

NHLBI grant: Ancillary to HCHS/SOL: Hispanic Community Children's Health Study of Latino Youth (R01 HL102130; S Bangdiwala, G Ayala, M Carnethon, A Delamater, J Eckfeldt, J Himes, C Isasi, & K Perreira)



Hispanic Community Children's Health/ Study of Latino Youth (SOL Youth)

Investigator Use Database Overview

**June 2016
INV Version 2.1**

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ACKNOWLEDGMENTS

SOL Youth study would not have been possible without the participation of HCHS/SOL Study participants and the support of study member staff. The Hispanic Children's Health Study/ Study of Latino Youth (HCHS/SOL Youth) was supported by Grant Number R01HL102130 from the National Heart, Lung, and Blood Institute (NHLBI). The content is solely the responsibility of the authors and does not necessarily represent the official views of NHLBI or the National Institutes of Health.

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The Hispanic Community Children’s Health / Study of Latino Youth (SOL Youth)
Investigator Use Database
Version 2.0
June 2016

Table of Contents

ACKNOWLEDGMENTS	2
<i>Updates to SOL Youth Data Release or Documentation</i>	5
1. INTRODUCTION	5
2. STUDY OBJECTIVES	5
3. STUDY DESIGN	6
3.1. Participants	6
3.2. Schedule of Participant Data at Baseline	7
4. DATABASE STRUCTURE	9
4.1. Data Set Organization	9
4.2. Form and Data Set Naming Conventions	10
4.3. Key Fields for Data Records	10
4.4. Common Variables Across Data Sets	11
4.5. Variable Naming Conventions	11
4.6. Changes to Variables to Preserve Confidentiality	11
4.7. Missing Values	12
5. DESCRIPTION OF DATA COLLECTION FORMS	13
5.1. Administrative/Safety	13
5.1.1. Informed Assent Tracking and Tracking Update – Child (IAT and IAU)	13
5.1.2. Informed Consent Tracking and Tracking Update – Parent (ICT and ICU)	13
5.1.3. Informed Assent Young Adult Tracking and Tracking Update – Child (IYT and IYU)	13
5.1.4. Participant Safety Screener (PSE)	13
5.1.5. Safety Checklist for Fitness Step Test (SST)	13
5.2. Procedure	14
5.2.1. Anthropometry (Child and Parent) (ANT)	14
5.2.2. Biospecimen Collection (BIO)	14
5.2.3. Clinic Laboratory Blood Sample (CHM)	14
5.2.4. Fitness Step Test (FST)	14

5.2.5. Sitting Blood Pressure (SBP)	14
5.2.6. Tanner Staging Procedure - Female (TPF) and Male (TPM)	14
5.2.7. Tanner Staging - Female (TSF) and Male (TSM)	15
5.3. Child Only	15
5.3.1. After School Physical Activity Environment (AEE)	15
5.3.2. Away from Home Foods (AFE)	15
5.3.3. Alcohol Susceptibility (AUE)	15
5.3.4. Body Image (BIE)	15
5.3.5. Child Depression Inventory (CDE)	16
5.3.6. Demographics - Child (DCE)	16
5.3.7. Eating Disorders (EDE)	16
5.3.8. Dietary and Physical Activity Support (FSE)	16
5.3.9. How I Feel Scale (LSE)	16
5.3.10. MASC-10 (MAE)	17
5.3.11. Physical Activity (PAE)	17
5.3.12. Parenting for Eating and Physical Activity (PCE)	17
5.3.13. Pubertal Assessment (PDE)	17
5.3.14. Family Relationship (RCE)	18
5.3.15. Social Attitudes Toward Weight (SAE)	18
5.3.16. School Food Environment (SFE)	18
5.3.17. Sleep Duration (SLE)	18
5.3.18. Social Support from Friends (SSE)	18
5.3.19. Tobacco Susceptibility (TUE)	19
5.3.20. Food Practices with TV Video Viewing (TVE)	19
5.3.21. AHISMA Scale (UNE)	19
5.3.22. Workout Equipment Use at Home (WEE)	19
5.4. Parent Only	20
5.4.1. Barriers to Activity in Neighborhood (BNE)	20
5.4.2. Demographics - Parent (DPE)	20
5.4.3. Demographics - Partner/Spouse (DSE)	20
5.4.4. Equipment Checklist in Home (ECE)	20
5.4.5. Familism (FAE)	20
5.4.6. Food in the Home (FHE)	20

5.4.7. Family Meals (FME)	21
5.4.8. Food and Neighborhood Environment (FNE)	21
5.4.9. Food Security (FSE)	21
5.4.10. Health Insurance - Parent (HPE)	21
5.4.11. Neighborhood SES (NSE)	21
5.4.12. Parenting for Eating and Physical Activity (PPE)	21
5.4.13. SES (SPE)	22
5.5. Parent – About Each Child	22
5.5.1. Authoritative Parenting Index (APE)	22
5.5.2. Health Insurance (HCE)	22
5.5.3. Medical History (MHE)	22
5.5.4. Medication Use (MUE)	23
5.5.5. Pre-migration (PME)	23
5.5.6. Family Relationship (RPE)	23
5.5.7. School Type (STE)	23
5.6. Both Child and Parent	24
5.6.1. Acculturative Stress (ASE)	24
5.6.2. ARSMA (BAE)	24
5.6.3. Ethnic Affirmation and Belonging (EAE)	24
5.6.4. Family Function (FFE)	24
6. 24hr Dietary and Supplement Recalls (NDSR files)	24
6.1 NDSR File 02 – Nutrients at the whole food level (Y02)	25
6.2 NDSR File 03 – Nutrients at the meal level (Y03)	25
6.3 NDSR File 04 – Nutrients at the daily totals level (Y04)	25
6.4 NDSR File 07 – Food groups at the whole food level (Y07)	25
6.5 NDSR File 08 – Food groups at the meal level (Y08)	25
6.6 NDSR File 09 – Food groups at the daily totals level (Y09)	25
6.7 NDSR File 12 – Total 24 hr. supplement intake (Y12)	25
6.8 NDSR File 13 – Averaged 30-day supplement intake (Y13)	25
6.9 NDSR File 14 – Product file for 24 hr. supplement intake (Y14)	26
6.10 NDSR File 15 – Product file for 30 day supplement intake (Y15)	26
6.11 NDSR File 16 – Product Ingredients file for 24 hr. supplement intake (Y16)	26

6.12 NDSR File 17 – Product Ingredients file for 30 day supplement intake (Y17)	26
6.13 NDSR File 18 – Blend Ingredients file for 24 hr. supplement intake (Y18)	26
6.14 NDSR File 19 – Blend Ingredients file for 30 day supplement intake (Y19)	26
7. SPECIAL USE DERIVED FILES	26
7.1. Child Participant Derived Variables (SYOUTH_CHILD_PART_DERV)	26
7.2. Parent Participant Derived Variables (SYOUTH_PARENT_PART_DERV)	27
7.3. Physical Activity from Actical (daily counts/minute) (SYOUTH_PA_CNDS)	27
7.4. Actical derived variables at the participant level (SYOUTH_PA_DERV)	27
8. REFERENCES	27
9. APPENDIX	28
9.1 Medication Coding Schema using Medispan© MTC CODES	28

Updates to SOL Youth Data Release or Documentation

Version	Date	Description	Datasets	Documentation
1	10/1/2014	1st data release	_INV1	V1 (October 2014)
2	2/8/2016	2 nd Full INV data release	_INV2	V2 (February 2016)
3	6/6/2016	3 rd Partial INV data release	_INV2	V2.1 (June 2016)

1. INTRODUCTION

This document describes the content and structure of the Investigator Use datasets created for The Hispanic Community Children’s Health/ Study of Latino Youth (SOL Youth). This database contains all the data collected at the baseline examination for the full cohort of 1,466 enrolled children, subject to constraints (described within) to preserve participant confidentiality by de-identifying the data. Data for prospective participants who screened out are not included.

