

# Relationship and Fertility Data: Wave IV



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## Overview of Presentation

- ❖ Brief introduction: Relationship and fertility data in Add Health Waves I to III
- ❖ Distinct listing of relationships in Wave IV data
- ❖ Nested data structure: from relationship to pregnancy, live birth, and child
- ❖ Relationship and fertility data across sections
  - Contents
  - Data flows
  - Inter-sectional, hierarchical data relationships
  - Unique ID components




## Overview of Presentation

- ❖ Computational and technical tips
  - Unique ID Creation
  - Summary counts
  - Different levels and units of analysis
  - Hierarchical file merging
- ❖ Some general advice
- ❖ Questions and answers



## Relationship & Fertility Data across Waves

<b>Waves I, II</b>	<b>Wave III</b>	<b>Wave IV</b>
Demographic	Demographic	Demographic
Family, siblings, friends	Family, siblings, friends	Family, siblings, friends
Education, work	Education, work, military	Educ, work, military (records)
Physical and mental health	Physical and mental health	Physical and mental health
Daily activities and sleep	Daily activities and sleep	Daily activities and sleep
<b>Relationships</b>	<b>Relationships</b>	<b>Relationships</b>
<b>Sexual, &amp; fertility histories</b>	<b>Sexual, &amp; fertility histories</b>	<b>Sexual, &amp; fertility histories</b>
Substance use	Substance use	Substance use and abuse
Delinquency and violence	Involvmnt w/criminal justice system	Involvmnt w/criminal justice sys
Attitudes, religion	Attitudes, religion	Work attitudes and chars, relig
Economics, expectations	Economics, expectations	Economics, expectations
Psychological, personality	Psychological, personality	Big 5 Personality, stressors
	<b>Children and parenting</b>	<b>Children and parenting</b>
	Civic participation	Civic participation
	Gambling	Cognitive function 
	mentoring	Psychosocial factors

## Relationship & Fertility Data across Waves

**Wave I (1994-1995; Grades 7-12; N=20,745) &  
Wave II (1996; Grades 8-12; N=14,738)**

*Name up to 3 “romantic” relationships*

- *If none, then “Like” relationships*

*Name up to 3 “non-romantic” relationships*

### Information about Relationships:

- Begin/end dates
- Social context when relationship began
- Partner demographics
  - ❑ *gender, age, race/ethnicity*
- First & most recent sexual intercourse
  - ❑ *date, contraceptive use*
- Verbal and physical abuse (W2 only)



## Relationship & Fertility Data across Waves

### Wave I & Wave II

#### **Fertility experiences (female Rs only)**

##### Pregnancies :

- ☐ *Number of times, dates, outcome*
- ☐ *Contraceptive use, want marriage*
- ☐ *Child alive?*
- ☐ *Gave up for adoption?*





## Relationship & Fertility Data across Waves

Wave III (2001-2002; Aged 18-26; N=15,197)

- **Marriage history**

- ☐ *Begin/end dates*
- ☐ *Current?*
- ☐ *Still living together – last date*
- ☐ *How ended?*

- **Cohabitation history**

- ☐ *Begin/end dates*
- ☐ *Still living together – last date*
- ☐ *Ever married to partner?*
- ☐ *How ended?*



## Relationship & Fertility Data across Waves

### Wave III

#### **Romantic and pregnancy relationships since 1995**

(N = 42,330 relationship records)

