

SUPPLEMENTAL DATA

This material is an online-only supplement to the following article: Levy SM, Broffitt B, Marshall TA, Eichenberger-Gilmore JM, Warren JJ. Associations between fluorosis of permanent incisors and fluoride intake from infant formula, other dietary sources and dentifrice during early childhood. JADA 2010;141(10):1190-1201. Copyright © 2010 American Dental Association. All rights reserved.

Appendix 1

Median (25th,75th percentile) fluoride intakes (milligrams per day) from major sources at each age according to fluorosis status* of permanent maxillary incisors.

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE†
	N	Percent Using	Median	(25%, 75%)	N	Percent Using	Median	(25%, 75%)	
6 Weeks									
Beverages	163	74	0.125	(0,0.556)	359	67	0.054	(0,0.396)	.07
Selected foods‡	163	5	0	(0,0)	359	9	0	(0,0)	.08
Supplements	163	11	0	(0,0)	359	14	0	(0,0)	.43
Dentifrice	163	0	0	(0,0)	359	0	0	(0,0)	1.00
Beverages and food	163	74	0.126	(0,0.556)	359	68	0.054	(0,0.396)	.07
TOTAL	163	77	0.156	(0.007,0.559)	359	74	0.096	(0,0.404)	.12
3 Months									
Beverages	168	85	0.240	(0.047,0.676)	354	78	0.135	(0.008,0.521)	.006
Selected foods‡	168	28	0	(0,0.001)	354	25	0	(0,0)	.35
Supplements	168	12	0	(0,0)	354	16	0	(0,0)	.22
Dentifrice	168	0	0	(0,0)	354	0	0	(0,0)	1.00
Beverages and food	168	86	0.240	(0.047,0.676)	354	79	0.135	(0.009,0.521)	.006
TOTAL	168	88	0.270	(0.061,0.683)	354	86	0.185	(0.029,0.532)	.03
6 Months									
Beverages	154	96	0.402	(0.131,0.800)	346	94	0.243	(0.065,0.638)	.001
Selected foods‡	154	89	0.003	(0.002,0.006)	344	88	0.003	(0.002,0.006)	.97
Supplements	154	12	0	(0,0)	346	18	0	(0,0)	.10
Dentifrice	154	1	0	(0,0)	346	1	0	(0,0)	.45
Beverages and food	154	99	0.406	(0.134,0.806)	346	98	0.246	(0.068,0.644)	.001
TOTAL	154	99	0.461	(0.169,0.806)	346	98	0.284	(0.107,0.649)	.005

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Appendix 1 (cont.)

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE†
	N	Percent Using	Median	(25%, 75%)	N	Percent Using	Median	(25%, 75%)	
9 Months									
Beverages	153	100	0.506	(0.192,0.831)	349	100	0.266	(0.105,0.637)	< .0001
Selected foods‡	153	84	0.005	(0.002,0.012)	348	86	0.005	(0.002,0.010)	.95
Supplements	153	10	0	(0,0)	349	14	0	(0,0)	.21
Dentifrice	153	8	0	(0,0)	349	8	0	(0,0)	.90
Beverages and food	153	100	0.531	(0.195,0.847)	349	100	0.280	(0.115,0.655)	< .0001
TOTAL	153	100	0.541	(0.248,0.870)	349	100	0.320	(0.147,0.666)	< .0001
12 Months									
Beverages	139	100	0.268	(0.154,0.457)	320	100	0.204	(0.107,0.386)	.002
Selected foods‡	139	80	0.019	(0.002,0.063)	314	81	0.011	(0.002,0.047)	.10
Supplements	139	9	0	(0,0)	320	11	0	(0,0)	.55
Dentifrice	139	26	0	(0,0.010)	320	27	0	(0,0.008)	.69
Beverages and food	139	100	0.298	(0.189,0.537)	320	100	0.239	(0.123,0.445)	.001
TOTAL	139	100	0.339	(0.206,0.544)	320	100	0.284	(0.159,0.496)	.02
16 Months									
Beverages	137	100	0.327	(0.200,0.457)	301	100	0.235	(0.136,0.368)	< .0001
Selected foods‡	137	87	0.038	(0.009,0.087)	294	84	0.025	(0.005,0.076)	.02
Supplements	137	5	0	(0,0)	301	9	0	(0,0)	.15
Dentifrice	137	62	0.021	(0,0.109)	301	57	0.018	(0,0.109)	.48
Beverages and food	137	100	0.413	(0.238,0.558)	301	100	0.281	(0.156,0.444)	< .0001
TOTAL	137	100	0.480	(0.325,0.655)	301	100	0.368	(0.208,0.586)	.0001

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Appendix 1 (cont.)

