

Dataset Integrity Check for
Temporal development of the gut
microbiome in early childhood from the
TEDDY study

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1 Standard Disclaimer

The intent of this DSIC is to provide confidence that the data distributed by the NIDDK repository is a true copy of the study data. Our intent is not to assess the integrity of the statistical analyses reported by study investigators. As with all statistical analyses of complex datasets, complete replication of a set of statistical results should not be expected in secondary analysis. This occurs for a number of reasons including differences in the handling of missing data, restrictions on cases included in samples for a particular analysis, software coding used to define complex variables, etc. Experience suggests that most discrepancies can ordinarily be resolved by consultation with the study data coordinating center (DCC), however this process is labor-intensive for both DCC and Repository staff. It is thus not our policy to resolve every discrepancy that is observed in an integrity check. Specifically, we do not attempt to resolve minor or inconsequential discrepancies with published results or discrepancies that involve complex analyses, unless NIDDK Repository staff suspect that the observed discrepancy suggests that the dataset may have been corrupted in storage, transmission, or processing by repository staff. We do, however, document in footnotes to the integrity check those instances in which our secondary analyses produced results that were not fully consistent with those reported in the target publication.

2 Study Background

The TEDDY study was designed to follow children with and without a family history of T1D to understand the environmental factors that contribute to the disease. Newborn children younger than 4 months were screened for high-risk HLA alleles, and those with qualifying haplotypes were eligible for follow-up. Information is collected on medical information (infections, medication, immunizations), exposure to dietary and other environmental factors, negative life events, family history, tap water, and measurements of psychological stress. Biospecimens, including blood, stool, urine, and nail clippings, are taken at baseline and follow-up study visits. The primary outcome measures include two endpoints—the first appearance of one or more islet cell autoantibodies (GADA, IAA, or IA-2A), confirmed at two consecutive visits, and development of T1D. The cohort will be followed for 15 years, or until the occurrence of one of the primary endpoints.

3 Archived Datasets

All the SAS data files, as provided by the Data Coordinating Center (DCC), are located in the TEDDY/private_orig_data/M_138_CStewart_NIDDK_Submission folder in the data package. For this replication, variables were taken from the “m_138_cstewart_31may2012_16s_1.sas7bdat” dataset.

4 Statistical Methods

Analyses were performed to duplicate results for the data published by Christopher J. Stewart et al [1] in Nature in 2018. To verify the integrity of the dataset, descriptive statistics were computed.

5 Results

For Extended Data Table 1 in the publication [1], **Overview of the entire analytical cohort**, Table A lists the variables that were used in the replication and Table B compares the results calculated from the archived data files to the results published in Table 1.

6 Conclusions

The NIDDK repository is confident that the TEDDY data files to be distributed are a true copy of the study data.

7 References

[1] Christopher J. Stewart¹, Nadim J. Ajami¹, Jacqueline L. O'Brien, Diane S. Hutchinson, Daniel P. Smith, Matthew C. Wong, Matthew C. Ross, Richard E. Lloyd, HarshaVardhan Doddapaneni, Ginger A. Metcalf, Donna Muzny, Richard A. Gibbs, Tommi Vatanen, Curtis Huttenhower, Ramnik J. Xavier, Marian Rewers, William Hagopian, Jorma Toppari, Anette-G. Ziegler, Jin-Xiong She, Beena Akolkar, Ake Lernmark, Heikki Hyoty, Kendra Vehik, Jeffrey P. Krischer & Joseph F. Petrosino. Temporal development of the gut microbiome in early childhood from the TEDDY study. *Nature*. 2018 Oct. 562: 583-588.

Table A: Variables used to replicate Extended Data Table 1: Overview of the entire analytical cohort

Table Variable	dataset.variable
Age of sample in months	m_138_cstewart_31may2012_16s_1.age_in_months
Maternal BMI category	m_138_cstewart_31may2012_16s_1.maternal_bmi_category
Maternal preg. weight gain	m_138_cstewart_31may2012_16s_1.maternal_weight_gain_aagaard
Maternal diabetes medication	m_138_cstewart_31may2012_16s_1.maternal_diabetes_medication_nam
Maternal diabetes	m_138_cstewart_31may2012_16s_1.maternal_diabetes
Maternal preeclampsia	m_138_cstewart_31may2012_16s_1.maternal_preeclampsia_toxemia
Maternal probiotic	m_138_cstewart_31may2012_16s_1.maternal_probiotics
Birth mode	m_138_cstewart_31may2012_16s_1.birth_mode
Preterm (<37 weeks)	m_138_cstewart_31may2012_16s_1.preterm
Geographical location	m_138_cstewart_31may2012_16s_1.geographical_location
Sex	m_138_cstewart_31may2012_16s_1.sex
Race/Ethnicity	m_138_cstewart_31may2012_16s_1.race_ethnicity
Breast milk status	m_138_cstewart_31may2012_16s_1.breastmilk_combined
Solid food status	m_138_cstewart_31may2012_16s_1.solid_food
Probiotic	m_138_cstewart_31may2012_16s_1.probiotic
Vitamin D	m_138_cstewart_31may2012_16s_1.vitamin_d
Antibiotics	m_138_cstewart_31may2012_16s_1.antibiotics
Household siblings	m_138_cstewart_31may2012_16s_1.household_siblings
Household furry pets	m_138_cstewart_31may2012_16s_1.household_furry
Lives on farm with animals	m_138_cstewart_31may2012_16s_1.child_lives_on_farm_with_animals
Daycare exposure	m_138_cstewart_31may2012_16s_1.daycare_exposure
Celiac disease	m_138_cstewart_31may2012_16s_1.celiac_disease
Any chronic disease/disorder	m_138_cstewart_31may2012_16s_1.any_chronic
Any acute disease/disorder	m_138_cstewart_31may2012_16s_1.any_acute

Table B: Comparison of values computed in integrity check to reference article Extended Data Table 1 values