#### **Relationships in Detail (N = 38,375)**

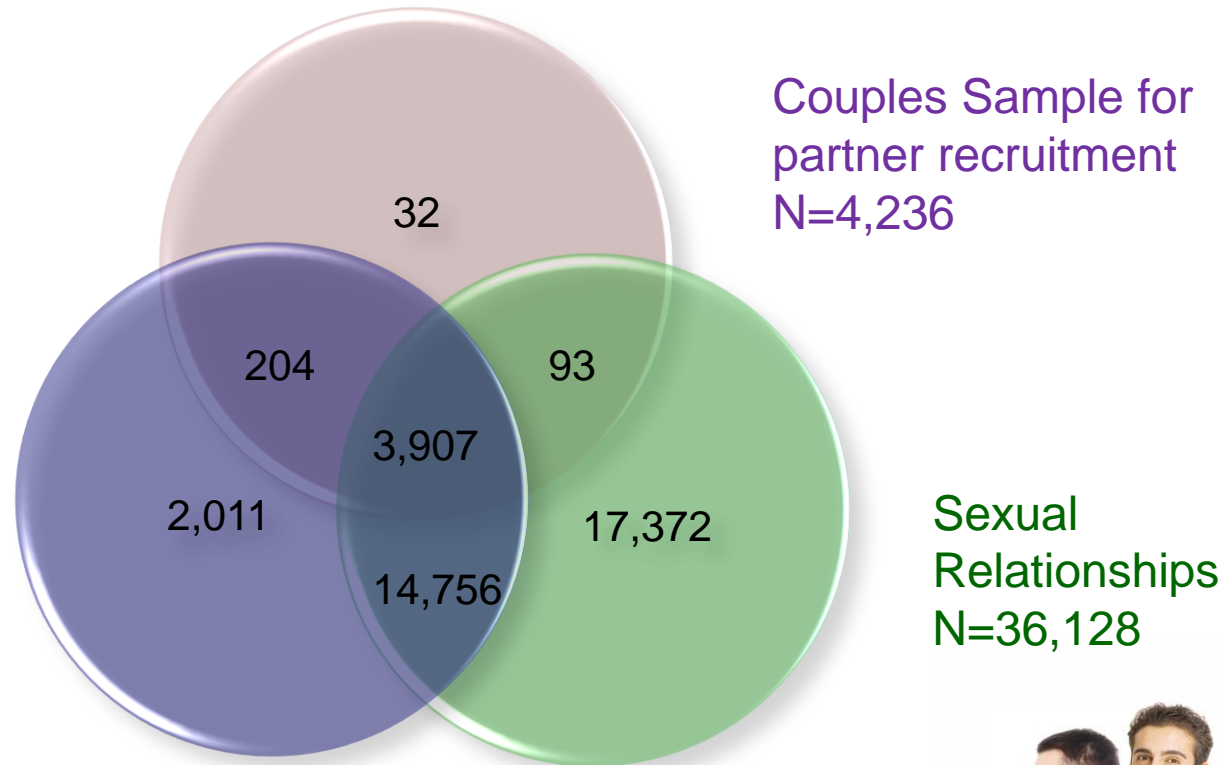
- 3 sets selected according to different criteria:
  - ☐ Sexual relationships, N = 36,128
  - ☐ 2 most important relationships, N = 20,878
  - ☐ Couple (CP) sample for partner recruitment, N = 4,236





## Relationship & Fertility Data across Waves

### Wave III Relationships in Detail (N=38,375)



2 Most  
important  
N=20,878



## Relationship & Fertility Data across Waves

### Wave III Couples Sample

- Relationships are eligible if:
  - ☐ *Current*
  - ☐ *Opposite sex*
  - ☐ *Partner 18 or older*
  - ☐ *Relationship duration  $\geq 3$  months*
- About 4,000 partners qualified to be enlisted for the couples sample recruitment.
- The Couples Sample was a purposive, quota sample (N=1,507) designed to collect information on 1/3 married, 1/3 cohabiting, and 1/3 dating partners.