2. STUDY OBJECTIVES

SOL Youth is a multi-site observational study funded by the National Heart, Lung, and Blood Institute to examine factors associated with childhood obesity and cardiometabolic risk among a diverse sample of Hispanic/Latino children (8-16 years old; N=1600) living in one of four U.S. cities (Bronx, Chicago, Miami, and San Diego; see Isasi et al., in press). The specific aims of SOL Youth are to:

- (1) Evaluate the influence of child acculturation and intergenerational differences in acculturation between children and parents on children’s obesity-related behaviors and their cardiometabolic risk profiles;
- (2) Test the association of parenting strategies and practices with children’s obesity-related behaviors and cardiometabolic risk profiles; and,
- (3) Assess the influence of child psychosocial functioning on obesity-related behaviors and cardiometabolic risk profiles.

Aims were informed by several theoretical frameworks relevant to childhood obesity and based on a conceptual model representing sources of influence specific to U.S. Hispanic/Latino children (see Ayala et. al 2013).

Study participation includes three components: (1) an initial clinical examination lasting up to 3.5 hours; (2) 7 days of wearing a physical activity monitor; and (3) a second 24-hour dietary recall to be completed on the telephone. The clinical examination includes phlebotomy, anthropometry, seated blood pressure, fitness step test (Francis et. al 1991), pubertal stage using the Pubertal Development Scale (Peterson et. al 1998), and study questionnaires (see Isasi et. al 2013). The study strived to make the percent of identified persons who actually attended the examination high, to reduce bias from non-response. Language barriers were not a reason for exclusion for Spanish speakers not proficient in English, since all contact with participants was done using the appropriate language.

3. STUDY DESIGN

The initial study design was created for the Hispanic Community Health Study/Study of Latinos (HCHS/SOL), a prospective follow-up cohort study conducted in 4 field centers (Bronx, Chicago, Miami, and San Diego) as described in Sorlie, et al 2010. Ultimately, 16,415 participants were enrolled from a randomly selected set of household postal addresses in the target communities (see LaVange et. al 2010).

For SOL Youth, all HCHS/SOL participant households were further screened for any residing children. Children ages of 8-16 living with at least one parent or legal guardian who participated in HCHS/SOL are eligible for SOL Youth [Note: Protocol revision for increasing the eligible age range from 8-14 to 8-16 years old for SOL Youth was unanimously approved by the HCHS/SOL Ancillary Study Subcommittee and HCHS/SOL Steering Committee on August 8, 2012]. Ultimately, 1,466 child participants aged 8-16 years whose parents/legal guardians participated from the HCHS/SOL households were enrolled for SOL Youth from December 2011 to December 2013. Electronic copies of the study protocol and manuals of operation are also included elsewhere for reference with this data release.

3.1. Participants

All child study participants are 8-16 years of age at the time of the baseline examination. Parents are asked to accompany their children to the visit, provide written consent, and to complete additional assessments not included in their HCHS/SOL examination. If a HCHS/SOL participant has more than one eligible child, all who are qualified are enrolled. A biological relationship between the youth and the HCHS/SOL participant is not required. Eligibility further required that the child: (1) lives at least 5 days/week and 9 months/year with the HCHS/SOL parent or legal guardian; (2) aged 8-16 years at the time of the baseline examination; and (3) has no known serious physical or cognitive comorbidities that would interfere with his/her ability to complete a clinic visit. All eligible children in the household were invited to participate (see Isasi et. al 2013).

Table 1 shows some summary statistics on the 1,466 participants by field center:

Table 1. Number (%) enrolled by site

			Age range			Gender	
	Total % (n)	Refused % (n)	8-12	13-14	15-16	Males	Females
Bronx	29% (422)	22% (121)	29% (241)	30% (110)	28% (71)	29% (209)	29% (213)
Chicago	25% (372)	16% (70)	26% (217)	23% (87)	27% (68)	23% (165)	28% (207)
Miami	18% (263)	17% (52)	18% (149)	19% (69)	18% (45)	19% (141)	27% (196)
San Diego	28% (409)	13% (63)	28% (237)	28% (105)	27% (67)	29% (213)	27% (196)
Total	1466	17% (306)	844	371	251	728	738

3.2. Schedule of Participant Data at Baseline

Table 2 lists the forms collected during the baseline examination among the 1,466 children and 1,066 parents. Forms were administered to either or both the parent and child as indicated in Table 2.

Table 2. Baseline Assessment Battery

Questionnaires		
Administrative and Safety Forms	Form Code	Count
Informed Assent Tracking - Child	IAT	884
Informed Assent Update Tracking - Child	IAU	35
Informed Consent Tracking - Parent	ICT	1,466
Informed Consent Update Tracking - Parent	ICU	4
Informed Assent Young Adult Tracking - Child	IYT	648
Informed Assent Young Adult Update Tracking - Child	IYU	3
Participant Safety Screener	PSE	1,466
Safety Checklist for Fitness Step Test	SST	1,464
Procedure(s) Forms/Data	Form Code	Count
Anthropometry - child only data	ANT_CHILD	1,466
Anthropometry - parent only data	ANT_PARENT	1,015
Biospecimen Collection	BIO	1,459
Clinic Laboratory Blood Sample	CHM	1,416
Fitness Step Test	FST	1,430
Sitting Blood Pressure	SBP	1,466
Tanner Staging Procedure - Female	TPF	59
Tanner Staging Procedure - Male	TPM	32
Tanner Staging - Female - Child	TSF	89
Tanner Staging - Male - Child	TSM	54
Child Only	Form Code	Count
After School Physical Activity Environment	AEE	1,461
Away from Home Foods	AFE	1,464
Alcohol Susceptibility	AUE	1,459
Body Image	BIE	1,465
Child Depression Inventory	CDE	1,461
Demographics	DCE	1,466
Eating Disorders	EDE	1,466
Dietary and Physical Activity Support	FSE	1,466
How I Feel Scale	LSE	1,459
MASC-10	MAE	1,461
Physical Activity	PAE	1,464
Parenting for Eating and Physical Activity	PCE	1,466
Pubertal Assessment	PDE	1,459
Family Relationship	RCE	1,466