Month	Variable	Manuscript	DSIC	Diff.
Total cohort	Number of Subjects	903	903	0
	Number of Samples	12,005	12,005	0
	No. samples per subject	11 (6-19)	11 (6-19)	0 (0-0)
	Median age of samples in months	13.8 (8-22.2)	13.8 (8-22.2)	0.0 (0-0.0)
	Maternal BMI category – Underweight	326 (3%)	326 (3%)	0 (0%)
	Maternal BMI category – Normal	7209 (60%)	7209 (60%)	0 (0%)
	Maternal BMI category – Overweight	2991 (25%)	2991 (25%)	0 (0%)
	Maternal BMI category – Obese	1386 (12%)	1386 (12%)	0 (0%)
	Maternal BMI category – NA	93 (1%)	93 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	8497 (71%)	8497 (71%)	0 (0%)
	Maternal preg. weight gain – Excess	3415 (28%)	3415 (28%)	0 (0%)
	Maternal preg. weight gain – NA	93 (1%)	93 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	977 (8%)	977 (8%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	38 (0%)	38 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	126 (1%)	126 (1%)	0 (0%)
	Maternal diabetes medication – None	10864 (90%)	10864 (90%)	0 (0%)
	Maternal diabetes – Gestational	779 (6%)	779 (6%)	0 (0%)
	Maternal diabetes – None	10060 (84%)	10060 (84%)	0 (0%)
	Maternal diabetes – T1D	839 (7%)	839 (7%)	0 (0%)
	Maternal diabetes – T2D	30 (0%)	30 (0%)	0 (0%)
	Maternal diabetes – NA	297 (2%)	297 (2%)	0 (0%)
	Maternal preeclampsia – Yes	445 (4%)	445 (4%)	0 (0%)
	Maternal preeclampsia – No	11439 (95%)	11439 (95%)	0 (0%)
	Maternal preeclampsia – NA	121 (1%)	121 (1%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal probiotic – Yes	584 (5%)	584 (5%)	0 (0%)
	Maternal probiotic – No	11421 (95%)	11421 (95%)	0 (0%)
	Birth Mode – Caesarian	3319 (28%)	3319 (28%)	0 (0%)
	Birth Mode – Vaginal	8686 (72%)	8686 (72%)	0 (0%)
	Preterm (<37 weeks) – Yes	723 (6%)	723 (6%)	0 (0%)
	Preterm (<37 weeks) – No	11282 (94%)	11282 (94%)	0 (0%)
	Geographical location – Colorado	2079 (17%)	2079 (17%)	0 (0%)
	Geographical location – Finland	2833 (24%)	2833 (24%)	0 (0%)
	Geographical location – Georgia	872 (7%)	872 (7%)	0 (0%)
	Geographical location – Germany	1219 (10%)	1219 (10%)	0 (0%)
	Geographical location – Sweden	4024 (34%)	4024 (34%)	0 (0%)
	Geographical location – Washington	978 (8%)	978 (8%)	0 (0%)
	Sex – Male	6455 (54%)	6455 (54%)	0 (0%)
	Sex – Female	5550 (46%)	5550 (46%)	0 (0%)
	Race/Ethnicity – African Americans	24 (0%)	24 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	445 (4%)	445 (4%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	7391 (62%)	7391 (62%)	0 (0%)
	Race/Ethnicity – All Other Races	128 (1%)	128 (1%)	0 (0%)
	Race/Ethnicity – NA	4017 (33%)	4017 (33%)	0 (0%)
	Breast milk status – No breast milk ever	220 (2%)	220 (2%)	0 (0%)
	Breast milk status – Exclusive	240 (2%)	240 (2%)	0 (0%)
	Breast milk status – Some breast milk	3048 (25%)	3048 (25%)	0 (0%)
	Breast milk status – After breast milk	8497 (71%)	8497 (71%)	0 (0%)
	Solid food status – Before	602 (5%)	740 (6%)	138 (1%)
	Solid food status – After	11403 (95%)	11265 (94%)	138 (1%)
	Probiotic – Never	8017 (67%)	8017 (67%)	0 (0%)
	Probiotic – Before	1183 (10%)	1183 (10%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Probiotic – During	2296 (19%)	2296 (19%)	0 (0%)
	Probiotic – After	509 (4%)	509 (4%)	0 (0%)
	Vitamin D – Never	692 (6%)	692 (6%)	0 (0%)
	Vitamin D – During	11197 (93%)	11197 (93%)	0 (0%)
	Vitamin D – After	116 (1%)	116 (1%)	0 (0%)
	Antibiotics – Never	3796 (32%)	3796 (32%)	0 (0%)
	Antibiotics – Before	2358 (20%)	2358 (20%)	0 (0%)
	Antibiotics – During	288 (2%)	288 (2%)	0 (0%)
	Antibiotics – After	5563 (46%)	5563 (46%)	0 (0%)
	Household siblings – Never	2187 (18%)	2187 (18%)	0 (0%)
	Household siblings – Before	2890 (24%)	2890 (24%)	0 (0%)
	Household siblings – During	6877 (57%)	6877 (57%)	0 (0%)
	Household siblings – After	7 (0%)	7 (0%)	0 (0%)
	Household siblings – NA	44 (0%)	44 (0%)	0 (0%)
	Household furry pets – Never	6001 (50%)	6001 (50%)	0 (0%)
	Household furry pets – Before	779 (6%)	779 (6%)	0 (0%)
	Household furry pets – During	5160 (43%)	5160 (43%)	0 (0%)
	Household furry pets – After	40 (0%)	40 (0%)	0 (0%)
	Household furry pets – NA	25 (0%)	25 (0%)	0 (0%)
	Lives on farm with animals – Never	10385 (87%)	10385 (87%)	0 (0%)
	Lives on farm with animals – Before	478 (4%)	478 (4%)	0 (0%)
	Lives on farm with animals – During	1085 (9%)	1085 (9%)	0 (0%)
	Lives on farm with animals – After	32 (0%)	32 (0%)	0 (0%)
	Lives on farm with animals – NA	25 (0%)	25 (0%)	0 (0%)
	Daycare exposure – Yes	4600 (38%)	4600 (38%)	0 (0%)
	Daycare exposure – No	7405 (62%)	7405 (62%)	0 (0%)
	Celiac disease – Yes	506 (4%)	506 (4%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Celiac disease – No	11499 (96%)	11499 (96%)	0 (0%)
	Any chronic disease/disorder – Never	8937 (74%)	8937 (74%)	0 (0%)
	Any chronic disease/disorder – Before	1815 (15%)	1815 (15%)	0 (0%)
	Any chronic disease/disorder – During	1212 (10%)	1212 (10%)	0 (0%)
	Any chronic disease/disorder – After	41 (0%)	41 (0%)	0 (0%)
	Any acute disease/disorder – Never	17 (0%)	17 (0%)	0 (0%)
	Any acute disease/disorder – Before	1469 (12%)	1469 (12%)	0 (0%)
	Any acute disease/disorder – During	5107 (43%)	5107 (43%)	0 (0%)
	Any acute disease/disorder – After	5412 (45%)	5412 (45%)	0 (0%)
3 to 6	Number of Subjects	810	810	0
	Number of Samples	810	810	0
	No. samples per subject	1	1	0
	Median age of samples in months	4.1 (3.8-4.5)	4.1 (3.8-4.5)	0.0 (0.0-0.0)
	Maternal BMI category – Underweight	27 (3%)	27 (3%)	0 (0%)
	Maternal BMI category – Normal	478 (59%)	478 (59%)	0 (0%)
	Maternal BMI category – Overweight	197 (24%)	197 (24%)	0 (0%)
	Maternal BMI category – Obese	100 (12%)	100 (12%)	0 (0%)
	Maternal BMI category – NA	8 (1%)	8 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	584 (72%)	584 (72%)	0 (0%)
	Maternal preg. weight gain – Excess	218 (27%)	218 (27%)	0 (0%)
	Maternal preg. weight gain – NA	8 (1%)	8 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	66 (8%)	66 (8%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	3 (0%)	3 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	5 (1%)	5 (1%)	0 (0%)
	Maternal diabetes medication – None	736 (91%)	736 (91%)	0 (0%)
	Maternal diabetes – Gestational	56 (7%)	56 (7%)	0 (0%)
	Maternal diabetes – None	673 (83%)	673 (83%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal diabetes – T1D	53 (7%)	53 (7%)	0 (0%)
	Maternal diabetes – T2D	3 (0%)	3 (0%)	0 (0%)
	Maternal diabetes – NA	25 (3%)	25 (3%)	0 (0%)
	Maternal preeclampsia – Yes	35 (4%)	35 (4%)	0 (0%)
	Maternal preeclampsia – No	765 (94%)	765 (94%)	0 (0%)
	Maternal preeclampsia – NA	10 (1%)	10 (1%)	0 (0%)
	Maternal probiotic – Yes	43 (5%)	43 (5%)	0 (0%)
	Maternal probiotic – No	767 (95%)	767 (95%)	0 (0%)
	Birth Mode – Caesarian	196 (24%)	196 (24%)	0 (0%)
	Birth Mode – Vaginal	614 (76%)	614 (76%)	0 (0%)
	Preterm (<37 weeks) – Yes	39 (5%)	39 (5%)	0 (0%)
	Preterm (<37 weeks) – No	771 (95%)	771 (95%)	0 (0%)
	Geographical location – Colorado	122 (15%)	122 (15%)	0 (0%)
	Geographical location – Finland	223 (28%)	223 (28%)	0 (0%)
	Geographical location – Georgia	46 (6%)	46 (6%)	0 (0%)
	Geographical location – Germany	86 (11%)	86 (11%)	0 (0%)
	Geographical location – Sweden	260 (32%)	260 (32%)	0 (0%)
	Geographical location – Washington	73 (9%)	73 (9%)	0 (0%)
	Sex – Male	497 (61%)	438 (54%)	59 (7%)
	Sex – Female	372 (46%)	372 (46%)	0 (0%)
	Race/Ethnicity – African Americans	2 (0%)	2 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	32 (4%)	32 (4%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	512 (63%)	512 (63%)	0 (0%)
	Race/Ethnicity – All Other Races	6 (1%)	6 (1%)	0 (0%)
	Race/Ethnicity – NA	258 (32%)	258 (32%)	0 (0%)
	Breast milk status – No breast milk ever	13 (2%)	13 (2%)	0 (0%)
	Breast milk status – Exclusive	136 (17%)	136 (17%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Breast milk status – Some breast milk	445 (55%)	445 (55%)	0 (0%)
