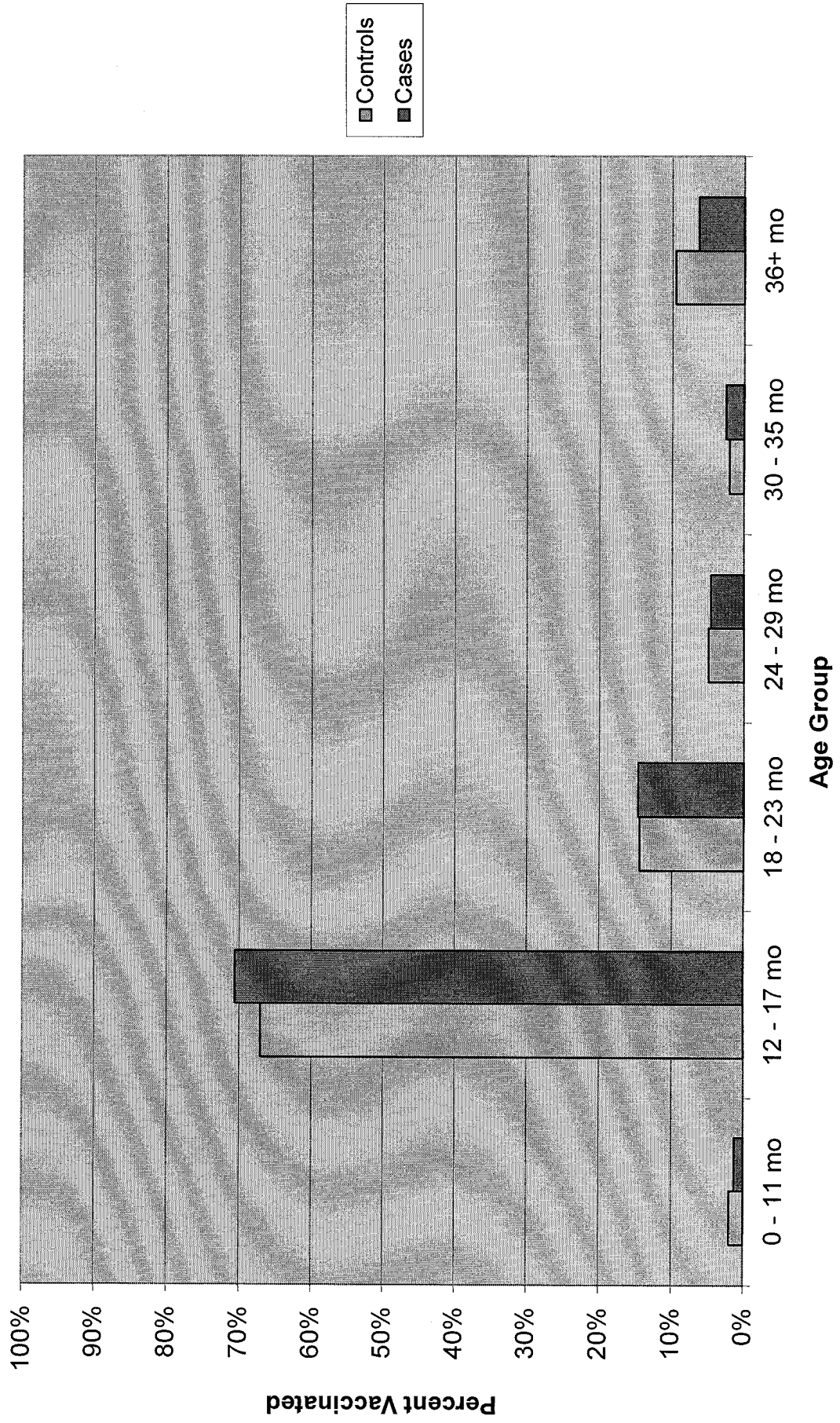


Month	Control Freq	Control Cum Freq	Controls	Case Freq	Case Cum Freq	Cases	Case Freq	Case Cum Freq	Cases - No Pre-existing
0	1	1	0.1%	0	0	0.0%	0	0	0.0%
1	3	4	0.2%	0	0	0.0%	0	0	0.0%
2	1	5	0.3%	1	1	0.2%	1	1	0.2%
3	2	7	0.4%	2	3	0.5%	1	2	0.5%
4	3	10	0.5%	2	5	0.8%	1	3	0.7%
5	1	11	0.6%	0	5	0.8%	0	3	0.7%
6	4	15	0.8%	0	5	0.8%	0	3	0.7%
7	2	17	0.9%	1	6	1.0%	1	4	1.0%
8	6	23	1.2%	0	6	1.0%	0	4	1.0%
9	5	28	1.5%	1	7	1.1%	1	5	1.2%
10	4	32	1.7%	0	7	1.1%	0	5	1.2%
11	5	37	2.0%	1	8	1.3%	1	6	1.5%
12	47	84	4.5%	14	22	3.5%	9	15	3.7%
13	23	107	5.7%	7	29	4.6%	4	19	4.7%
14	131	238	12.7%	46	75	11.9%	32	51	12.5%
15	685	923	49.2%	268	343	54.5%	167	218	53.6%
16	245	1168	62.3%	74	417	66.3%	49	267	65.6%
17	127	1295	69.0%	35	452	71.9%	25	292	71.7%
18	87	1382	73.7%	35	487	77.4%	21	313	76.9%
19	74	1456	77.6%	18	505	80.3%	16	329	80.8%
20	31	1487	79.3%	14	519	82.5%	8	337	82.8%
21	33	1520	81.0%	10	529	84.1%	6	343	84.3%
22	20	1540	82.1%	11	540	85.9%	7	350	86.0%
23	26	1566	83.5%	4	544	86.5%	2	352	86.5%
24	16	1582	84.3%	5	549	87.3%	4	356	87.5%
25	19	1601	85.3%	7	556	88.4%	6	362	88.9%
26	15	1616	86.1%	6	562	89.3%	5	367	90.2%
27	26	1642	87.5%	5	567	90.1%	2	369	90.7%
28	12	1654	88.2%	4	571	90.8%	2	371	91.2%
29	5	1659	88.4%	2	573	91.1%	2	373	91.6%
30	5	1664	88.7%	7	580	92.2%	4	377	92.6%
31	3	1667	88.9%	2	582	92.5%	1	378	92.9%
32	7	1674	89.2%	1	583	92.7%	0	378	92.9%
33	8	1682	89.7%	2	585	93.0%	1	379	93.1%
34	7	1689	90.0%	3	588	93.5%	3	382	93.9%
35	8	1697	90.5%	1	589	93.6%	0	382	93.9%
36	10	1707	91.0%	1	590	93.8%	0	382	93.9%
37	6	1713	91.3%	3	593	94.3%	1	383	94.1%
38	5	1718	91.6%	1	594	94.4%	0	383	94.1%
39	3	1721	91.7%	2	596	94.8%	1	384	94.3%
40	2	1723	91.8%	1	597	94.9%	1	385	94.6%
41	8	1731	92.3%	0	597	94.9%	0	385	94.6%
42	4	1735	92.5%	3	600	95.4%	3	388	95.3%
43	5	1740	92.8%	3	603	95.9%	2	390	95.8%
44	3	1743	92.9%	0	603	95.9%	0	390	95.8%
45	6	1749	93.2%	3	606	96.3%	2	392	96.3%
46	1	1750	93.3%	1	607	96.5%	1	393	96.6%