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE†
	N	Percent Using	Median	(25%, 75%)	N	Percent Using	Median	(25%, 75%)	
20 Months									
Beverages	126	100	0.359	(0.236,0.521)	289	100	0.310	(0.185,0.468)	.03
Selected foods‡	126	83	0.034	(0.017,0.099)	287	83	0.026	(0.006,0.069)	.07
Supplements	126	6	0	(0,0)	289	7	0	(0,0)	.52
Dentifrice	126	81	0.109	(0.018,0.250)	289	80	0.094	(0.016,0.219)	.40
Beverages and food	126	100	0.440	(0.293,0.587)	289	100	0.359	(0.217,0.538)	.007
TOTAL	126	100	0.622	(0.446,0.846)	289	100	0.510	(0.330,0.777)	.003
24 Months									
Beverages	128	100	0.318	(0.228,0.427)	278	100	0.265	(0.167,0.409)	.02
Selected foods‡	128	97	0.077	(0.040,0.131)	278	96	0.057	(0.025,0.105)	.003
Supplements	128	7	0	(0,0)	278	6	0	(0,0)	.72
Dentifrice	128	89	0.188	(0.063,0.438)	278	90	0.125	(0.041,0.250)	.07
Beverages and food	128	100	0.420	(0.292,0.537)	278	100	0.328	(0.220,0.489)	.004
TOTAL	128	100	0.642	(0.474,0.938)	278	100	0.533	(0.348,0.793)	.0004
28 Months									
Beverages	128	100	0.369	(0.218,0.534)	276	100	0.273	(0.174,0.423)	.0008
Selected foods‡	128	97	0.070	(0.041,0.127)	276	97	0.063	(0.030,0.109)	.15
Supplements	128	7	0	(0,0)	276	6	0	(0,0)	.77
Dentifrice	128	96	0.219	(0.094,0.438)	276	92	0.125	(0.063,0.289)	.02
Beverages and food	128	100	0.431	(0.287,0.674)	276	100	0.361	(0.241,0.550)	.003
TOTAL	128	100	0.715	(0.492,1.036)	276	100	0.609	(0.389,0.855)	.0007

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Appendix 1 (cont.)

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE†
	N	Percent Using	Median	(25%, 75%)	N	Percent Using	Median	(25%, 75%)	
32 Months									
Beverages	116	100	0.358	(0.216,0.528)	283	100	0.298	(0.183,0.442)	.04
Selected foods‡	116	95	0.084	(0.036,0.131)	283	95	0.052	(0.025,0.105)	.006
Supplements	116	8	0	(0,0)	283	6	0	(0,0)	.42
Dentifrice	116	97	0.219	(0.109,0.438)	283	94	0.217	(0.063,0.375)	.02
Beverages and food	116	100	0.451	(0.298,0.644)	283	100	0.364	(0.235,0.542)	.007
TOTAL	116	100	0.779	(0.566,1.039)	283	100	0.608	(0.413,0.912)	.0005
36 Months									
Beverages	118	100	0.391	(0.286,0.579)	282	100	0.297	(0.196,0.487)	.0002
Selected foods‡	118	97	0.090	(0.041,0.156)	282	95	0.058	(0.025,0.119)	.0015
Supplements	118	4	0	(0,0)	282	7	0	(0,0)	.30
Dentifrice	118	98	0.234	(0.109,0.438)	282	94	0.125	(0.063,0.438)	.005
Beverages and food	118	100	0.494	(0.338,0.763)	282	100	0.374	(0.255,0.599)	.0001
TOTAL	118	100	0.830	(0.649,1.060)	282	100	0.667	(0.420,0.924)	<.0001

* Fluorosis assessed at approximately age 9 years. Case participants defined as participants with two or more maxillary incisors exhibiting definitive fluorosis (Fluorosis Risk Index score = 2 or 3). Control participants were defined as participants with no definitive fluorosis on maxillary incisors. Participants who had only one maxillary incisor with fluorosis have been excluded from analyses.