	Breast milk status – After breast milk	216 (27%)	216 (27%)	0 (0%)
	Solid food status – Before	373 (46%)	445 (55%)	72 (9%)
	Solid food status – After	437 (54%)	365 (45%)	72 (9%)
	Probiotic – Never	516 (64%)	516 (64%)	0 (0%)
	Probiotic – Before	155 (19%)	155 (19%)	0 (0%)
	Probiotic – During	122 (15%)	122 (15%)	0 (0%)
	Probiotic – After	17 (2%)	17 (2%)	0 (0%)
	Vitamin D – Never	48 (6%)	48 (6%)	0 (0%)
	Vitamin D – During	756 (93%)	756 (93%)	0 (0%)
	Vitamin D – After	6 (1%)	6 (1%)	0 (0%)
	Antibiotics – Never	241 (30%)	241 (30%)	0 (0%)
	Antibiotics – Before	415 (51%)	415 (51%)	0 (0%)
	Antibiotics – During	19 (2%)	19 (2%)	0 (0%)
	Antibiotics – After	135 (17%)	135 (17%)	0 (0%)
	Household siblings – Never	168 (21%)	168 (21%)	0 (0%)
	Household siblings – Before	167 (21%)	167 (21%)	0 (0%)
	Household siblings – During	468 (68%)	468 (68%)	0 (0%)
	Household siblings – After	0 (0%)	0 (0%)	0 (0%)
	Household siblings – NA	7 (1%)	7 (1%)	0 (0%)
	Household furry pets – Never	418 (52%)	418 (52%)	0 (0%)
	Household furry pets – Before	50 (6%)	50 (6%)	0 (0%)
	Household furry pets – During	336 (41%)	336 (41%)	0 (0%)
	Household furry pets – After	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – NA	6 (1%)	6 (1%)	0 (0%)
	Lives on farm with animals – Never	692 (85%)	692 (85%)	0 (0%)
	Lives on farm with animals – Before	35 (4%)	35 (4%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Lives on farm with animals – During	77 (10%)	77 (10%)	0 (0%)
	Lives on farm with animals – After	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – NA	6 (1%)	6 (1%)	0 (0%)
	Daycare exposure – Yes	49 (6%)	49 (6%)	0 (0%)
	Daycare exposure – No	761 (94%)	761 (94%)	0 (0%)
	Celiac disease – Yes	27 (3%)	72 (3%)	0 (0%)
	Celiac disease – No	783 (97%)	783 (97%)	0 (0%)
	Any chronic disease/disorder – Never	622 (77%)	622 (77%)	0 (0%)
	Any chronic disease/disorder – Before	154 (19%)	154 (19%)	0 (0%)
	Any chronic disease/disorder – During	33 (4%)	33 (4%)	0 (0%)
	Any chronic disease/disorder – After	1 (0%)	1 (0%)	0 (0%)
	Any acute disease/disorder – Never	4 (0%)	4 (0%)	0 (0%)
	Any acute disease/disorder – Before	599 (74%)	599 (74%)	0 (0%)
	Any acute disease/disorder – During	165 (20%)	165 (20%)	0 (0%)
	Any acute disease/disorder – After	42 (5%)	42 (5%)	0 (0%)
7 to 10	Number of Subjects	800	800	0
	Number of Samples	800	800	0
	No. samples per subject	1	1	0
	Median age of samples in months	7.7 (7.2-8.1)	7.7 (7.2-8.1)	0.0 (0.0-0.0)
	Maternal BMI category – Underweight	25 (3%)	25 (3%)	0 (0%)
	Maternal BMI category – Normal	479 (60%)	479 (60%)	0 (0%)
	Maternal BMI category – Overweight	189 (24%)	189 (24%)	0 (0%)
	Maternal BMI category – Obese	101 (13%)	101 (13%)	0 (0%)
	Maternal BMI category – NA	6 (1%)	6 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	579 (72%)	579 (72%)	0 (0%)
	Maternal preg. weight gain – Excess	215 (27%)	215 (27%)	0 (0%)
	Maternal preg. weight gain – NA	6 (1%)	6 (1%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal diabetes medication – Insulin	64 (8%)	64 (8%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	2 (0%)	2 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	6 (1%)	6 (1%)	0 (0%)
	Maternal diabetes medication – None	728 (90%)	728 (91%)	0 (1%)
	Maternal diabetes – Gestational	53 (7%)	53 (7%)	0 (0%)
	Maternal diabetes – None	672 (84%)	672 (84%)	0 (0%)
	Maternal diabetes – T1D	54 (7%)	54 (7%)	0 (0%)
	Maternal diabetes – T2D	3 (0%)	3 (0%)	0 (0%)
	Maternal diabetes – NA	18 (2%)	18 (2%)	0 (0%)
	Maternal preeclampsia – Yes	32 (4%)	32 (4%)	0 (0%)
	Maternal preeclampsia – No	757 (95%)	757 (95%)	0 (0%)
	Maternal preeclampsia – NA	11 (1%)	11 (1%)	0 (0%)
	Maternal probiotic – Yes	42 (5%)	42 (5%)	0 (0%)
	Maternal probiotic – No	758 (95%)	758 (95%)	0 (0%)
	Birth Mode – Caesarian	200 (25%)	200 (25%)	0 (0%)
	Birth Mode – Vaginal	600 (75%)	600 (75%)	0 (0%)
	Preterm (<37 weeks) – Yes	43 (5%)	43 (5%)	0 (0%)
	Preterm (<37 weeks) – No	757 (95%)	757 (95%)	0 (0%)
	Geographical location – Colorado	120 (15%)	120 (15%)	0 (0%)
	Geographical location – Finland	215 (27%)	215 (27%)	0 (0%)
	Geographical location – Georgia	53 (7%)	53 (7%)	0 (0%)
	Geographical location – Germany	78 (10%)	78 (10%)	0 (0%)
	Geographical location – Sweden	262 (33%)	262 (33%)	0 (0%)
	Geographical location – Washington	72 (9%)	72 (9%)	0 (0%)
	Sex – Male	438 (55%)	438 (55%)	0 (0%)
	Sex – Female	362 (45%)	362 (45%)	0 (0%)
	Race/Ethnicity – African Americans	2 (0%)	2 (0%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Race/Ethnicity – Hispanic	32 (4%)	32 (4%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	497 (62%)	497 (62%)	0 (0%)
	Race/Ethnicity – All Other Races	8 (1%)	8 (1%)	0 (0%)
	Race/Ethnicity – NA	261 (33%)	261 (33%)	0 (0%)
	Breast milk status – No breast milk ever	15 (2%)	15 (2%)	0 (0%)
	Breast milk status – Exclusive	4 (1%)	4 (1%)	0 (0%)
	Breast milk status – Some breast milk	417 (52%)	417 (52%)	0 (0%)
	Breast milk status – After breast milk	364 (46%)	364 (46%)	0 (0%)
	Solid food status – Before	4 (1%)	5 (1%)	1 (0%)
	Solid food status – After	796 (100%)	795 (99%)	1 (1%)
	Probiotic – Never	508 (64%)	508 (64%)	0 (0%)
	Probiotic – Before	117 (15%)	117 (15%)	0 (0%)
	Probiotic – During	153 (19%)	153 (19%)	0 (0%)
	Probiotic – After	22 (3%)	22 (3%)	0 (0%)
	Vitamin D – Never	46 (6%)	46 (6%)	0 (0%)
	Vitamin D – During	747 (93%)	747 (93%)	0 (0%)
	Vitamin D – After	7 (1%)	7 (1%)	0 (0%)
	Antibiotics – Never	240 (30%)	240 (30%)	0 (0%)
	Antibiotics – Before	287 (36%)	287 (36%)	0 (0%)
	Antibiotics – During	26 (3%)	26 (3%)	0 (0%)
	Antibiotics – After	247 (31%)	247 (31%)	0 (0%)
	Household siblings – Never	164 (21%)	164 (21%)	0 (0%)
	Household siblings – Before	171 (21%)	171 (21%)	0 (0%)
	Household siblings – During	460 (58%)	460 (58%)	0 (0%)
	Household siblings – After	0 (0%)	0 (0%)	0 (0%)
	Household siblings – NA	5 (1%)	5 (1%)	0 (0%)
	Household furry pets – Never	414 (52%)	414 (52%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Household furry pets – Before	45 (6%)	45 (6%)	0 (0%)
	Household furry pets – During	337 (42%)	337 (42%)	0 (0%)
	Household furry pets – After	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – NA	4 (1%)	4 (1%)	0 (0%)
	Lives on farm with animals – Never	688 (86%)	688 (86%)	0 (0%)
	Lives on farm with animals – Before	31 (4%)	31 (4%)	0 (0%)
	Lives on farm with animals – During	77 (10%)	77 (10%)	0 (0%)
	Lives on farm with animals – After	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – NA	4 (1%)	4 (1%)	0 (0%)
	Daycare exposure – Yes	115 (14%)	115 (14%)	0 (0%)
	Daycare exposure – No	685 (86%)	685 (86%)	0 (0%)
	Celiac disease – Yes	28 (4%)	28 (4%)	0 (0%)
	Celiac disease – No	772 (97%)	772 (97%)	0 (0%)
	Any chronic disease/disorder – Never	604 (76%)	604 (76%)	0 (0%)
	Any chronic disease/disorder – Before	136 (17%)	136 (17%)	0 (0%)
	Any chronic disease/disorder – During	58 (7%)	58 (7%)	0 (0%)
	Any chronic disease/disorder – After	2 (0%)	2 (0%)	0 (0%)
	Any acute disease/disorder – Never	3 (0%)	3 (0%)	0 (0%)
	Any acute disease/disorder – Before	121 (15%)	121 (15%)	0 (0%)
	Any acute disease/disorder – During	321 (40%)	321 (40%)	0 (0%)
	Any acute disease/disorder – After	355 (44%)	355 (44%)	0 (0%)
11 to 14	Number of Subjects	647	647	0
	Number of Samples	647	647	0
	No. samples per subject	1	1	0
	Median age of samples in months	11.5 (11.2-12)	11.5 (11.2-12)	0.0 (0.0-0)
	Maternal BMI category – Underweight	17 (3%)	17 (3%)	0 (0%)
	Maternal BMI category – Normal	379 (59%)	379 (59%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal BMI category – Overweight	162 (25%)	162 (25%)	0 (0%)
	Maternal BMI category – Obese	83 (13%)	83 (13%)	0 (0%)
	Maternal BMI category – NA	6 (1%)	6 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	473 (73%)	473 (73%)	0 (0%)