## Relationship & Fertility Data across Waves

### Wave III Relationships in Detail

- **R & partner's age:**
  - ☐ *1<sup>st</sup> met; have a romantic relationship; sexual relationship*
- **Begin/end dates:**
  - ☐ *Romantic relationship; sexual relationship; marriage*
- **Duration:**
  - ☐ *Living together before marriage; sexual relationship before cohabitation; same residence*
- **Cohabitation:**
  - ☐ *Travel distance; other residence; who else lived there; no. nights together.*



## Relationship & Fertility Data across Waves

### Wave III Relationships in Detail (Cont.)

- **Various types of sexual activities**
  - ☐ *When: first/most recent time – dates, frequencies*
- **Different types of birth control/condom use**
  - ☐ *Combined with different types of sexual activities*
  - ☐ *When used: first/most recent time – dates, frequencies*
- **Relationship qualities**
  - ☐ *Best describes current relationship*
  - ☐ *Currently engaged to marry*
  - ☐ *Abuses (verbal, physical, forced sex, resulted injuries)*
  - ☐ *Satisfaction; love; dominance*
  - ☐ *Joint account; purchase; chores*



## Relationship & Fertility Data across Waves

**Wave IV (2007-2008; Aged 24-32; N=15,701)**

❖ Relationship data collection structure differs from Wave III

- Specific romantic/sexual relationships R have had
- Exclusive listings by partner types
  - ☐ Married ('M')
  - ☐ Cohabitated ('C')
  - ☐ Pregnancy ('P')
  - ☐ Currently Dating ('CD')
  - ☐ Most Recent ('MR')



❖ You cannot update Wave III with Wave IV relationships -- It's not an add-on!

## Wave IV Relationships, pregnancies, live births, and children

- **Nested Data Structure**
  - Respondent's reporting on *total number of relationships/partners* (by types)
    - Section 16A *[H4TR\*]*
      - ☐ Married ('M')
      - ☐ Cohabitated ('C')
      - ☐ Pregnancy ('P')
      - ☐ Currently Dating ('CD')
  - *Time-segments* associated with each Relationship/partner
    - Section 16B & C *[H4TR\*]*





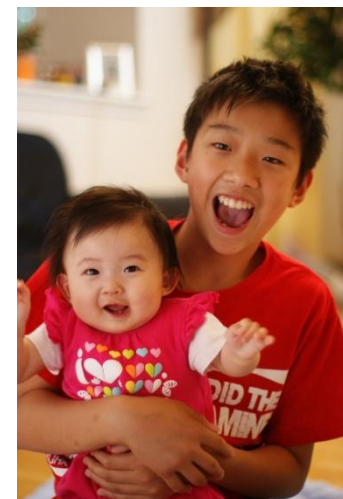
## Wave IV Relationships, pregnancies, live births, and children

- **Nested Data Structure (Cont.)**
  - Selected *Relationship in Details*
    - Section 17 *[H4RD\*]*
  - All *pregnancies* associated w/ the reported relationship/partners
    - Section 18 *[H4PG\*]*



## Wave IV Relationships, pregnancies, live births, and children

- **Nested Data Structure (Cont.)**
  - All *live births* resulted from pregnancies
    - Section 19 *[H4LB\*]*
  - All live births who are still living and not given up for adoption (*Children*)
    - Section 20A *[H4KK\*]*



## Wave IV Relationships, pregnancies, live births, and children

- **Nested Data Structure (Cont.)**
  - Respondents who have at least 1 child at home reporting on their *parenting attitudes*.
    - Section 20B *[H4KK\*]*



## Wave IV Romantic/Sexual Relationships

*S16A: R's description of total no. of relationships, pregnancies, live births, children still living.*