† P-value obtained by means of two-tailed Wilcoxon rank sum test; $P < .01$ considered statistically significant.

‡ Selected foods include infant foods and foods with substantial amounts of added water (such as infant cereal, cooked cereal, soup, rice, pasta, gelatin).

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Appendix 2**Median (25th, 75th percentile) fluoride intakes (milligrams per day) according to beverage category at each age and fluorosis status* of maxillary incisors.**

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE [†]
	N	%Using	Median	(25%,75%)	N	%Using	Median	(25%,75%)	
3 Months									
Formula	168	83	0.198	(0.034,0.650)	354	75	0.103	(0,0.516)	.007
<i>Powdered</i>	168	60	0.034	(0,0.590)	354	51	0.002	(0,0.324)	.02
<i>Liquid concentrate</i>	168	21	0	(0,0)	354	20	0	(0,0)	.80
<i>Ready-to-feed</i>	168	12	0	(0,0)	354	13	0	(0,0)	.75
Other beverages [‡]	168	16	0	(0,0)	354	13	0	(0,0)	.25
Water by itself	168	21	0	(0,0)	354	19	0	(0,0)	.72
6 Months									
Formula	154	92	0.352	(0.064,0.698)	346	83	0.181	(0.034,0.541)	.002
<i>Powdered</i>	154	70	0.089	(0,0.649)	346	60	0.034	(0,0.457)	.005
<i>Liquid concentrate</i>	154	23	0	(0,0)	346	21	0	(0,0)	.49
<i>Ready-to-feed</i>	154	5	0	(0,0)	346	12	0	(0,0)	.02
Other beverages [‡]	154	56	0.021	(0,0.064)	346	52	0.021	(0,0.064)	.44
Water by itself	154	35	0	(0,0.022)	346	29	0	(0,0.002)	.12
9 Months									
Formula	153	90	0.384	(0.085,0.678)	349	75	0.140	(0.003,0.535)	.0001
<i>Powdered</i>	153	71	0.238	(0,0.649)	349	58	0.034	(0,0.433)	.0003
<i>Liquid concentrate</i>	153	22	0	(0,0)	349	17	0	(0,0)	.22
<i>Ready-to-feed</i>	153	4	0	(0,0)	349	5	0	(0,0)	.47
Cow's milk	153	16	0	(0,0)	349	35	0	(0,0.001)	.0001
Other beverages [‡]	153	72	0.061	(0,0.137)	349	75	0.045	(0.003,0.102)	.38
Water by itself	153	59	0.014	(0,0.065)	349	54	0.002	(0,0.038)	.05

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Appendix 2 (cont.)