	Maternal preg. weight gain – Excess	168 (26%)	168 (26%)	0 (0%)
	Maternal preg. weight gain – NA	6 (1%)	6 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	56 (9%)	56 (9%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	6 (1%)	6 (1%)	0 (0%)
	Maternal diabetes medication – None	584 (90%)	584 (90%)	0 (0%)
	Maternal diabetes – Gestational	43 (7%)	43 (7%)	0 (0%)
	Maternal diabetes – None	535 (83%)	535 (83%)	0 (0%)
	Maternal diabetes – T1D	49 (8%)	49 (8%)	0 (0%)
	Maternal diabetes – T2D	2 (0%)	2 (0%)	0 (0%)
	Maternal diabetes – NA	18 (3%)	18 (3%)	0 (0%)
	Maternal preeclampsia – Yes	23 (4%)	23 (4%)	0 (0%)
	Maternal preeclampsia – No	618 (96%)	618 (96%)	0 (0%)
	Maternal preeclampsia – NA	6 (1%)	6 (1%)	0 (0%)
	Maternal probiotic – Yes	30 (5%)	30 (5%)	0 (0%)
	Maternal probiotic – No	617 (95%)	617 (95%)	0 (0%)
	Birth Mode – Caesarian	170 (26%)	170 (26%)	0 (0%)
	Birth Mode – Vaginal	477 (74%)	477 (74%)	0 (0%)
	Preterm (<37 weeks) – Yes	35 (5%)	35 (5%)	0 (0%)
	Preterm (<37 weeks) – No	612 (95%)	612 (95%)	0 (0%)
	Geographical location – Colorado	99 (15%)	99 (15%)	0 (0%)
	Geographical location – Finland	163 (25%)	163 (25%)	0 (0%)
	Geographical location – Georgia	50 (8%)	50 (8%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Geographical location – Germany	60 (9%)	60 (9%)	0 (0%)
	Geographical location – Sweden	216 (33%)	216 (33%)	0 (0%)
	Geographical location – Washington	59 (9%)	59 (9%)	0 (0%)
	Sex – Male	357 (55%)	357 (55%)	0 (0%)
	Sex – Female	290 (45%)	290 (45%)	0 (0%)
	Race/Ethnicity – African Americans	1 (0%)	1 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	29 (4%)	29 (4%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	395 (61%)	395 (61%)	0 (0%)
	Race/Ethnicity – All Other Races	6 (1%)	6 (1%)	0 (0%)
	Race/Ethnicity – NA	216 (33%)	216 (33%)	0 (0%)
	Breast milk status – No breast milk ever	12 (2%)	12 (2%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	170 (26%)	170 (26%)	0 (0%)
	Breast milk status – After breast milk	465 (72%)	465 (72%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)
	Solid food status – After	647 (100%)	647 (100%)	0 (0%)
	Probiotic – Never	432 (67%)	432 (67%)	0 (0%)
	Probiotic – Before	63 (10%)	63 (10%)	0 (0%)
	Probiotic – During	136 (21%)	136 (21%)	0 (0%)
	Probiotic – After	16 (2%)	16 (2%)	0 (0%)
	Vitamin D – Never	39 (6%)	39 (6%)	0 (0%)
	Vitamin D – During	602 (93%)	602 (93%)	0 (0%)
	Vitamin D – After	6 (1%)	6 (1%)	0 (0%)
	Antibiotics – Never	198 (31%)	198 (31%)	0 (0%)
	Antibiotics – Before	152 (23%)	152 (23%)	0 (0%)
	Antibiotics – During	24 (4%)	24 (4%)	0 (0%)
	Antibiotics – After	273 (42%)	273 (42%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Household siblings – Never	131 (20%)	131 (20%)	0 (0%)
	Household siblings – Before	147 (23%)	147 (23%)	0 (0%)
	Household siblings – During	367 (57%)	367 (57%)	0 (0%)
	Household siblings – After	0 (0%)	0 (0%)	0 (0%)
	Household siblings – NA	2 (0%)	2 (0%)	0 (0%)
	Household furry pets – Never	329 (51%)	329 (51%)	0 (0%)
	Household furry pets – Before	39 (6%)	39 (6%)	0 (0%)
	Household furry pets – During	278 (43%)	278 (43%)	0 (0%)
	Household furry pets – After	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – NA	1 (0%)	1 (0%)	0 (0%)
	Lives on farm with animals – Never	559 (86%)	559 (86%)	0 (0%)
	Lives on farm with animals – Before	26 (4%)	26 (4%)	0 (0%)
	Lives on farm with animals – During	60 (9%)	60 (9%)	0 (0%)
	Lives on farm with animals – After	1 (0%)	1 (0%)	0 (0%)
	Lives on farm with animals – NA	1 (0%)	1 (0%)	0 (0%)
	Daycare exposure – Yes	139 (21%)	139 (21%)	0 (0%)
	Daycare exposure – No	508 (79%)	508 (79%)	0 (0%)
	Celiac disease – Yes	25 (4%)	25 (4%)	0 (0%)
	Celiac disease – No	622 (96%)	622 (96%)	0 (0%)
	Any chronic disease/disorder – Never	486 (75%)	486 (75%)	0 (0%)
	Any chronic disease/disorder – Before	102 (16%)	102 (16%)	0 (0%)
	Any chronic disease/disorder – During	57 (9%)	57 (9%)	0 (0%)
	Any chronic disease/disorder – After	2 (0%)	2 (0%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – Before	18 (3%)	18 (3%)	0 (0%)
	Any acute disease/disorder – During	308 (48%)	308 (48%)	0 (0%)
	Any acute disease/disorder – After	321 (50%)	321 (50%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
15 to 18	Number of Subjects	543	543	0
	Number of Samples	543	543	0
	No. samples per subject	1	1	0
	Median age of samples in months	15.6 (15.2-16.1)	15.6 (15.2-16.1)	0.0 (0.0-0)
	Maternal BMI category – Underweight	15 (3%)	15 (3%)	0 (0%)
	Maternal BMI category – Normal	328 (60%)	328 (60%)	0 (0%)
	Maternal BMI category – Overweight	132 (24%)	132 (24%)	0 (0%)
	Maternal BMI category – Obese	64 (12%)	64 (12%)	0 (0%)
	Maternal BMI category – NA	4 (1%)	4 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	386 (71%)	386 (71%)	0 (0%)
	Maternal preg. weight gain – Excess	153 (28%)	153 (28%)	0 (0%)
	Maternal preg. weight gain – NA	4 (1%)	4 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	41 (8%)	41 (8%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	5 (1%)	5 (1%)	0 (0%)
	Maternal diabetes medication – None	496 (91%)	496 (91%)	0 (0%)
	Maternal diabetes – Gestational	36 (7%)	36 (7%)	0 (0%)
	Maternal diabetes – None	458 (84%)	458 (84%)	0 (0%)
	Maternal diabetes – T1D	35 (6%)	35 (6%)	0 (0%)
	Maternal diabetes – T2D	2 (0%)	2 (0%)	0 (0%)
	Maternal diabetes – NA	12 (2%)	12 (2%)	0 (0%)
	Maternal preeclampsia – Yes	21 (4%)	21 (4%)	0 (0%)
	Maternal preeclampsia – No	516 (95%)	516 (95%)	0 (0%)
	Maternal preeclampsia – NA	6 (1%)	6 (1%)	0 (0%)
	Maternal probiotic – Yes	24 (4%)	24 (4%)	0 (0%)
	Maternal probiotic – No	519 (96%)	519 (96%)	0 (0%)
	Birth Mode – Caesarian	146 (27%)	146 (27%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Birth Mode – Vaginal	397 (73%)	397 (73%)	0 (0%)
	Preterm (<37 weeks) – Yes	30 (6%)	30 (6%)	0 (0%)
	Preterm (<37 weeks) – No	513 (94%)	513 (94%)	0 (0%)
	Geographical location – Colorado	84 (15%)	84 (15%)	0 (0%)
	Geographical location – Finland	131 (24%)	131 (24%)	0 (0%)
	Geographical location – Georgia	48 (9%)	48 (9%)	0 (0%)
	Geographical location – Germany	46 (8%)	46 (8%)	0 (0%)
	Geographical location – Sweden	190 (35%)	190 (35%)	0 (0%)
	Geographical location – Washington	44 (8%)	44 (8%)	0 (0%)
	Sex – Male	297 (55%)	297 (55%)	0 (0%)
	Sex – Female	246 (45%)	246 (45%)	0 (0%)
	Race/Ethnicity – African Americans	1 (0%)	1 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	22 (4%)	22 (4%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	322 (59%)	322 (59%)	0 (0%)
	Race/Ethnicity – All Other Races	8 (1%)	8 (1%)	0 (0%)
	Race/Ethnicity – NA	190 (35%)	190 (35%)	0 (0%)
	Breast milk status – No breast milk ever	11 (2%)	11 (2%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	52 (10%)	52 (10%)	0 (0%)
	Breast milk status – After breast milk	480 (88%)	480 (88%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)
	Solid food status – After	543 (100%)	543 (100%)	0 (0%)
	Probiotic – Never	363 (67%)	363 (67%)	0 (0%)
	Probiotic – Before	45 (8%)	45 (8%)	0 (0%)
	Probiotic – During	115 (21%)	115 (21%)	0 (0%)
	Probiotic – After	20 (4%)	20 (4%)	0 (0%)
	Vitamin D – Never	30 (6%)	30 (6%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Vitamin D – During	508 (94%)	508 (94%)	0 (0%)
	Vitamin D – After	5 (1%)	5 (1%)	0 (0%)
	Antibiotics – Never	166 (31%)	166 (31%)	0 (0%)
	Antibiotics – Before	63 (12%)	63 (12%)	0 (0%)
	Antibiotics – During	18 (3%)	18 (3%)	0 (0%)
	Antibiotics – After	296 (55%)	296 (55%)	0 (0%)
	Household siblings – Never	108 (20%)	108 (20%)	0 (0%)
	Household siblings – Before	131 (24%)	131 (24%)	0 (0%)
	Household siblings – During	303 (56%)	303 (56%)	0 (0%)
	Household siblings – After	0 (0%)	0 (0%)	0 (0%)
	Household siblings – NA	1 (0%)	1 (0%)	0 (0%)
	Household furry pets – Never	275 (51%)	275 (51%)	0 (0%)