Social Attitudes Toward Weight	SAE	1,463
School Food Environment	SFE	1,461
Sleep Duration	SLE	1,464
Social Support from Friends	SSE	1,465
Tobacco Susceptibility	TUE	1,459
Food Practices with TV Video Viewing	TVE	1,465
AHISMA Scale	UNE	1,466
Workout Equipment Use at Home	WEE	1,464
Parent Only	Form Code	Count
Barriers to Activity in Neighborhood	BNE	1,019
Demographics - Parent	DPE	1,019
Demographics - Partner/Spouse	DSE	814
Equipment Checklist in Home	ECE	1,019
Familism	FAE	1,019
Food in the Home	FHE	1,019
Family Meals	FME	1,019
Food and Neighborhood Environment	FNE	1,019
Food Security	FOE	1,019
Health Insurance	HPE	1,019
Neighborhood SES	NSE	1,019
Parenting for Eating and Physical Activity	PPE	1,019
Socioeconomic Status?	SPE	1,019
Parent - About Each Child	Form Code	Count
Authoritative Parenting Index	APE	1,466
Health Insurance	HCE	1,466
Medical History	MHE	1,466
Medication Use	MUE	1,463
Pre-migration	PME	505
Family Relationship	RPE	1,466
School Type	STE	1,466
Both Child and Parent	Form Code	Count
Acculturative Stress – child data only	ASE_CHILD	1,466
Acculturative Stress – parent data only	ASE_PARENT	1,019
ARSMA – child only data	BAE_CHILD	1,466
ARSMA – parent only data	BAE_PARENT	1,019
Ethnic Affirmation and Belonging – child data only	EAE_CHILD	1,465
Ethnic Affirmation and Belonging – parent data only	EAE_PARENT	1,019
Family Function – child only data	FFE_CHILD	1,466
Family Function – parent only data	FFE_PARENT	1,019
24hr Dietary and supplements recalls (NDSR)^a	Form Code	Count
01-Nutrients ingredient level	Y01	82,644
02-Nutrients whole food level	Y02	33,984
03-Nutrients meal level	Y03	12,406

04-Nutrients daily totals level	Y04	2,812
07-Food groups at whole food level	Y07	33,983
08-Food groups meal level	Y08	12,406
09-Food groups daily totals	Y09	2,812
12-Supplement 24 hour total	Y12	2,812
13-Supplement 30 day average	Y13	1,428
14-Product 24 hour supplement	Y14	309
15-Product 30 day supplement	Y15	303
16-Ingredient 24 hour supplement	Y16	3771
17-Ingredient 30 day supplement	Y17	3634
18-Blend ingredient 24 hour suppl.	Y18	95
19-Blend ingredient 30 day suppl.	Y19	74
Derived Variable Files	Form Code	Count
Participant Derived - Child	SYOUTH_CHILD_PART_DERV	1,466
Participant Derived - Parent	SYOUTH_PARENT_PART_DERV	1,020
Objective Physical Activity - Epoch	SYOUTH_CHILD_PA_EPOCH	70,206,764
Objective Physical Activity - Days	SYOUTH_CHILD_PA_DAYS	8693
Objective Physical Activity - Derived	SYOUTH_CHILD_PA_DERV	1238
Dietary Food Groups	SYOUTH_FOOD_GROUP_DERV	2758
Predicted Nutrients	SYOUTH_PRED_NUTR_DERV	TBD

a. NDSR files are multi-record datasets. NDSR files 5, 6, 10, 11, 20 and 21 were not used in SOL Youth nor in HCHS/SOL. See section 6 for the specific key fields (uniquely identify a record) for each NDSR file. Also documented in SOL Youth Dietary Data Overview Document.

**Note: All data files highlighted are collected on both parent and child participants.

4. DATABASE STRUCTURE

4.1. Data Set Organization

There is one table (SAS data set) in the database for each form at baseline. Each data item on a paper form is stored as one or more columns (variables) in the data set. Collection of direct measurements during examination procedures can also result in the creation of a data file. For example, sitting blood pressure measurements are recorded on the SBP form while the technician uses the Omron HEM-907XL sphygmomanometer.

Forms were administered to either or both the parent and the child (Table 2), and some forms were collected from parent participants but about their child(ren). There were 5 forms administered to both child and the parent: ANT, ASE, BAE, EAE, and FFE. For these 6 forms, the datasets have one record for each child and for each parent. In summary,

Section	Add heading	Add heading
5.3	Child only	ID from child
5.4	Parent only	ID from parent/legal guardian

5.5	Parent about each child	ID from child
5.6	Both child and parent	ID for child and for parent/legal guardian

Since forms were revised at during the course of the study, the version of the paper form used to collect the data is also included on each record (e.g., versions 1 or 2). The SAS data set is a composite of the data items required to accommodate all versions of the corresponding data form. Some version specific data items will be missing in a given record depending upon which version was completed at time of data acquisition in the field (ex. Safety Checklist for Fitness Step Test - SST).

Special derived variable datasets (ex. SYOUTH_CHILD_PART_DERV) have been created to augment the original data measurement values. The participant derived variable file has computed score values based on standard algorithms for some of the instruments in question (ARSMALL, AHISMA). These algorithms have been included in the derived variable dictionary.

A codebook has been produced for each data set. A careful review of the codebooks, in conjunction with the forms, is critical to interpreting the data. The codebook provides a description of every variable in the data set as well as the frequency and meaning of variables' values. Analysts are *strongly* encouraged to use the codebooks, paying attention to the data user notes contained in this document. Dedicated content area codebooks are developed separately for the diet recall data (NDS-R) and the objective physical activity data (Actical).

4.2. Form and Data Set Naming Conventions

Each SOL Youth data collection instrument (PDF form) has a unique three-letter mnemonic associated with it (e.g., SBP for the SOL Youth Sitting Blood Pressure form). Corresponding data sets begin with the same three letters of the mnemonic, followed by the character string “_INV2” for Investigator Use, Version 1. For example, the Sitting Blood Pressure data set for release 1 is “SBP_INV2”. The naming convention serves both to identify the originating form and provide version control when subsequent generations of datasets are produced.

4.3. Key Fields for Data Records

The unique identification of a participant data record within a file is determined by three primary key fields for forms that are collected once per visit for the baseline exam datasets (see HCHS/SOL Data Management Guide), and by the use of a sequencing field for the few forms that could occur many times per visit, except for 24hr recalls and objectively measured physical activity. These items are:

- 1) ID: A random 8-digit identification code, unique to each SOL Youth participant: child or parent/legal guardian. **Parent participants who are also HCHS/SOL study participants have exactly the same ID used in HCHS/SOL study data files.**

- 2) OCCURENCE: Line number, a one digit index (1, 2) for multiple forms per visit, in SOL Youth multiple occurrences apply to MHE and MUE forms only.