FLUORIDE SOURCE	CASE PARTICIPANTS				CONTROL PARTICIPANTS				P VALUE [†]
	N	%Using	Median	(25%,75%)	N	%Using	Median	(25%,75%)	
12 Months									
Formula	139	31	0	(0,0.075)	320	30	0	(0,0.035)	.64
Powdered	139	25	0	(0,0.009)	320	22	0	(0,0)	.38
Liquid concentrate	139	6	0	(0,0)	320	7	0	(0,0)	.71
Ready-to-feed	139	3	0	(0,0)	320	2	0	(0,0)	.50
Cow's milk	139	88	0.009	(0.003,0.013)	320	88	0.007	(0.002,0.012)	.29
Other beverages [‡]	139	91	0.111	(0.054,0.198)	320	89	0.099	(0.043,0.170)	.16
Water added	139	59	0.025	(0,0.134)	320	62	0.022	(0,0.093)	.38
Ready-to-feed	139	63	0.043	(0,0.107)	320	57	0.021	(0,0.085)	.29
Water by itself	139	73	0.042	(0,0.122)	320	71	0.027	(0,0.089)	.04
16 Months									
Formula	137	5	0	(0,0)	301	3	0	(0,0)	.19
Cow's milk	137	95	0.006	(0.004,0.010)	301	96	0.008	(0.004,0.011)	.49
Other beverages [‡]	137	98	0.187	(0.107,0.288)	301	96	0.149	(0.072,0.234)	.002
Water added	137	75	0.093	(0.006,0.191)	301	67	0.040	(0,0.112)	.0002
Ready-to-feed	137	73	0.085	(0,0.128)	301	72	0.064	(0,0.149)	.83
Water by itself	137	86	0.095	(0.030,0.153)	301	86	0.043	(0.009,0.115)	.0003
20 Months									
Cow's milk	126	98	0.006	(0.004,0.010)	289	97	0.006	(0.004,0.010)	.68
Other beverages [‡]	126	99	0.236	(0.144,0.341)	289	99	0.204	(0.110,0.337)	.07
Water added	126	73	0.082	(0,0.213)	289	77	0.075	(0.008,0.169)	.56
Ready-to-feed	126	85	0.128	(0.043,0.192)	289	81	0.085	(0.043,0.170)	.38
Water by itself	126	87	0.089	(0.024,0.189)	289	87	0.059	(0.013,0.133)	.07
24 Months									
Cow's milk	128	100	0.005	(0.004,0.008)	278	99	0.006	(0.003,0.009)	.40
Other beverages [‡]	128	99	0.203	(0.129,0.306)	278	99	0.191	(0.110,0.296)	.25
Water added	128	81	0.073	(0.015,0.158)	278	77	0.048	(0.004,0.126)	.07
Ready-to-feed	128	88	0.090	(0.037,0.183)	278	83	0.088	(0.024,0.192)	.97
Water by itself	128	91	0.059	(0.021,0.146)	278	90	0.054	(0.013,0.101)	.05

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	N	%Using	Median	(25%,75%)	N	%Using	Median	(25%,75%)	
28 Months									
Cow's milk	128	99	0.005	(0.004,0.008)	276	100	0.005	(0.003,0.009)	.71
Other beverages[‡]	128	98	0.244	(0.122,0.368)	276	100	0.190	(0.113,0.300)	.04
Water added	128	77	0.074	(0.011,0.190)	276	79	0.050	(0.008,0.144)	.06
Ready-to-feed	128	85	0.097	(0.032,0.193)	276	87	0.097	(0.037,0.173)	.89
Water by itself	128	94	0.067	(0.028,0.199)	276	91	0.055	(0.019,0.118)	.005
32 Months									
Cow's milk	116	100	0.005	(0.003,0.007)	283	98	0.005	(0.003,0.008)	.19
Other beverages[‡]	116	98	0.225	(0.123,0.373)	283	99	0.204	(0.116,0.304)	.19
Water added	116	78	0.069	(0.006,0.202)	283	82	0.053	(0.011,0.159)	.39
Ready-to-feed	116	87	0.110	(0.037,0.195)	283	88	0.091	(0.037,0.195)	.87
Water by itself	116	91	0.077	(0.024,0.193)	283	94	0.063	(0.023,0.135)	.37
36 Months									
Cow's milk	118	98	0.004	(0.003,0.006)	282	99	0.006	(0.004,0.008)	.006
Other beverages[‡]	118	99	0.250	(0.140,0.381)	282	99	0.183	(0.112,0.293)	.004
Water added	118	73	0.062	(0,0.192)	282	77	0.043	(0.006,0.150)	.20
Ready-to-feed	118	89	0.122	(0.061,0.207)	282	88	0.093	(0.037,0.173)	.14
Water by itself	118	92	0.103	(0.042,0.242)	282	98	0.077	(0.030,0.171)	.07

* Fluorosis assessed at approximately age 9 years. Case participants defined as participants with two or more maxillary incisors exhibiting definitive fluorosis (Fluorosis Risk Index score = 2 or 3). Control participants were defined as participants with no definitive fluorosis on maxillary incisors. Participants who had only one maxillary incisor with fluorosis have been excluded from analyses.

† P value obtained by means of two-tailed Wilcoxon rank sum test; $P < .01$ considered statistically significant.

‡ Other beverages include juices, juice drinks, powder-based beverages, sport beverages and soda pop.

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