	Household furry pets – Before	36 (7%)	36 (7%)	0 (0%)
	Household furry pets – During	232 (43%)	232 (43%)	0 (0%)
	Household furry pets – After	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – NA	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – Never	474 (87%)	474 (87%)	0 (0%)
	Lives on farm with animals – Before	25 (5%)	25 (5%)	0 (0%)
	Lives on farm with animals – During	43 (8%)	43 (8%)	0 (0%)
	Lives on farm with animals – After	1 (0%)	1 (0%)	0 (0%)
	Lives on farm with animals – NA	0 (0%)	0 (0%)	0 (0%)
	Daycare exposure – Yes	237 (44%)	237 (44%)	0 (0%)
	Daycare exposure – No	306 (56%)	306 (56%)	0 (0%)
	Celiac disease – Yes	22 (4%)	22 (4%)	0 (0%)
	Celiac disease – No	521 (96%)	521 (96%)	0 (0%)
	Any chronic disease/disorder – Never	411 (76%)	411 (76%)	0 (0%)
	Any chronic disease/disorder – Before	72 (13%)	72 (13%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Any chronic disease/disorder – During	59 (11%)	59 (11%)	0 (0%)
	Any chronic disease/disorder – After	1 (0%)	1 (0%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – Before	3 (1%)	3 (1%)	0 (0%)
	Any acute disease/disorder – During	265 (49%)	265 (49%)	0 (0%)
	Any acute disease/disorder – After	275 (51%)	275 (51%)	0 (0%)
19 to 22	Number of Subjects	440	440	0
	Number of Samples	440	440	0
	No. samples per subject	1	1	0
	Median age of samples in months	19.7 (19.2-20.2)	19.7 (19.2-20.2)	0.0 (0.0-0)
	Maternal BMI category – Underweight	11 (3%)	11 (3%)	0 (0%)
	Maternal BMI category – Normal	265 (60%)	265 (60%)	0 (0%)
	Maternal BMI category – Overweight	114 (26%)	114 (26%)	0 (0%)
	Maternal BMI category – Obese	47 (11%)	47 (11%)	0 (0%)
	Maternal BMI category – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	308 (70%)	308 (70%)	0 (0%)
	Maternal preg. weight gain – Excess	129 (29%)	129 (29%)	0 (0%)
	Maternal preg. weight gain – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	28 (6%)	34 (8%)	6 (2%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	3 (1%)	5 (1%)	2 (0%)
	Maternal diabetes medication – None	400 (91%)	400 (91%)	0 (0%)
	Maternal diabetes – Gestational	29 (7%)	29 (7%)	0 (0%)
	Maternal diabetes – None	368 (84%)	368 (84%)	0 (0%)
	Maternal diabetes – T1D	29 (7%)	29 (7%)	0 (0%)
	Maternal diabetes – T2D	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes – NA	13 (3%)	13 (3%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal preeclampsia – Yes	17 (4%)	17 (4%)	0 (0%)
	Maternal preeclampsia – No	418 (95%)	418 (95%)	0 (0%)
	Maternal preeclampsia – NA	5 (1%)	5 (1%)	0 (0%)
	Maternal probiotic – Yes	21 (5%)	21 (5%)	0 (0%)
	Maternal probiotic – No	419 (95%)	419 (95%)	0 (0%)
	Birth Mode – Caesarian	121 (28%)	121 (28%)	0 (0%)
	Birth Mode – Vaginal	319 (73%)	319 (73%)	0 (0%)
	Preterm (<37 weeks) – Yes	29 (7%)	29 (7%)	0 (0%)
	Preterm (<37 weeks) – No	411 (93%)	411 (93%)	0 (0%)
	Geographical location – Colorado	57 (13%)	57 (13%)	0 (0%)
	Geographical location – Finland	107 (24%)	107 (24%)	0 (0%)
	Geographical location – Georgia	33 (8%)	33 (8%)	0 (0%)
	Geographical location – Germany	46 (10%)	46 (10%)	0 (0%)
	Geographical location – Sweden	150 (34%)	150 (34%)	0 (0%)
	Geographical location – Washington	47 (11%)	47 (11%)	0 (0%)
	Sex – Male	230 (52%)	230 (52%)	0 (0%)
	Sex – Female	210 (48%)	210 (48%)	0 (0%)
	Race/Ethnicity – African Americans	1 (0%)	1 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	12 (3%)	12 (3%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	272 (62%)	272 (62%)	0 (0%)
	Race/Ethnicity – All Other Races	4 (1%)	4 (1%)	0 (0%)
	Race/Ethnicity – NA	151 (34%)	151 (34%)	0 (0%)
	Breast milk status – No breast milk ever	7 (2%)	7 (2%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	27 (6%)	27 (6%)	0 (0%)
	Breast milk status – After breast milk	406 (92%)	406 (92%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Solid food status – After	440 (100%)	440 (100%)	0 (0%)
	Probiotic – Never	288 (65%)	288 (65%)	0 (0%)
	Probiotic – Before	27 (6%)	27 (6%)	0 (0%)
	Probiotic – During	107 (24%)	107 (24%)	0 (0%)
	Probiotic – After	18 (4%)	18 (4%)	0 (0%)
	Vitamin D – Never	21 (5%)	21 (5%)	0 (0%)
	Vitamin D – During	413 (94%)	413 (94%)	0 (0%)
	Vitamin D – After	6 (1%)	6 (1%)	0 (0%)
	Antibiotics – Never	138 (31%)	138 (31%)	0 (0%)
	Antibiotics – Before	11 (3%)	11 (3%)	0 (0%)
	Antibiotics – During	12 (3%)	12 (3%)	0 (0%)
	Antibiotics – After	279 (63%)	279 (63%)	0 (0%)
	Household siblings – Never	79 (18%)	79 (18%)	0 (0%)
	Household siblings – Before	115 (26%)	115 (26%)	0 (0%)
	Household siblings – During	245 (56%)	245 (56%)	0 (0%)
	Household siblings – After	0 (0%)	0 (0%)	0 (0%)
	Household siblings – NA	1 (0%)	1 (0%)	0 (0%)
	Household furry pets – Never	227 (52%)	227 (52%)	0 (0%)
	Household furry pets – Before	30 (7%)	30 (7%)	0 (0%)
	Household furry pets – During	183 (42%)	183 (42%)	0 (0%)
	Household furry pets – After	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – NA	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – Never	379 (86%)	379 (86%)	0 (0%)
	Lives on farm with animals – Before	19 (4%)	19 (4%)	0 (0%)
	Lives on farm with animals – During	42 (10%)	42 (10%)	0 (0%)
	Lives on farm with animals – After	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – NA	0 (0%)	0 (0%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Daycare exposure – Yes	263 (60%)	263 (60%)	0 (0%)
	Daycare exposure – No	177 (40%)	177 (40%)	0 (0%)
	Celiac disease – Yes	19 (4%)	19 (4%)	0 (0%)
	Celiac disease – No	421 (96%)	421 (96%)	0 (0%)
	Any chronic disease/disorder – Never	333 (76%)	333 (76%)	0 (0%)
	Any chronic disease/disorder – Before	54 (12%)	54 (12%)	0 (0%)
	Any chronic disease/disorder – During	52 (12%)	52 (12%)	0 (0%)
	Any chronic disease/disorder – After	1 (0%)	1 (0%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – Before	1 (0%)	1 (0%)	0 (0%)
	Any acute disease/disorder – During	191 (43%)	191 (43%)	0 (0%)
	Any acute disease/disorder – After	248 (56%)	248 (56%)	0 (0%)
23 to 26	Number of Subjects	336	336	0
	Number of Samples	336	336	0
	No. samples per subject	1	1	0
	Median age of samples in months	23.8 (23.3-24.2)	23.8 (23.3-24.2)	0.0 (0.0-0)
	Maternal BMI category – Underweight	9 (3%)	9 (3%)	0 (0%)
	Maternal BMI category – Normal	204 (61%)	204 (61%)	0 (0%)
	Maternal BMI category – Overweight	92 (27%)	92 (27%)	0 (0%)
	Maternal BMI category – Obese	28 (8%)	28 (8%)	0 (0%)
	Maternal BMI category – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal preg. weight gain – Non-excess	236 (70%)	236 (70%)	0 (0%)
	Maternal preg. weight gain – Excess	97 (29%)	97 (29%)	0 (0%)
	Maternal preg. weight gain – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	23 (7%)	28 (8%)	5 (1%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	4 (1%)	3 (1%)	1 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal diabetes medication – None	304 (90%)	304 (90%)	0 (0%)
	Maternal diabetes – Gestational	21 (6%)	21 (6%)	0 (0%)
	Maternal diabetes – None	280 (83%)	280 (83%)	0 (0%)
	Maternal diabetes – T1D	25 (7%)	25 (7%)	0 (0%)
	Maternal diabetes – T2D	0 (0%)	0 (0%)	0 (0%)
	Maternal diabetes – NA	10 (3%)	10 (3%)	0 (0%)
	Maternal preeclampsia – Yes	11 (3%)	11 (3%)	0 (0%)
	Maternal preeclampsia – No	322 (96%)	322 (96%)	0 (0%)
	Maternal preeclampsia – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal probiotic – Yes	17 (5%)	17 (5%)	0 (0%)
	Maternal probiotic – No	319 (95%)	319 (95%)	0 (0%)
	Birth Mode – Caesarian	88 (26%)	88 (26%)	0 (0%)
	Birth Mode – Vaginal	248 (74%)	248 (74%)	0 (0%)
	Preterm (<37 weeks) – Yes	20 (6%)	20 (6%)	0 (0%)
	Preterm (<37 weeks) – No	316 (94%)	316 (94%)	0 (0%)
	Geographical location – Colorado	45 (13%)	45 (13%)	0 (0%)
	Geographical location – Finland	85 (25%)	85 (25%)	0 (0%)
	Geographical location – Georgia	23 (7%)	23 (7%)	0 (0%)
	Geographical location – Germany	34 (10%)	34 (10%)	0 (0%)