The key fields used in the specialized dietary recalls datasets (NDSR files) are described below in section 6, and in the document SOL Youth Dietary Data Overview, Methods, and Guidelines. For key fields for objectively measured physical activity (Actical) see section 7, and SOL Youth Physical Activity Data Overview, Methods, and Guidelines.

4.4. Common Variables Across Data Sets

An additional variable appears in every data set, and may be useful in identifying particular subsets of the data:

- 1) FORM: The original 3-letter form code that appears on the paper-based forms or on the form code selection menu in the DMS. In contrast to HCHS/SOL datasets this variable does not have the language of administration (uses “E” for English language forms versus “S” for the Spanish language version). The language administered is indicated as question 0c on all forms (see SOL Youth Investigator Use Data Overview).
- 2) VERS: Version of the data collection form. A four digit sequencing number variable indicating which version of the paper form was used to collect the data. Possible values for VERS are “0100”, “0200”, and “0300”, representing the first, second, and third versions, respectively. **In, SOL Youth most forms have only one version, but a few have a second version: IYT, PSE, SST.**
- 3) EVENT: This variable is redundant and will be removed in future data releases.
- 4) EVENTNAME: Event study form identifier in CDART system, a text field that indicates the type of form collected and the participant (child/parent) the form is associated (Procedures, Questionnaire – child).

4.5. Variable Naming Conventions

To predictably and uniquely link data items to forms, these form-specific variable names begin with the same three characters as the data set name followed by the question number as indicated on the form. For example, question 1 “gender” on the Demographics - child form DCE, is named DCE1 on the corresponding SAS file, DCE_INV2. Similarly, question 4a, “Country of origin”, from the Demographics - Child form is named DCE4a.

4.6. Changes to Variables to Preserve Confidentiality

As part of the study commitment to complying with HIPAA regulations for participant confidentiality and in following guidelines from NHLBI/NIH the Coordinating Center has made explicit modifications and/ or deletions to variables that were common across all forms. All participant IDs were masked to produce Investigator Use data files that protect the confidentiality of the individual. However, the authorized user will need to actively attend to the security and confidentiality of these Investigator Use files as part of the end user agreement.

Parent participants who are also HCHS/SOL study participants have the same ID used in HCHS/SOL study data files. Other non-HCHS/SOL study participants who are SOL Youth parent/LG participants are assigned an ID. Child participant IDs and parent participant IDs can be found in their respective participant derive files (SYOUTH_CHILD_PART_DERV and SYOUTH_PARENT_PART_DERV files, respectively). Parent IDs are linked to child IDs using the variable CHILD_PARENT__LINK (see SOL Youth Child Derive Variable Dictionary – INV2).

- 1) Addresses and phone numbers of the participants were omitted from these files.
- 2) CENTER, is a real code to distinguish among participating field centers was created for the Investigator Use database and is included in the child participant derived variable set, SYOUTH_CHILD_PART_DERV_INV2 but removed from the ID string.
- 3) STAFF ID codes were deleted across all forms and not substituted.
- 4) DATES were kept unaltered and separate month, day, year text strings preserved for each item in case incomplete information was collected.
- 5) DATE OF BIRTH was converted to age at baseline and appears in the child and parent derived variable data sets, SYOUTH_CHILD_PART_DERV_INV2 and SYOUTH_PARENT_PART_DERV_INV2.

4.7. Missing Values

The study database employs a standard set of special missing value codes (see study codebook) that have contextual meaning. Since SAS allows numeric variables to assume up to 27 unique missing values, “.A to .Z, and .” the Coordinating Center uses several of these special missing codes to convey additional meaning to the analyst. Here is a table that describes that usage of missing values in SOL Youth.

Missing value	Meaning
. or blank	Empty field, missing
.Q	Don't know / refused
.S	Skipped field
.L	Below lower limit of analysis
.H	Above higher limit of analysis
.N	Not applicable/ not available

Selective recodes may need to be made to make use of known refusals, or to account for skip patterns in coding derived variables based on multiple items in a form. Using SAS, analysts are strongly encouraged to detect missing values by using " \leq .Z" which will detect these special missing values rather than " $=$.", which will not. Alternatively the SAS missing function can be used. Laboratory variables with results reported as "< number", or "> number" for values below or above the assay limits are set to the special values of ".L" or ".H".

5. DESCRIPTION OF DATA COLLECTION FORMS

Forms were administered to either or both the parent and the child (Table 2), and some forms were collected from parent participants but about their child(ren). There were 5 forms administered to both child and the parent: ANT, ASE, BAE, EAE, and FFE. For these 6 forms, the datasets have one record for each child and for each parent.

5.1. Administrative/Safety

5.1.1. Informed Assent Tracking and Tracking Update – Child (IAT and IAU)

The IAT tracking form recorded all child responses at the time of assent process for participation. If any updates were made after the baseline examination date, then an update form (IAU) was entered with only the updated responses recorded.

5.1.2. Informed Consent Tracking and Tracking Update – Parent (ICT and ICU)

The ICT tracking form recorded all parent responses at the time of consent process for parent and child participation. This would include use of study data, participation in future studies, as well as any other restrictions. If any updates were made after the baseline examination date, then an update form (ICU) was entered with only the updated responses recorded.

5.1.3. Informed Assent Young Adult Tracking and Tracking Update – Child (IYT and IYU)

This tracking form recorded all young adult responses at the time of consent process for participation. Certain field centers have state/local regulations on child and adolescent assent criterion for participating in research studies and therefore this tracking document records those required responses, such as use of study data, participation in future studies, as well as any other restrictions. If any updates were made after the baseline examination date, then an update form was entered with only the updated responses recorded.

5.1.4. Participant Safety Screener (PSE)

This form obtains any conditions that could potentially cause issues with certain components of Sol Youth examination, yet would not warrant a child from being excluded from participation in the baseline examination (ex. required wheelchair use which would exclude the participant from the fitness step test).

5.1.5. Safety Checklist for Fitness Step Test (SST)

This form obtains any issues or conditions that could potential cause issues with participation from the fitness step test (ex. asthma with regular rescue inhaler use, leg injuries, etc.)

5.2. Procedure

5.2.1. Anthropometry (Child and Parent) (ANT)

The direct measurements obtained at the anthropometry station are recorded on these entry screens. Because some values were collected three times for validation, averaged height, waist, and hip variable can be found in the participant derived variable file along with composite items like BMI (and percentiles) and waist-hip ratio are also in the derived file.

Note: Anthropometry was collected on both child and parent participants. This data set has been split into two separate data files separating parent and child observations into separate files. Use the participant derived files as a linkage to determine child participant IDs versus parent participant IDs for analysis use (i.e. SYOUTH_CHILD_PART_DERV and SYOUTH_PARENT_PART_DERV respectively).