47	2	1752	93.4%	1	608	96.7%	1	394	96.8%
48	10	1762	93.9%	1	609	96.8%	0	394	96.8%
49	7	1769	94.3%	3	612	97.3%	3	397	97.5%
50	5	1774	94.6%	1	613	97.5%	1	398	97.8%
51	6	1780	94.9%	1	614	97.6%	1	399	98.0%
52	5	1785	95.1%	2	616	97.9%	1	400	98.3%
53	1	1786	95.2%	1	617	98.1%	1	401	98.5%
54	4	1790	95.4%	0	617	98.1%	0	401	98.5%
55	6	1796	95.7%	0	617	98.1%	0	401	98.5%
56	8	1804	96.2%	1	618	98.3%	1	402	98.8%
57	1	1805	96.2%	0	618	98.3%	0	402	98.8%
58	5	1810	96.5%	0	618	98.3%	0	402	98.8%
59	2	1812	96.6%	0	618	98.3%	0	402	98.8%
60	2	1814	96.7%	0	618	98.3%	0	402	98.8%
61	5	1819	97.0%	1	619	98.4%	1	403	99.0%
62	8	1827	97.4%	0	619	98.4%	0	403	99.0%
63	5	1832	97.7%	1	620	98.6%	0	403	99.0%
64	3	1835	97.8%	0	620	98.6%	0	403	99.0%
65	2	1837	97.9%	2	622	98.9%	0	403	99.0%
66	1	1838	98.0%	0	622	98.9%	0	403	99.0%
67	3	1841	98.1%	2	624	99.2%	2	405	99.5%
68	1	1842	98.2%	0	624	99.2%	0	405	99.5%
69	4	1846	98.4%	0	624	99.2%	0	405	99.5%
71	1	1847	98.5%	0	624	99.2%	0	405	99.5%
72	2	1849	98.6%	0	624	99.2%	0	405	99.5%
74	1	1850	98.6%	0	624	99.2%	0	405	99.5%
79	1	1851	98.7%	0	624	99.2%	0	405	99.5%
80	1	1852	98.7%	0	624	99.2%	0	405	99.5%
82	3	1855	98.9%	1	625	99.4%	1	406	99.8%
83	2	1857	99.0%	0	625	99.4%	0	406	99.8%
85	0	1857	99.0%	1	626	99.5%	0	406	99.8%
88	1	1858	99.0%	0	626	99.5%	0	406	99.8%
89	1	1859	99.1%	0	626	99.5%	0	406	99.8%
90	1	1860	99.1%	0	626	99.5%	0	406	99.8%
91	1	1861	99.2%	0	626	99.5%	0	406	99.8%
92	1	1862	99.3%	0	626	99.5%	0	406	99.8%
93	2	1864	99.4%	0	626	99.5%	0	406	99.8%
97	1	1865	99.4%	0	626	99.5%	0	406	99.8%
98	1	1866	99.5%	0	626	99.5%	0	406	99.8%
100	1	1867	99.5%	1	627	99.7%	0	406	99.8%
112	1	1868	99.6%	0	627	99.7%	0	406	99.8%
113	1	1869	99.6%	0	627	99.7%	0	406	99.8%
117	1	1870	99.7%	0	627	99.7%	0	406	99.8%
118	1	1871	99.7%	1	628	99.8%	1	407	100.0%
125	1	1872	99.8%	0	628	99.8%	0	407	100.0%
126	1	1873	99.8%	0	628	99.8%	0	407	100.0%
129	2	1875	99.9%	0	628	99.8%	0	407	100.0%
Not Total	1	1876	100.0%	1	629	100.0%	0	407	100.0%
	1876			629			407		