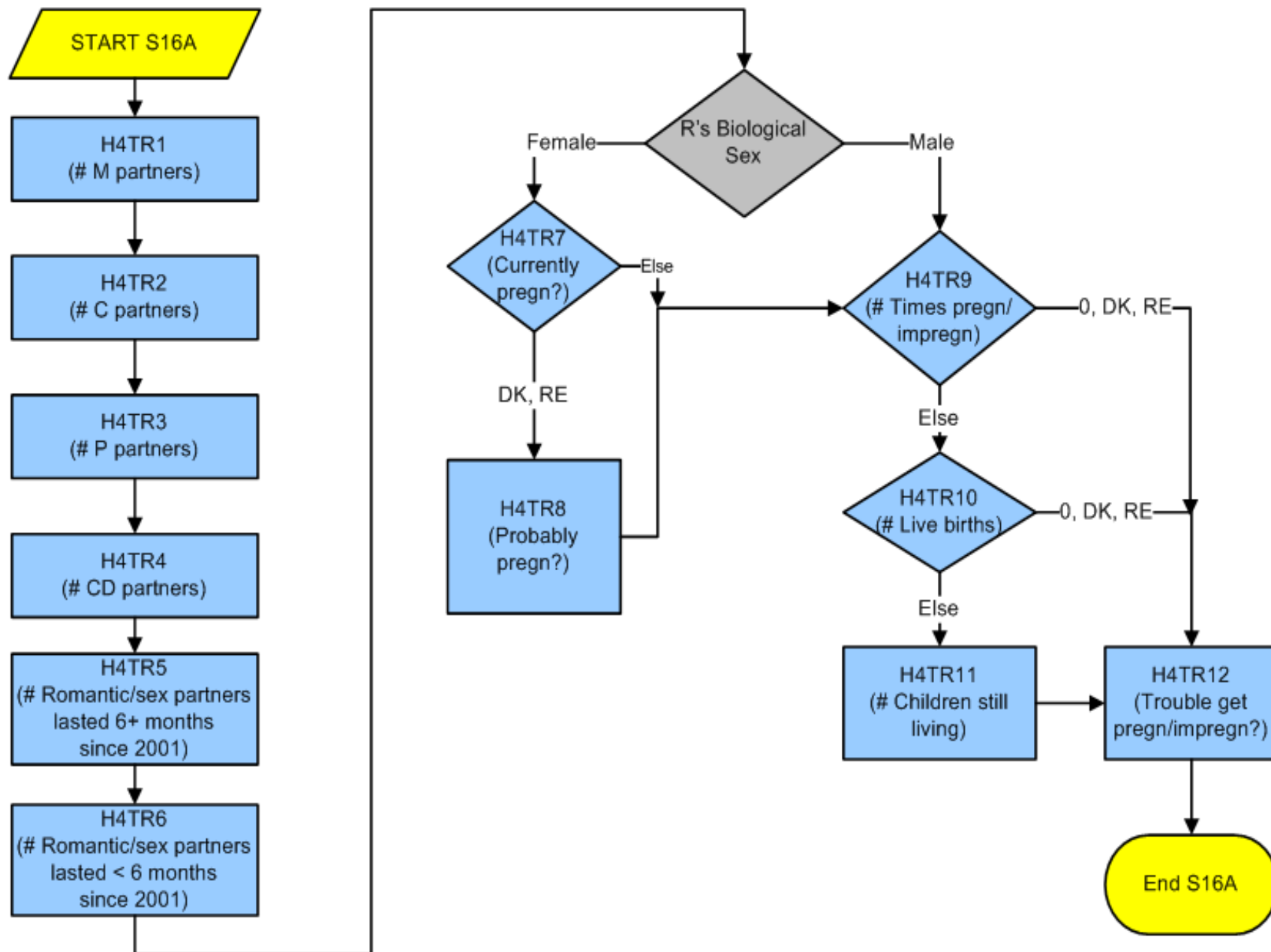
- **Unit of Analysis** – Respondent (N=15,701)
- **Record ID:** AID
- **Contents:**
  - # Persons ever married ('M' partners)
  - # Persons ever lived with but not married ('C' partners)
  - # Persons ever had a pregnancy with besides 'M' and 'C' partners ('P' partners)
  - # Persons currently dating besides 'M', 'C', and 'P' partners ('CD' partners)
  - # Other relationships < 6 months since 2001
  - # Other relationships 6+ months since 2001

## Wave IV Romantic/Sexual Relationships

*S16A: R's description of total no. of relationships, pregnancies, live births, children still living (Cont.)*