5.2.2. Biospecimen Collection (BIO)

The timing and condition at the time of collection for the complete set of baseline blood and urine specimens is recorded on this form. Reasons for exclusion or any other conditions that would affect specimen collection are also noted here. The derived variable for fasting time is based on the elapsed time since the participant reporting eating or drinking anything and the start of the sample collection process.

5.2.3. Clinic Laboratory Blood Sample (CHM)

The University of Minnesota Fairview Hospital Clinical Laboratory provided SOL Youth baseline clinical chemistry assay values (CHM data set). Gender and age specific reference ranges were supplied by the laboratory and appear in both the Baseline Examination manual (Manual 1) and in the Laboratory and Biospecimen Processing manual (Manual 2). See the appendix for Manual 2 for an example of clinical laboratory results and reference ranges.

5.2.4. Fitness Step Test (FST)

The step test is a means of estimating aerobic fitness or maximal oxygen uptake (VO₂max). See the Baseline Examination manual (Manual 1) for more information on the procedure and references.

5.2.5. Sitting Blood Pressure (SBP)

Sitting blood pressure measurements are directly recorded while the technician uses the Omron HEM-907XL sphygmomanometer. A series of three systolic and diastolic measures is automatically recorded along with the Omron determined average. See manual 1 for a detailed description of these procedures.

5.2.6. Tanner Staging Procedure - Female (TPF) and Male (TPM)

Because the onset and progression of puberty are so variable, Tanner has proposed a scale, now uniformly accepted, to describe the onset and progression of pubertal changes. Boys and girls are rated on a 5 point scale. Boys are rated for genital

development and pubic hair growth, and girls are rated for breast development and pubic hair growth. This procedure form is the observed assessment conducted by a trained, field center clinician.

Reference:

5.2.7. Tanner Staging - Female (TSF) and Male (TSM)

Because the onset and progression of puberty are so variable, Tanner has proposed a scale, now uniformly accepted, to describe the onset and progression of pubertal changes. Boys and girls are rated on a 5 point scale. Boys are rated for genital development and pubic hair growth, and girls are rated for breast development and pubic hair growth. This procedure form is the self-reported perspective conducted by the child participant.

Reference:

5.3. Child Only

5.3.1. After School Physical Activity Environment (AEE)

This 2-item instrument obtains a brief screen of availability and access of physical activity area(s) at the child's school.

Reference:

5.3.2. Away from Home Foods (AFE)

This 6-item instrument obtains a brief screen of frequency of dietary habits outside of the home (ex. fast food restaurants, vending machines).

Reference: Ayala, G.X., Rogers, M., Arredondo, E.M., Campbell, N.R., Baquero, B., Duerksen, S.C., & Elder, J.P. (2008). Away-from-home food intake and risk for obesity: Examining the influence of context. *Obesity Research*, 16(5), 1002-8.

5.3.3. Alcohol Susceptibility (AUE)

A brief 7-item screen for history of alcohol use was administered to determine potential use, current use, and potential influenced use of alcohol. Limited metrics on at risk drinking can be derived from the quantity/frequency measures.

Reference: Elder, J.P., Campbell, N.R., Litrownik, A.J., Ayala, G.X., Slymen, D.J., Parra-Medina, D., & Lovato, C.Y. (2000). Predictors of cigarette and alcohol susceptibility and use among Hispanic migrant adolescents. *Preventive Medicine*, 31, 115-123.

5.3.4. Body Image (BIE)

This instrument obtains a child's perception of his/her own current and ideal body image compared to a response card set of images of a range of body types.

Reference: Ayala GX, Mickens L, Galindo P, et al. Acculturation and body image perception among Latino youth. *Ethn Health* 2007;12:21-41

5.3.5. Child Depression Inventory (CDE)

A 10-item questionnaire was developed by American clinical psychologist Maria Kovacs, PhD, and was first-published in 1979 for use in evaluating depressive symptoms in children and adolescents in youth aged 7 to 17 years. The depression inventory composite score and standardized t-score are found in the child participant derived variable file.

Reference: Copyright©1982 Maria Kovacs, Ph.D. © 1991, 1992 Multi-Health Systems Inc. P.O. Box Tonawanda NY, 14120-0950. (800) 456-3003. In Canada, 3770 Victoria Park Avenue, Toronto ON M2H 3M6. (800) 268-6011.

5.3.6. Demographics - Child (DCE)

The basic demographic and socio-economic status information for the child participants are recorded here (gender, Hispanic/Latino identification, Hispanic/Latino heritage affiliation, racial group, country of origin, migration issues, spending and employment).

5.3.7. Eating Disorders (EDE)

A brief 4-item screen for certain dieting behaviors that could determine potential risk of eating disorders (ex. diuretic use, binge eating).

Reference: D. Neumark-Sztainer, M. Story, M. Resnick, R. Blum. Lessons learned about adolescent nutrition from the Minnesota Adolescent Health Survey. *JAm Diet Assoc.*, 98 (1998), pp. 1449-1456

5.3.8. Dietary and Physical Activity Support (FSE)

A 16-item questionnaire for determining potential beneficial or detrimental influence from family/household members and peers (friends/other children) on certain diet behaviors and physical activities.

Reference:

5.3.9. How I Feel Scale (LSE)

A 9-item questionnaire called the “How I Think and Feel Test”, or LIE scale test, is a modification of the Revised Children’s Manifest Anxiety Scale (RCMAS) for use in determining potential risk for anxiety in children and adolescents. The Lie scale composite score can be found in the child participant derived variable file.

Reference:

5.3.10. MASC-10 (MAE)

A 10-item questionnaire called Multidimensional Anxiety Scale for Children (MASC–10), the short version of the standard 39-item MASC, combines the basic anxiety scales from the long version to produce one score in order to assess the major dimensions of severe anxiety in adolescents and children. The MASC-10 composite and standardized t-score are found in the child participant derived variable file.

Reference: Copyright © 1997, Multi-Health Systems Inc. P.O. Box 950, North Tonawanda NY, 14120-0950, (800) 456-3003. In Canada, 3770 Victoria Park Avenue, Toronto ON M2H 3M6. (800) 268-6011.

5.3.11. Physical Activity (PAE)

A 72-item questionnaire that uses activity-based (AB) and time-based (TB) approaches for obtaining self-reported moderate-to-vigorous physical activity (MVPA) from adolescents and children.

Reference: McMurray, R.G., K.B. Ring, M.S. Treuth, G.J. Welk, R.R. Pate, K.H. Schmitz, J.L. Pickrel, V. Gonzalez, M.J.C.A. Almedia, D. Rohm Young, & J.F. Sallis. Comparison of two approaches to structured physical activity surveys for adolescents. *Med Sci Sports Exerc.* 36:2135-2143, 2004.

Sallis JF, Condon SA, Goggin KJ, Roby JJ, Kolody B, Alcaraz JE. The development of self-administered physical activity surveys for 4th grade students. *Res Q Exerc Sport.* 64:25-31, 1993.