Age Group	Controls	Controls	Cases	Cases
0 - 11 mo	37	2.0%	8	1.3%
12 - 17 mo	1258	67.1%	444	70.6%
18 - 23 mo	271	14.4%	92	14.6%
24 - 29 mo	93	5.0%	29	4.6%
30 - 35 mo	38	2.0%	16	2.5%
36+ mo	179	9.5%	40	6.4%
Total	1876	100.0%	629	100.0%

Age of 1st MMR Vaccination by Case Status



MMRC1	1	-0.0033	0.42895	0.0001	0.9939	1.00	0.43	2.31
MMRC2	1	0.51588	0.18883	7.4636	0.0063	1.68	1.16	2.43
MMRC3	1	0.32446	0.20107	2.6038	0.1066	1.38	0.93	2.05
MMRC4	1	0.31229	0.23199	1.812	0.1783	1.37	0.87	2.15
MMRC5	1	0.45219	0.24846	3.3124	0.0688	1.57	0.97	2.56

1.133 0.922 1.392
1.532 1.071 2.193

MMRC1	1	0.23687	0.8579	0.0762	0.7825	1.267	0.236	6.81
MMRC2	1	1.01753	0.39426	6.6607	0.0099	2.766	1.277	5.991
MMRC3	1	0.82215	0.41091	4.0031	0.0454	2.275	1.017	5.091
MMRC4	1	0.60296	0.479	1.5845	0.2081	1.828	0.715	4.673
MMRC5	1	0.95207	0.49387	3.7164	0.0539	2.591	0.984	6.821

1.206 0.84 1.73

2.527 1.179 5.413

MMRC1	1	0.25353	0.50422	0.2528	0.6151	1.289	0.48	3.462
MMRC2	1	0.60148	0.22673	7.0379	0.008	1.825	1.17	2.846
MMRC3	1	0.43439	0.23988	3.2791	0.0702	1.544	0.965	2.471
MMRC4	1	0.34649	0.27683	1.5666	0.2107	1.414	0.822	2.433
MMRC5	1	0.53671	0.29405	3.3314	0.068	1.71	0.961	3.044

MMRC1	1	-0.36457	0.87655	0.173	0.6775	0.694	0.125	3.871
MMRC2	1	0.30863	0.35119	0.7723	0.3795	1.362	0.684	2.71
MMRC3	1	0.18735	0.3697	0.2568	0.6123	1.206	0.584	2.489
MMRC4	1	0.15499	0.40435	0.1469	0.7015	1.168	0.529	2.579
MMRC5	1	0.39542	0.44137	0.8026	0.3703	1.485	0.625	3.527

MMRC1	1	-0.29528	0.86285	0.1171	0.7322	0.744	0.137	4.038
MMRC2	1	0.41639	0.33788	1.5187	0.2178	1.516	0.782	2.941
MMRC3	1	0.28976	0.35685	0.6593	0.4168	1.336	0.664	2.689
MMRC4	1	0.301	0.38834	0.6008	0.4383	1.351	0.631	2.893
MMRC5	1	0.43138	0.43118	1.0009	0.3171	1.539	0.661	3.584

1	37	8	45
2	1258	444	1702
3	271	92	363
4	93	29	122
5	38	16	54
6	179	40	219
	1876	629	2505

1	10	2	12
2	744	251	995
3	159	59	218
4	42	16	58
5	17	12	29

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96