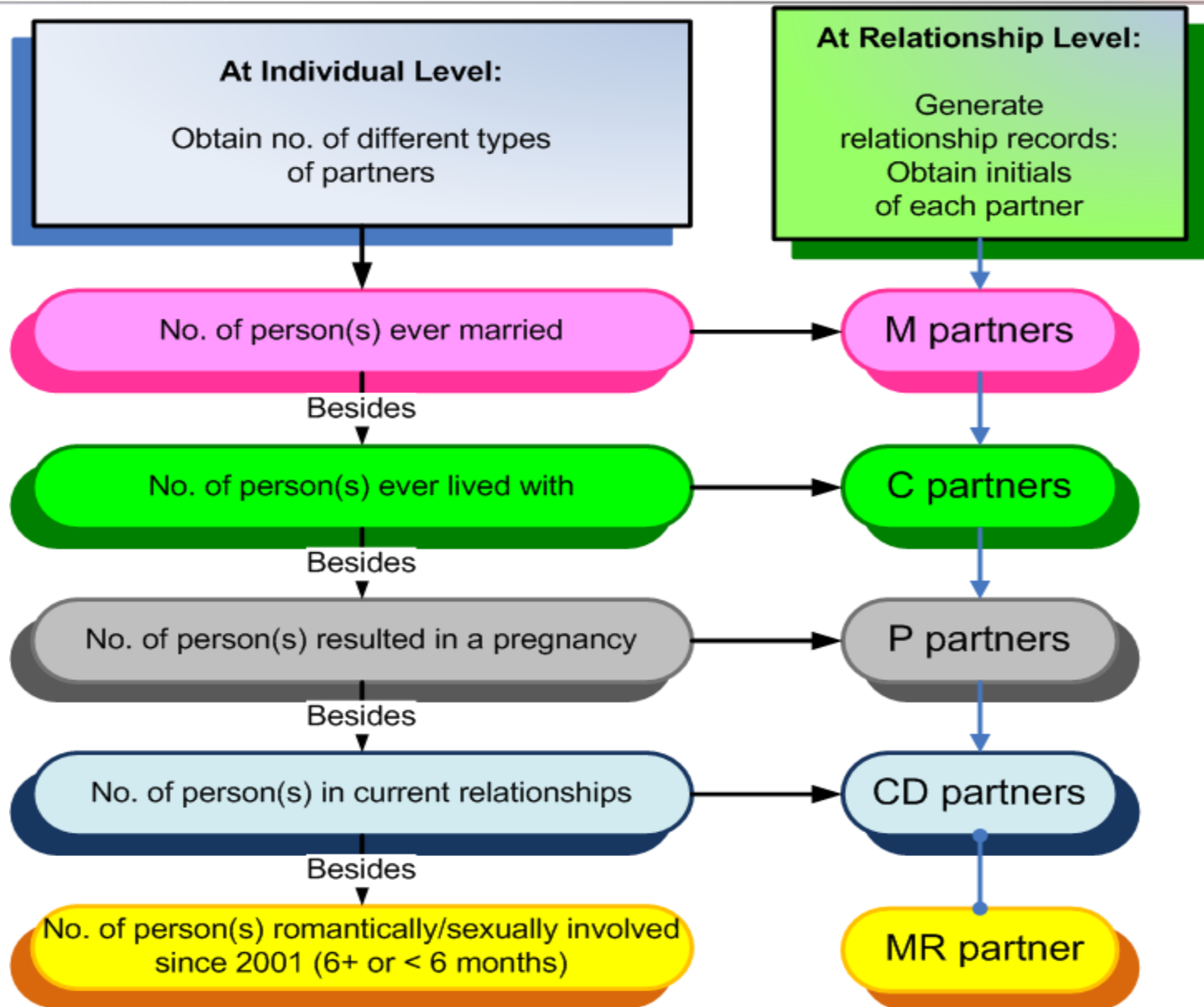
- **Contents:**
  - {For **female** Rs} Currently pregnant?
  - Total # (life-time) pregnancies (including current)
  - Total # (life-time) live births
  - Total # biological children still living
  - {For R and any partners} Ever trouble getting pregnant or avoid a miscarriage