	Geographical location – Sweden	119 (35%)	119 (35%)	0 (0%)
	Geographical location – Washington	30 (9%)	30 (9%)	0 (0%)
	Sex – Male	175 (52%)	175 (52%)	0 (0%)
	Sex – Female	161 (48%)	161 (48%)	0 (0%)
	Race/Ethnicity – African Americans	1 (0%)	1 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	10 (3%)	10 (3%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	201 (60%)	201 (60%)	0 (0%)
	Race/Ethnicity – All Other Races	5 (1%)	5 (1%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Race/Ethnicity – NA	119 (35%)	119 (35%)	0 (0%)
	Breast milk status – No breast milk ever	7 (2%)	7 (2%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	10 (3%)	10 (3%)	0 (0%)
	Breast milk status – After breast milk	319 (95%)	319 (95%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)
	Solid food status – After	336 (100%)	336 (100%)	0 (0%)
	Probiotic – Never	222 (66%)	222 (66%)	0 (0%)
	Probiotic – Before	18 (5%)	18 (5%)	0 (0%)
	Probiotic – During	78 (23%)	78 (23%)	0 (0%)
	Probiotic – After	18 (5%)	18 (5%)	0 (0%)
	Vitamin D – Never	17 (5%)	17 (5%)	0 (0%)
	Vitamin D – During	313 (93%)	313 (93%)	0 (0%)
	Vitamin D – After	6 (2%)	6 (2%)	0 (0%)
	Antibiotics – Never	106 (32%)	106 (32%)	0 (0%)
	Antibiotics – Before	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – During	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – After	230 (68%)	230 (68%)	0 (0%)
	Household siblings – Never	53 (16%)	53 (16%)	0 (0%)
	Household siblings – Before	87 (26%)	87 (26%)	0 (0%)
	Household siblings – During	194 (58%)	194 (58%)	0 (0%)
	Household siblings – After	2 (1%)	2 (1%)	0 (0%)
	Household siblings – NA	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – Never	166 (49%)	166 (49%)	0 (0%)
	Household furry pets – Before	25 (7%)	25 (7%)	0 (0%)
	Household furry pets – During	141 (42%)	141 (42%)	0 (0%)
	Household furry pets – After	4 (1%)	4 (1%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Household furry pets – NA	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – Never	289 (86%)	289 (86%)	0 (0%)
	Lives on farm with animals – Before	14 (4%)	14 (4%)	0 (0%)
	Lives on farm with animals – During	31 (9%)	31 (9%)	0 (0%)
	Lives on farm with animals – After	2 (1%)	2 (1%)	0 (0%)
	Lives on farm with animals – NA	0 (0%)	0 (0%)	0 (0%)
	Daycare exposure – Yes	227 (68%)	227 (68%)	0 (0%)
	Daycare exposure – No	109 (32%)	109 (32%)	0 (0%)
	Celiac disease – Yes	12 (4%)	12 (4%)	0 (0%)
	Celiac disease – No	324 (96%)	324 (96%)	0 (0%)
	Any chronic disease/disorder – Never	247 (74%)	247 (74%)	0 (0%)
	Any chronic disease/disorder – Before	37 (11%)	37 (11%)	0 (0%)
	Any chronic disease/disorder – During	51 (15%)	51 (15%)	0 (0%)
	Any chronic disease/disorder – After	1 (0%)	1 (0%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – Before	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – During	151 (45%)	151 (45%)	0 (0%)
	Any acute disease/disorder – After	185 (55%)	185 (55%)	0 (0%)
27 to 30	Number of Subjects	273	273	0
	Number of Samples	273	273	0
	No. samples per subject	1	1	0
	Median age of samples in months	27.7 (27.2-28.2)	27.7 (27.2-28.2)	0.0 (0.0-0)
	Maternal BMI category – Underweight	6 (2%)	6 (2%)	0 (0%)
	Maternal BMI category – Normal	165 (60%)	165 (60%)	0 (0%)
	Maternal BMI category – Overweight	75 (27%)	75 (27%)	0 (0%)
	Maternal BMI category – Obese	25 (9%)	25 (9%)	0 (0%)
	Maternal BMI category – NA	2 (1%)	2 (1%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Maternal preg. weight gain – Non-excess	193 (71%)	193 (71%)	0 (0%)
	Maternal preg. weight gain – Excess	78 (29%)	78 (29%)	0 (0%)
	Maternal preg. weight gain – NA	2 (1%)	2 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	23 (8%)	23 (8%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	4 (1%)	4 (1%)	0 (0%)
	Maternal diabetes medication – None	245 (90%)	245 (90%)	0 (0%)
	Maternal diabetes – Gestational	16 (6%)	16 (6%)	0 (0%)
	Maternal diabetes – None	229 (84%)	229 (84%)	0 (0%)
	Maternal diabetes – T1D	22 (8%)	22 (8%)	0 (0%)
	Maternal diabetes – T2D	0 (0%)	0 (0%)	0 (0%)
	Maternal diabetes – NA	6 (2%)	6 (2%)	0 (0%)
	Maternal preeclampsia – Yes	9 (3%)	9 (3%)	0 (0%)
	Maternal preeclampsia – No	262 (96%)	262 (96%)	0 (0%)
	Maternal preeclampsia – NA	2 (1%)	2 (1%)	0 (0%)
	Maternal probiotic – Yes	14 (5%)	14 (5%)	0 (0%)
	Maternal probiotic – No	259 (95%)	259 (95%)	0 (0%)
	Birth Mode – Caesarian	84 (31%)	84 (31%)	0 (0%)
	Birth Mode – Vaginal	189 (69%)	189 (69%)	0 (0%)
	Preterm (<37 weeks) – Yes	16 (6%)	16 (6%)	0 (0%)
	Preterm (<37 weeks) – No	257 (94%)	257 (94%)	0 (0%)
	Geographical location – Colorado	39 (14%)	39 (14%)	0 (0%)
	Geographical location – Finland	57 (21%)	57 (21%)	0 (0%)
	Geographical location – Georgia	22 (8%)	22 (8%)	0 (0%)
	Geographical location – Germany	28 (10%)	28 (10%)	0 (0%)
	Geographical location – Sweden	102 (37%)	102 (37%)	0 (0%)
	Geographical location – Washington	25 (9%)	25 (9%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Sex – Male	146 (53%)	146 (53%)	0 (0%)
	Sex – Female	127 (47%)	127 (47%)	0 (0%)
	Race/Ethnicity – African Americans	2 (1%)	2 (1%)	0 (0%)
	Race/Ethnicity – Hispanic	4 (1%)	4 (1%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	161 (59%)	161 (59%)	0 (0%)
	Race/Ethnicity – All Other Races	5 (2%)	5 (2%)	0 (0%)
	Race/Ethnicity – NA	101 (37%)	101 (37%)	0 (0%)
	Breast milk status – No breast milk ever	8 (3%)	8 (3%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	7 (3%)	7 (3%)	0 (0%)
	Breast milk status – After breast milk	258 (95%)	258 (95%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)
	Solid food status – After	273 (100%)	273 (100%)	0 (0%)
	Probiotic – Never	184 (67%)	184 (67%)	0 (0%)
	Probiotic – Before	9 (3%)	9 (3%)	0 (0%)
	Probiotic – During	57 (21%)	57 (21%)	0 (0%)
	Probiotic – After	23 (8%)	23 (8%)	0 (0%)
	Vitamin D – Never	13 (5%)	13 (5%)	0 (0%)
	Vitamin D – During	257 (94%)	257 (94%)	0 (0%)
	Vitamin D – After	3 (1%)	3 (1%)	0 (0%)
	Antibiotics – Never	83 (30%)	83 (30%)	0 (0%)
	Antibiotics – Before	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – During	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – After	190 (70%)	190 (70%)	0 (0%)
	Household siblings – Never	33 (12%)	33 (12%)	0 (0%)
	Household siblings – Before	76 (28%)	76 (28%)	0 (0%)
	Household siblings – During	163 (60%)	163 (60%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Household siblings – After	1 (0%)	1 (0%)	0 (0%)
	Household siblings – NA	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – Never	133 (49%)	133 (49%)	0 (0%)
	Household furry pets – Before	20 (7%)	20 (7%)	0 (0%)
	Household furry pets – During	116 (42%)	116 (42%)	0 (0%)
	Household furry pets – After	4 (1%)	4 (1%)	0 (0%)
	Household furry pets – NA	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – Never	238 (87%)	238 (87%)	0 (0%)
	Lives on farm with animals – Before	10 (4%)	10 (4%)	0 (0%)
	Lives on farm with animals – During	22 (8%)	22 (8%)	0 (0%)
	Lives on farm with animals – After	3 (1%)	3 (1%)	0 (0%)
	Lives on farm with animals – NA	0 (0%)	0 (0%)	0 (0%)
	Daycare exposure – Yes	194 (71%)	194 (71%)	0 (0%)
	Daycare exposure – No	79 (29%)	79 (29%)	0 (0%)
	Celiac disease – Yes	13 (5%)	13 (5%)	0 (0%)
	Celiac disease – No	260 (95%)	260 (95%)	0 (0%)
	Any chronic disease/disorder – Never	195 (71%)	195 (71%)	0 (0%)
	Any chronic disease/disorder – Before	32 (12%)	32 (12%)	0 (0%)
	Any chronic disease/disorder – During	43 (16%)	43 (16%)	0 (0%)
	Any chronic disease/disorder – After	3 (1%)	3 (1%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – Before	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – During	135 (49%)	135 (49%)	0 (0%)
	Any acute disease/disorder – After	138 (51%)	138 (51%)	0 (0%)
31 to 40	Number of Subjects	220	220	0
	Number of Samples	220	220	0
	No. samples per subject	1	1	0