5.3.12. Parenting for Eating and Physical Activity (PCE)

A 26-item questionnaire to be used to examine the relationship of family meals to children's consumption of fruit and vegetables as well as soda and chips. Additionally, the questionnaire would be used to assess the relationship between viewing TV during family meals and children's diet. This information is collected from the parent's perspective.

Reference: Andaya, A.A., Arredondo, E.M., Alcaraz, J.E., Lindsay, S.P, & Elder, J.P. (2011). The Association between family meals, TV viewing during meals, and fruit, vegetables, soda, and chips intake among Latino children. *J Nutr Educ Behav.* 2011 Sep-Oct;43(5):308-15.

5.3.13. Pubertal Assessment (PDE)

A 5-item, gender-specific, noninvasive self-rating scale to measure children's pubertal status without pictorial representations or interviews. The pubertal development scale is an adaptation of an interview-based puberty-rating scale described in Petersen AC, Crockett L, Richards M & Boxer A (1988). This scale included scores for each of five items rating physical development, an overall maturation measure, and a categorical maturation score designed to be similar to Tanner staging categories.

Reference: Robertson, E. B., Skinner, M. L., Love, M. M., Elder, G. H., Conger, R. D., Dubas, J. S., & Petersen, A. C. (1992). The Pubertal Development Scale: A rural and suburban comparison. *The Journal of Early Adolescence*, 12, 174-186.

5.3.14. Family Relationship (RCE)

A brief 7-item screen adapted from the National Longitudinal Study of Adolescent Health (Add Health) for obtaining the child's perception of their primary caregiver as well as aspects of parental closeness.

Reference: Add Health, Ontario Family Study

5.3.15. Social Attitudes Toward Weight (SAE)

A brief 7-item questionnaire created from the Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ) to measure one's endorsement of societal appearance ideals and media influences potentially having a contributory role in the onset and maintenance of body image disturbances and eating problems.

Reference: Heinberg, L.J., & Thompson, J.K. (1995). Body image and televised images of thinness and attractiveness: A controlled laboratory investigation. *Journal of Social and Clinical Psychology*, 14(4), 325-338.

5.3.16. School Food Environment (SFE)

A 12-item instrument adapted from the Teen Environment and Neighborhood Adolescent Survey to assess the relation between one's neighborhood, quality of life, health, and physical activity. This instrument is focused on the child's school food environment.

Reference: TEAN study

5.3.17. Sleep Duration (SLE)

The sleep history questionnaire is a short screen to determine sleep duration during weekdays and weekends.

Reference: Cappuccio, F.P., Taggart, F.M., Kandala, N.B., Currie, A., Peile, E., Stranges, S., & Miller, M.A. (2008). Meta-analysis of short sleep duration and obesity in children and adults. *Sleep*, 31(5), 619-626.

5.3.18. Social Support from Friends (SSE)

A brief 4-item questionnaire adapted from the Multidimensional Scale of Perceived Social Support to assist in determining associations of perceived social support with depression and anxiety symptomatology. These questions focus specifically on support from friends (Factor 3: Friends includes items 2, 7, 9, and 12).

Reference: Zimet, G.D., Dahlem, N.W., Zimet, S.G., & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 52(1), 30-41.

Zimet, G.D., Powell, S.S., Farley, G.K., Werkman, S., Berkoff, K.A. (1990). Psychometric characteristics of the Multidimensional scale of perceived social support. *Journal of Personality Assessment*, 55(3&4), 610-617.

5.3.19. Tobacco Susceptibility (TUE)

A brief screen for history of tobacco use was administered that collects data on lifetime use, current use, former use, and potential influenced use of tobacco. Limited metrics on at risk smoking cigarettes can be derived from the quantity/frequency measures.

Reference: Elder, J.P., Campbell, N.R., Litrownik, A.J., Ayala, G.X., Slymen, D.J., Parra-Medina, D., & Lovato, C.Y. (2000). Predictors of cigarette and alcohol susceptibility and use among Hispanic migrant adolescents. *Preventive Medicine*, 31, 115-123.

5.3.20. Food Practices with TV Video Viewing (TVE)

A 2-item questionnaire to be used to examine food practices while viewing television.

Reference: Andaya, A.A., Arredondo, E.M., Alcaraz, J.E., Lindsay, S.P, & Elder, J.P. (2011). The Association between family meals, TV viewing during meals, and fruit, vegetables, soda, and chips intake among Latino children. *Journal of Nutrition Education and Behavior*.

5.3.21. AHISMA Scale (UNE)

The Acculturation, Habits, and Interests Multicultural Scale for Adolescents (AHISMA) is an 8-item questionnaire that was developed to assess a range of behavioral, cognitive, and affective manifestations of acculturation. This instrument generates four subscores: United States Orientation (Assimilation), Other Country Orientation (Separation), Both Countries Orientation (Integration), and Neither Country Orientation (Marginalization).

Reference: Unger, J.B., Gallaher, P., Shakib, S., Ritt-Olson, A., Palmer, P., Johnson C.A., (2002). The AHISMA Acculturation Scale: A New Measure of Acculturation for Adolescents in a Multicultural Society. *Journal of Early Adolescence*, 22, 225-251.

5.3.22. Workout Equipment Use at Home (WEE)

A 12-item questionnaire that was modified slightly based on MOVE and Active Where study in order to determine the availability and usage of a wide variety of workout equipment at home (ex. bikes, swimming pool, etc.).

Reference: MOVE, Active Where study

5.4. Parent Only

5.4.1. Barriers to Activity in Neighborhood (BNE)

A 9-item questionnaire that was modified slightly based on TEAN study in order to determine any potential reasons for difficulty of physical activity in the neighborhood for a wide variety of reasons (ex. no adult supervision, not safe because of traffic, etc.).

Reference: TEAN study

5.4.2. Demographics - Parent (DPE)

The basic demographic information for the parent participants are recorded here (gender, date of birth, Hispanic/Latino heritage affiliation, racial group, country of origin, age of migration for non-US born). Date of birth has been replaced by age in the parent participant derived variable file.

Reference:

5.4.3. Demographics - Partner/Spouse (DSE)

The basic demographic and socio-economic status information for the partner/spouse, if applicable, of parent participants are recorded here (gender, date of birth, relationship to child, Hispanic/Latino heritage affiliation, racial group, country of origin, age of migration for non-US born, employment status, education attainment). Date of birth has been replaced by age of partner/spouse in the parent participant derived variable file.

Reference:

5.4.4. Equipment Checklist in Home (ECE)

A 7-item questionnaire that determines the availability of a wide variety of non-portable electronic devices at home and within the child(ren)'s bedroom (ex. televisions, desktop/laptop computer, etc.).

Reference:

5.4.5. Familism (FAE)

A 5-item questionnaire that determines the parent's personal viewpoints and expectations for how they and their children should help each other or other family members (ex. aging parents should live with their relatives).

Reference: Steidel, A. G. L., & Contreras, J. M. (2003). A new familism scale for use with Latino populations. *Hispanic Journal of Behavioral Sciences*, 25, 312-330.