Month	Variable	Manuscript	DSIC	Diff.
	Median age of samples in months	31.6 (31.2-32.3)	31.6 (31.2-32.3)	0.0 (0.0-0)
	Maternal BMI category – Underweight	5 (2%)	5 (2%)	0 (0%)
	Maternal BMI category – Normal	140 (64%)	140 (64%)	0 (0%)
	Maternal BMI category – Overweight	55 (25%)	55 (25%)	0 (0%)
	Maternal BMI category – Obese	18 (8%)	18 (8%)	0 (0%)
	Maternal BMI category – NA	0 (0%)	2 (1%)	2 (1%)
	Maternal preg. weight gain – Non-excess	151 (69%)	151 (69%)	0 (0%)
	Maternal preg. weight gain – Excess	67 (30%)	63 (30%)	0 (0%)
	Maternal preg. weight gain – NA	2 (1%)	2 (1%)	0 (0%)
	Maternal diabetes medication – Insulin	19 (9%)	19 (9%)	0 (0%)
	Maternal diabetes medication – Metformin and insulin	1 (0%)	1 (0%)	0 (0%)
	Maternal diabetes medication – Glyburide	3 (1%)	3 (1%)	0 (0%)
	Maternal diabetes medication – None	197 (90%)	197 (90%)	0 (0%)
	Maternal diabetes – Gestational	16 (7%)	16 (7%)	0 (0%)
	Maternal diabetes – None	185 (84%)	185 (84%)	0 (0%)
	Maternal diabetes – T1D	16 (7%)	16 (7%)	0 (0%)
	Maternal diabetes – T2D	0 (0%)	0 (0%)	0 (0%)
	Maternal diabetes – NA	3 (1%)	3 (1%)	0 (0%)
	Maternal preeclampsia – Yes	9 (4%)	9 (4%)	0 (0%)
	Maternal preeclampsia – No	210 (95%)	210 (95%)	0 (0%)
	Maternal preeclampsia – NA	1 (0%)	1 (0%)	0 (0%)
	Maternal probiotic – Yes	9 (4%)	9 (4%)	0 (0%)
	Maternal probiotic – No	211 (96%)	211 (96%)	0 (0%)
	Birth Mode – Caesarian	67 (30%)	67 (30%)	0 (0%)
	Birth Mode – Vaginal	153 (70%)	153 (70%)	0 (0%)
	Preterm (<37 weeks) – Yes	16 (7%)	16 (7%)	0 (0%)
	Preterm (<37 weeks) – No	204 (93%)	204 (93%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Geographical location – Colorado	30 (14%)	30 (14%)	0 (0%)
	Geographical location – Finland	40 (18%)	40 (18%)	0 (0%)
	Geographical location – Georgia	18 (8%)	18 (8%)	0 (0%)
	Geographical location – Germany	16 (7%)	16 (7%)	0 (0%)
	Geographical location – Sweden	99 (45%)	99 (45%)	0 (0%)
	Geographical location – Washington	17 (8%)	17 (8%)	0 (0%)
	Sex – Male	119 (54%)	119 (54%)	0 (0%)
	Sex – Female	101 (46%)	101 (46%)	0 (0%)
	Race/Ethnicity – African Americans	0 (0%)	0 (0%)	0 (0%)
	Race/Ethnicity – Hispanic	3 (1%)	3 (1%)	0 (0%)
	Race/Ethnicity – White Non-Hispanic	199 (90%)	119 (54%)	80 (36%)
	Race/Ethnicity – All Other Races	2 (1%)	2 (1%)	0 (0%)
	Race/Ethnicity – NA	16 (37%)	96 (44%)	80 (7%)
	Breast milk status – No breast milk ever	3 (1%)	3 (1%)	0 (0%)
	Breast milk status – Exclusive	0 (0%)	0 (0%)	0 (0%)
	Breast milk status – Some breast milk	5 (2%)	5 (2%)	0 (0%)
	Breast milk status – After breast milk	212 (96%)	212 (96%)	0 (0%)
	Solid food status – Before	0 (0%)	0 (0%)	0 (0%)
	Solid food status – After	220 (100%)	220 (100%)	0 (0%)
	Probiotic – Never	149 (68%)	149 (68%)	0 (0%)
	Probiotic – Before	10 (5%)	10 (5%)	0 (0%)
	Probiotic – During	42 (19%)	42 (19%)	0 (0%)
	Probiotic – After	19 (9%)	19 (9%)	0 (0%)
	Vitamin D – Never	9 (4%)	9 (4%)	0 (0%)
	Vitamin D – During	208 (95%)	208 (95%)	0 (0%)
	Vitamin D – After	3 (1%)	3 (1%)	0 (0%)
	Antibiotics – Never	78 (35%)	78 (35%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Antibiotics – Before	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – During	0 (0%)	0 (0%)	0 (0%)
	Antibiotics – After	142 (65%)	142 (65%)	0 (0%)
	Household siblings – Never	25 (11%)	25 (11%)	0 (0%)
	Household siblings – Before	58 (26%)	58 (26%)	0 (0%)
	Household siblings – During	136 (62%)	136 (62%)	0 (0%)
	Household siblings – After	1 (0%)	1 (0%)	0 (0%)
	Household siblings – NA	0 (0%)	0 (0%)	0 (0%)
	Household furry pets – Never	107 (49%)	107 (49%)	0 (0%)
	Household furry pets – Before	15 (7%)	15 (7%)	0 (0%)
	Household furry pets – During	96 (44%)	96 (44%)	0 (0%)
	Household furry pets – After	2 (1%)	2 (1%)	0 (0%)
	Household furry pets – NA	0 (0%)	0 (0%)	0 (0%)
	Lives on farm with animals – Never	193 (88%)	193 (88%)	0 (0%)
	Lives on farm with animals – Before	6 (3%)	6 (3%)	0 (0%)
	Lives on farm with animals – During	19 (9%)	19 (9%)	0 (0%)
	Lives on farm with animals – After	2 (1%)	2 (1%)	0 (0%)
	Lives on farm with animals – NA	0 (0%)	0 (0%)	0 (0%)
	Daycare exposure – Yes	165 (75%)	165 (75%)	0 (0%)
	Daycare exposure – No	55 (25%)	55 (25%)	0 (0%)
	Celiac disease – Yes	10 (5%)	10 (5%)	0 (0%)
	Celiac disease – No	210 (95%)	210 (95%)	0 (0%)
	Any chronic disease/disorder – Never	161 (73%)	161 (73%)	0 (0%)
	Any chronic disease/disorder – Before	20 (9%)	20 (9%)	0 (0%)
	Any chronic disease/disorder – During	37 (17%)	37 (17%)	0 (0%)
	Any chronic disease/disorder – After	2 (1%)	2 (1%)	0 (0%)
	Any acute disease/disorder – Never	0 (0%)	0 (0%)	0 (0%)

Month	Variable	Manuscript	DSIC	Diff.
	Any acute disease/disorder – Before	0 (0%)	0 (0%)	0 (0%)
	Any acute disease/disorder – During	96 (44%)	96 (44%)	0 (0%)
	Any acute disease/disorder – After	124 (56%)	124 (56%)	0 (0%)

Attachment A: SAS Code

```
/******  
TEDDY M_138 CStewart  
Saved As: /prj/niddk/ims_analysis/TEDDY/prog_initial_analysis/m_138_cstewart.dsic.sas  
Programmer: Anne Taylor  
Date Written: 20May2019  
Purpose: To check Extended Data Table 1 of Temporal Development of the Gut Microbiome in Early  
Childhood.  
*****/  
  
options linesize=157;  
  
title 'TEDDY M_138 CStewart';  
title2 "Program Saved As: %sysfunc(getoption(sysin))";  
  
libname m138 '/prj/niddk/ims_analysis/TEDDY/private_orig_data/M_138_CStewart_NIDDK_Submission';  
  
proc format;  
  value $bmi  
    'Underweight'=' Underweight'  
    'Normal'=' Normal'  
    'Overweight'=' Overweight'  
    'Obese'=' Obese'  
    'NA'='NA'  
  ;  
  value $wtgain  
    'Non-Excess'=' Non-excess'  
    'Excess'='Excess'  
    'NA'='NA'  
  ;  
  value $diabmed  
    'Insulin'=' Insulin'  
    'Insulin, Metformin'=' Metformin and insulin'  
    'Glyburide'='Glyburide'  
    'No'='None'  
  ;  
  value $matdiab  
    'Gestational'=' Gestational'  
    'None'=' None'  
    'T1D'=' T1D'  
    'T2D'=' T2D'  
    'NA'='NA'  
  ;  
;
```

```

value $yesno
  'Yes'=' Yes'
  'No'=' No'
  'NA','Don't Know'='NA'
  ;
value $raceeth
  'African Americans (non-Hispanic)'=' African Americans'
  'All Hispanics regardless of race'=' Hispanic'
  'White Non-Hispanic'=' White Non-Hispanic'
  'All Other Races (non-Hispanic)'='All Other Races'
  'NA'='NA'
  ;
value $brstmilk
  'No_BM_Ever'=' No breast milk ever'
  'Exclusive'=' Exclusive'
  'Some_BM'=' Some breast milk'
  'After_BM'='After breast milk'
  ;
value $befaft
  'Never'=' Never'
  'Before'=' Before'
  'During'=' During'
  'After'='After'
  'NA'='NA'
  ;
value agecat
  1='3-6 months'
  2='7-10 months'
  3='11-14 months'
  4='15-18 months'
  5='19-22 months'
  6='23-26 months'
  7='27-30 months'
  8='31-40 months'
  ;

***select samples from 3-46 months***;
data age3_46;
  set m138.m_138_cstewart_31may2012_16s_1;
  if 2<age_in_months<=46;

  ***categorize age in months***;
  if 3<=age_in_months<=6 then age_cat=1;
  else if 7<=age_in_months<=10 then age_cat=2;
  else if 11<=age_in_months<=14 then age_cat=3;

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else if 15<=age_in_months<=18 then age_cat=4;
else if 19<=age_in_months<=22 then age_cat=5;
else if 23<=age_in_months<=26 then age_cat=6;
else if 27<=age_in_months<=30 then age_cat=7;
else if 31<=age_in_months<=40 then age_cat=8;

label age_in_months='Age of sample in months'
      maternal_weight_gain_aagaard='Maternal preg. weight gain'
      maternal_diabetes_medication_nam='Maternal diabetes medication'
      maternal_preeclampsia_toxemia='Maternal preeclampsia'
      breastmilk_combined='Breast milk status'
      household_furry='Household furry pets'
      any_chronic='Any chronic disease/disorder'
      any_acute='Any acute disease/disorder'
      age_cat='Month'
      ;

proc sort data=age3_46;
  by maskid age_cat age_in_months;

***calculate # samples per subject***;
proc means data=age3_46 noprint;
  by maskid;
  var age_in_months;
  output out=per_sub n=n_samples;

proc tabulate data=per_sub f=12.;
  var n_samples;
  table n='Number of Subjects' sum='Number of Samples' median='No. samples per subject - median' q1='No. samples per subject - Q1'
q3='No. samples per subject - Q3',n_samples='';
  title4 'Extended Data Table 1';
  title5 'Total cohort';

proc means data=age3_46 median q1 q3 maxdec=1;
  var age_in_months;

proc tabulate data=age3_46 missing f=12.;
  class maternal_bmi_category maternal_weight_gain_aagaard maternal_diabetes_medication_nam maternal_diabetes
maternal_preeclampsia_toxemia maternal_probiotics birth_mode preterm geographical_location race_ethnicity
      breastmilk_combined probiotic vitamin_d antibiotics household_siblings household_furry child_lives_on_farm_with_animals
any_chronic any_acute/order=formatted;
  class sex solid_food daycare_exposure celiac_disease/descending;
  table (maternal_bmi_category maternal_weight_gain_aagaard maternal_diabetes_medication_nam maternal_diabetes
maternal_preeclampsia_toxemia maternal_probiotics birth_mode preterm geographical_location sex race_ethnicity

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```

        breastmilk_combined solid_food probiotic vitamin_d antibiotics household_siblings household_furry
child_lives_on_farm_with_animals daycare_exposure celiac_disease any_chronic any_acute),n pctn;
    format maternal_bmi_category $bmi.
        maternal_weight_gain_aagaard $wtgain.
        maternal_diabetes_medication_nam $diabmed.
        maternal_diabetes $matdiab.
        maternal_preeclampsia_toxemia maternal_probiotics preterm $yesno.
        race_ethnicity $raceeth.
        breastmilk_combined $brstmlk.
        probiotic vitamin_d antibiotics household_siblings household_furry child_lives_on_farm_with_animals any_chronic any_acute
$befaft.
;

***select 1st sample for each subject/age category***;
data per_sub_agecat;
    set age3_46;
    by maskid age_cat;
    if first.age_cat and age_cat ne .;

***calculate # samples per subject***;
proc means data=per_sub_agecat noprint;
    by maskid age_cat;
    var age_in_months;
    output out=countsamp n=n_samples;

proc tabulate data=countsamp f=12.;
    class age_cat;
    var n_samples;
    table n='Number of Subjects' sum='Number of Samples' median='No. samples per subject',age_cat=' '*n_samples='';
    format age_cat agecat.;
    title5 'by Month';

proc tabulate data=per_sub_agecat f=12.1;
    class age_cat;
    var age_in_months;
    table age_in_months*(median q1 q3),age_cat='';
    format age_cat agecat.;

proc tabulate data=per_sub_agecat missing f=6.;
    class maternal_bmi_category maternal_weight_gain_aagaard maternal_diabetes_medication_nam maternal_diabetes
maternal_preeclampsia_toxemia maternal_probiotics birth_mode preterm geographical_location race_ethnicity
        breastmilk_combined probiotic vitamin_d antibiotics household_siblings household_furry child_lives_on_farm_with_animals
any_chronic any_acute/order=formatted;
    class sex solid_food daycare_exposure celiac_disease/descending;
    class age_cat;

```

```

table (maternal_bmi_category maternal_weight_gain_aagaard maternal_diabetes_medication_nam maternal_diabetes
maternal_preeclampsia_toxemia maternal_probiotics birth_mode preterm geographical_location sex race_ethnicity
breastmilk_combined solid_food probiotic vitamin_d antibiotics household_siblings household_furry
child_lives_on_farm_with_animals daycare_exposure celiac_disease any_chronic any_acute),age_cat=' '(n colpctn='%')
/misstext='0';
format maternal_bmi_category $bmi.
maternal_weight_gain_aagaard $wtgain.
maternal_diabetes_medication_nam $diabmed.
maternal_diabetes $matdiab.
maternal_preeclampsia_toxemia maternal_probiotics preterm $yesno.
race_ethnicity $raceeth.
breastmilk_combined $brstmlk.
probiotic vitamin_d antibiotics household_siblings household_furry child_lives_on_farm_with_animals any_chronic any_acute
$befaft.
age_cat agecat.
;

```