5.4.6. Food in the Home (FHE)

A 17-item screen to determine the availability and frequency of use, in the past 30 days, of a variety of foods/drinks available (ex. chocolate candy, raw fruit, etc.).

Reference: TEAN study

5.4.7. Family Meals (FME)

A brief 3-item screen to determine the frequency how many days in a week did child and parent participants eat together as a family (breakfast, lunch, and dinner).

Reference: Andaya, A.A., Arredondo, E.M., Alcaraz, J.E., Lindsay, S.P, & Elder, J.P. (2011). The Association between family meals, TV viewing during meals, and fruit, vegetables, soda, and chips intake among Latino children. *Journal of Nutrition Education and Behavior*.

5.4.8. Food and Neighborhood Environment (FNE)

An 11-item questionnaire that determines the availability and the quality of the food stores in the participant's neighborhood, regardless of whether they shop at these stores. (ex. large selection of low-fat products available, etc.).

Reference: TEAN study

5.4.9. Food Security (FSE)

A 15-item questionnaire that determines the quality and potential impact of a wide variety of food situations in the household (ex. couldn't afford to eat balanced meals, not eat for a whole day because there wasn't enough money for food etc.).

Reference: Andaya, A.A., Arredondo, E.M., Alcaraz, J.E., Lindsay, S.P, & Elder, J.P. (2011). The Association between family meals, TV viewing during meals, and fruit, vegetables, soda, and chips intake among Latino children. *Journal of Nutrition Education and Behavior*.

5.4.10. Health Insurance - Parent (HPE)

A brief 3-item questionnaire that determines the status, type, and duration in the last year of health insurance.

Reference: CPS March

5.4.11. Neighborhood SES (NSE)

A brief 5-item questionnaire to assess some potential problems/issues in the participant's neighborhood (ex. assaults and muggings, drug use or drug dealing out in the open).

Reference: Children of Immigrants Longitudinal Study

5.4.12. Parenting for Eating and Physical Activity (PPE)

A 26-item questionnaire to be used to examine the relationship of family meals to children's consumption of fruit and vegetables as well as soda and chips. Additionally, the questionnaire would be used to assess the relationship between viewing TV during

family meals and children's diet. This information is collected from the parent's perspective.

Reference: Andaya, A.A., Arredondo, E.M., Alcaraz, J.E., Lindsay, S.P., & Elder, J.P. (2011). The Association between family meals, TV viewing during meals, and fruit, vegetables, soda, and chips intake among Latino children. *J Nutr Educ Behav*. 2011 Sep-Oct;43(5):308-15.

5.4.13. SES (SPE)

The basic socio-economic status information for the parent participants are recorded here (marital status, employment status, education attainment, income source(s), household income, housing information).

Reference: Add Health, Fragile Families, CILS, HCHS/SOL studies

5.5. Parent – About Each Child

The following seven forms designated as “Parent – about each child” are collected from parent participants but about their child(ren). These form data sets will therefore only include observations using the **CHILD ID**.

5.5.1. Authoritative Parenting Index (APE)

A 16-item questionnaire collects information on a specific combination of demanding and responsive parenting behaviors. The demanding behaviors include setting and enforcing clear standards of behavior, actively monitoring and supervising a child's activities, maintaining structure and regimen in a child's daily life, and making maturity demands consistent with the developmental phase of a child. The responsive behaviors include being affectionate and accepting, providing comfort and support, being involved in children's academic and social development, and recognizing children's achievements.

Reference: Jackson, C., Henricksen, L., & Foshee, V.A. (1998). The authoritative parenting index: Predicting health risk behaviors among children and adolescents. *Health Education and Behavior*, 25(3), 321-339.

5.5.2. Health Insurance (HCE)

A brief 4-item questionnaire that determines the status, type, and duration in the last year of health insurance.

Reference: CPS March

5.5.3. Medical History (MHE)

The 21-item medical history form inquires about the child's health conditions. This instrument contains general questions on date of birth, pulmonary conditions (asthma, wheezing), obesity, diabetes, hypertension, hypercholesterolemia, metabolic problems,

cancer, attention deficits, and physical disabilities. This form also obtains family history of the above mentioned conditions. Lastly, the form also briefly determines the type and recent use of health care utilization.

Reference:

Medical History: Asthma Symptoms: Taken from BRFSS Asthma Call-back Survey – Child 2008 Questionnaire. The specific conditions we ask about were included based on the UNC meeting notes and our subsequent phone discussions. The sub-questions and answer choices (how old, still have, see Dr., take meds) were modified from the Med Hx Q created by Jerlym. They were confirmed as similar to ADD Health.

Healthcare Utilization: Based on ADD Health questions modified slightly to ask parents about child.

5.5.4. Medication Use (MUE)

The medication use questionnaire captures an inventory (scanned /transcribed) of up to 10 medications and supplements the child used during the last four weeks.

Reference: HCHS/SOL

5.5.5. Pre-migration (PME)

A 6-item questionnaire that collects information about the child's migration to the United States, including age of migration. It also determines who, if anyone, accompanied the child when migrating to the United States. The form also screen for pre-migration living conditions (ex. housing type, access to running water).

Reference: Add Health, Fragile Families, CILS, HCHS/SOL

5.5.6. Family Relationship (RPE)

A 13-item screen adapted from the National Longitudinal Study of Adolescent Health (Add Health) for obtaining the parent's perception of their child's primary caregiver as well as information on child contact and/or separation from the biological mother/father.

Reference: Add Health, Ontario Family Study

5.5.7. School Type (STE)

A brief screen for school attendance status as well as school type (ex. public, private, etc.). School name and address information were also collected in this form, yet this information have been suppressed from investigator release (INV) data sets due to the confidential and possible de-identifiable nature of this data.

Reference: Add Health, Secretos de Buena Vida

5.6. Both Child and Parent

The following four forms designated as “Both Child and Parent” are collected on both child and parent participants. These form data sets have been split to include parent and child observations into separate data sets. Use the participant derived files as a linkage to isolate/determine child participant IDs versus parent participant IDs for analysis use (i.e. SYOUTH_CHILD_PART_DERV and SYOUTH_PARENT_PART_DERV respectively).

5.6.1. Acculturative Stress (ASE)

A 9-item screen of the participant’s acculturative experiences while living in the United States (ex. How often do people dislike you because you are Hispanic/Latino). This form has been modified as follows for SOL Youth: for parents form change school to work and parents to child.

Reference: Gil and Vega Items (1994, 1996, 2000)

5.6.2. ARSMA (BAE)

The 12-item Acculturation Rating Scale for Mexican Americans (ARSMA) was administered in order to assess acculturation processes through an orthogonal, multidimensional approach by measuring cultural orientation toward the Mexican culture and the Anglo culture independently. Two subscales, Anglo Orientation Subscale (AOS) and Mexican Orientation Subscale (MOS), were developed from items from the original ARSMA scale and can be found in the child and parent’s participant derived files.

Reference: BAUMAN 12-ITEM BRIEF ARSMA II

5.6.3. Ethnic Affirmation and Belonging (EAE)

A brief 8-item screen for determining the participant’s feelings about the ethnic group that they belong to (ex. I have a strong sense of belonging to my own group).

Reference: Adapted from MEIM

5.6.4. Family Function (FFE)

A 12-item screen for determining the participant’s feelings about certain aspects of family function (ex. In times of crisis we turn to each other for support).

Reference: Byles et al. Ontario Family Health Study, General Functioning Subscale of the McMaster Family Assessment Device

6. 24hr Dietary and Supplement Recalls (NDSR files)

6.1 NDSR File 02 – Nutrients at the whole food level (Y02)

This file, based on the 24 hour dietary recalls, contains nutrients at the whole food level. It contains multiple records per participant, one record per participant-recall-food; key fields are ID + RECALLNUM + FOODID.

6.2 NDSR File 03 – Nutrients at the meal level (Y03)

This file, based on the dietary 24 hour recalls, contains nutrient totals for each meal or eating occasion within each dietary recall. It contains multiple records per participant; key fields are ID + RECALLNUM + MEALID.

6.3 NDSR File 04 – Nutrients at the daily totals level (Y04)

This file, based on the dietary 24 hour recalls, contains nutrient totals at the daily level for each dietary recall. It also contains general information about each recall (e.g. day of intake, self-report intake amount, intake reliability assessed by the interviewer). It contains multiple records per participant; key fields are ID + RECALLNUM.

6.4 NDSR File 07 – Food groups at the whole food level (Y07)

This file, based on the 24 hour dietary recalls, contains nutrients at the whole food level. There is one serving count for each of the 168 NDSR food groups; see Appendix 10 of the 2011 NDSR Manual for serving counts. FSC contains multiple records per participant, one record per participant-recall-food; key fields are ID + RECALLNUM + FOODID.

6.5 NDSR File 08 – Food groups at the meal level (Y08)

This file, based on the dietary 24 hour recalls, contains serving counts for each meal or eating occasion within each dietary recall. There is one serving count for each of the 168 NDSR food groups; see Appendix 10 of the 2011 NDSR Manual for serving counts. It contains multiple records per participant; key fields are ID + RECALLNUM + MEALID

6.6 NDSR File 09 – Food groups at the daily totals level (Y09)

This file, based on the dietary 24 hour recalls, contains serving counts at the daily level for each dietary recall. There is one serving count for each of the 168 NDSR food groups; see Appendix 10 of the 2011 NDSR Manual for serving counts. It contains multiple records per participant; key fields are ID + RECALLNUM.

6.7 NDSR File 12 – Total 24 hr. supplement intake (Y12)

This file, based on the DSAM 24-hour supplement intake, contains totals nutrients for supplements for each dietary recall. It contains multiple records per participant; key fields are ID + RECALLNUM.

6.8 NDSR File 13 – Averaged 30-day supplement intake (Y13)

This file, based on the DSAM 30-day supplement intake, contains nutrients totaled across supplements. It also contains general information regarding the 30-day supplement intake. It was only assessed at the clinic visit. It contains one record per participant; key field is ID.

6.9 NDSR File 14 – Product file for 24 hr. supplement intake (Y14)

This file, based on the DSAM 24-hour supplement intake, contains nutrients for each supplement reported in the 24 hour recall. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + RECALLNUM + PRDID.

6.10 NDSR File 15 – Product file for 30 day supplement intake (Y15)

This file, based on the DSAM 30-day supplement intake, contains nutrients for each supplement reported for the 30-day supplement intake. It was only assessed at the clinic visit. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + SUPPLID.

6.11 NDSR File 16 – Product Ingredients file for 24 hr. supplement intake (Y16)

This file, based on the DSAM 24 hour supplement intake, contains nutrients for each product-ingredient for supplements reported in the 24 hour recall. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + RECALLNUM + INGID.

6.12 NDSR File 17 – Product Ingredients file for 30 day supplement intake (Y17)

This file, based on the DSAM 30-day supplement intake, contains nutrients for each product-ingredient for supplements reported in the 30-day recall. It was only assessed at the clinic visit. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + INGID.

6.13 NDSR File 18 – Blend Ingredients file for 24 hr. supplement intake (Y18)

This file, based on the DSAM 24 hour supplement intake, contains nutrients for each product-blend ingredient for supplements reported in the 24 hour recall. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + RECALLNUM + BLDID.

6.14 NDSR File 19 – Blend Ingredients file for 30 day supplement intake (Y19)

This file, based on the DSAM 30-day supplement intake, contains nutrients for each product-blend ingredient for supplements reported in the 30-day recall. It was only assessed at the clinic visit. Only participants who reported taking supplements will be in this dataset. This file contains multiple records per participant; key fields are ID + BLDID.

7. SPECIAL USE DERIVED FILES

7.1. Child Participant Derived Variables (SYOUTH_CHILD_PART_DERV)

The child participant derived variable dataset is not associated solely with any particular form because it contains variables from many forms and files. There is one record per enrolled participant at baseline. This file is a cross-section of “derived variables” whose values are defined based on combinations of data items (e.g. age from date of birth, or body mass index from height and weight, waist-hip ratio from girth measurements,

depression inventory, etc.),. Important study design variables like sample weight and strata identifiers are also found here. See the separate document, “*SOL Youth Derived Variable Dictionary*” for the definitions of the variables included in this special purpose file. Statistical analysis using SOL Youth data must account for the complex sampling design by specifying strata (STRAT), primary sampling unit (PSU_ID) and sample weights (SYOUTH_WEIGHT_FINAL_NORM_OVERALL). Analysts are strongly encouraged to read the document “ANALYSIS METHODS FOR HCHS/SOL” in the HCHS/SOL Main Study to ensure that the study design is correctly specified prior to analysis.

7.2. Parent Participant Derived Variables (SYOUTH_PARENT_PART_DERV)

The parent participant derived variable dataset follows the same logic as the child participant derive file yet only includes derived variables for the parent participants only. This file can be used in analyses to isolate parent only IDs. Because of the potential for child/parent combined analyses, all parent derive variables will have the suffix “_PARENT”. See the separate document, “*SOL Youth Derived Variable Dictionary*” for the definitions of the variables included in this special purpose file.

7.3. Physical Activity from Actical (daily counts/minute) (SYOUTH_PA_CNTRS) PLACE HOLDER

7.4. Actical derived variables at the participant level (SYOUTH_PA_DERV) PLACE HOLDER

8. REFERENCES

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9. APPENDIX

9.1 Medication Coding Schema using Medispan© MTC CODES

The medication survey interview at baseline where drugs are reported either by generic or trade names have been coded using the following system. Codes are text fields. Use of this proprietary coding system is limited to research and teaching purposes by the HCHS/SOL Youth Investigators and NIH. Commercial use *is not* permitted. Please refer to the appendix of the “HCHS Baseline Examination Overview” document for the full listing of MTC codes.