# Section 16A: Relationships – Individual Level





# Wave IV Hierarchical Data Structure of Individual, Relationship, Pregnancy, Live Birth, and Child Records

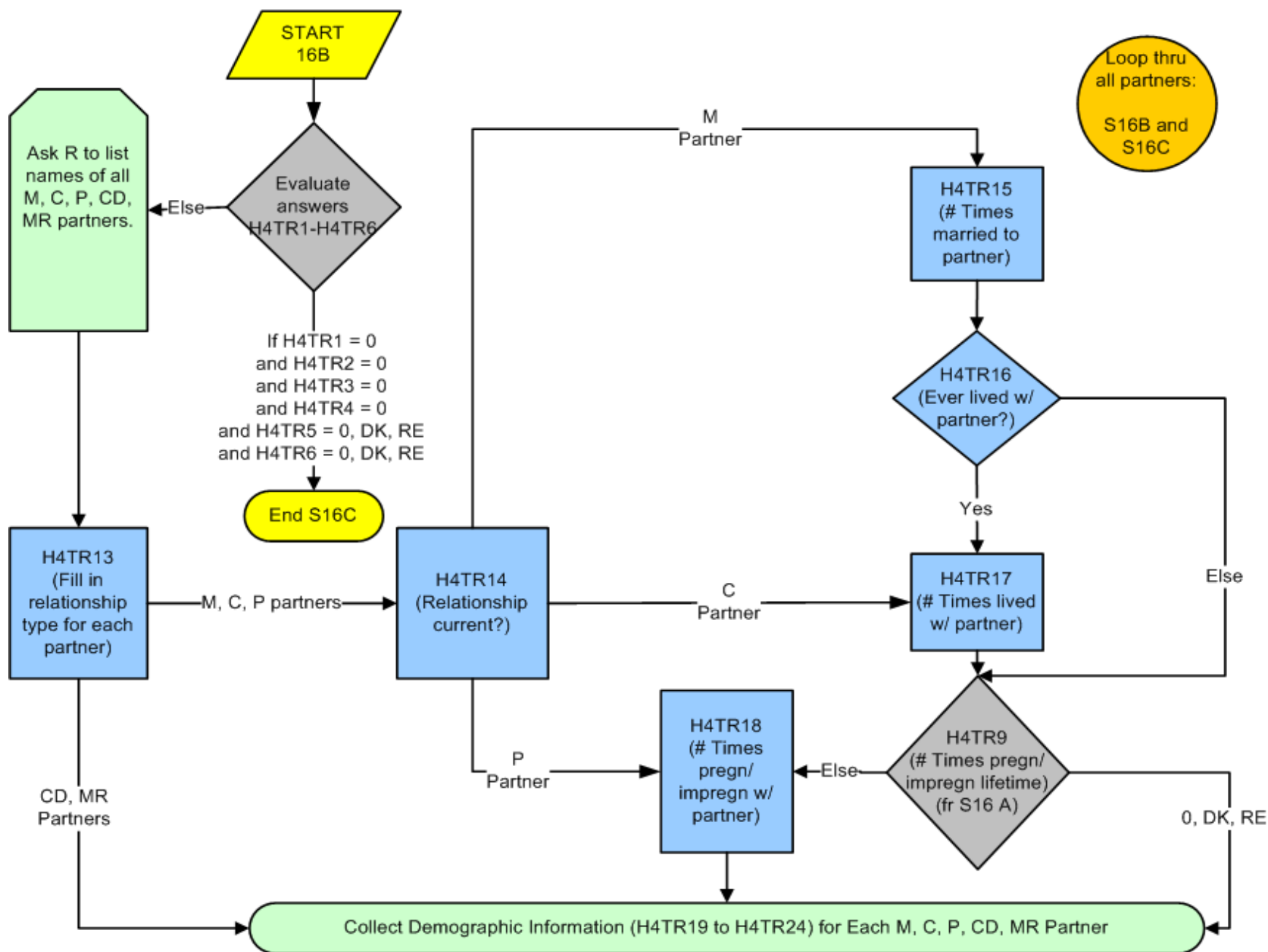


## Wave IV Romantic/Sexual Relationships

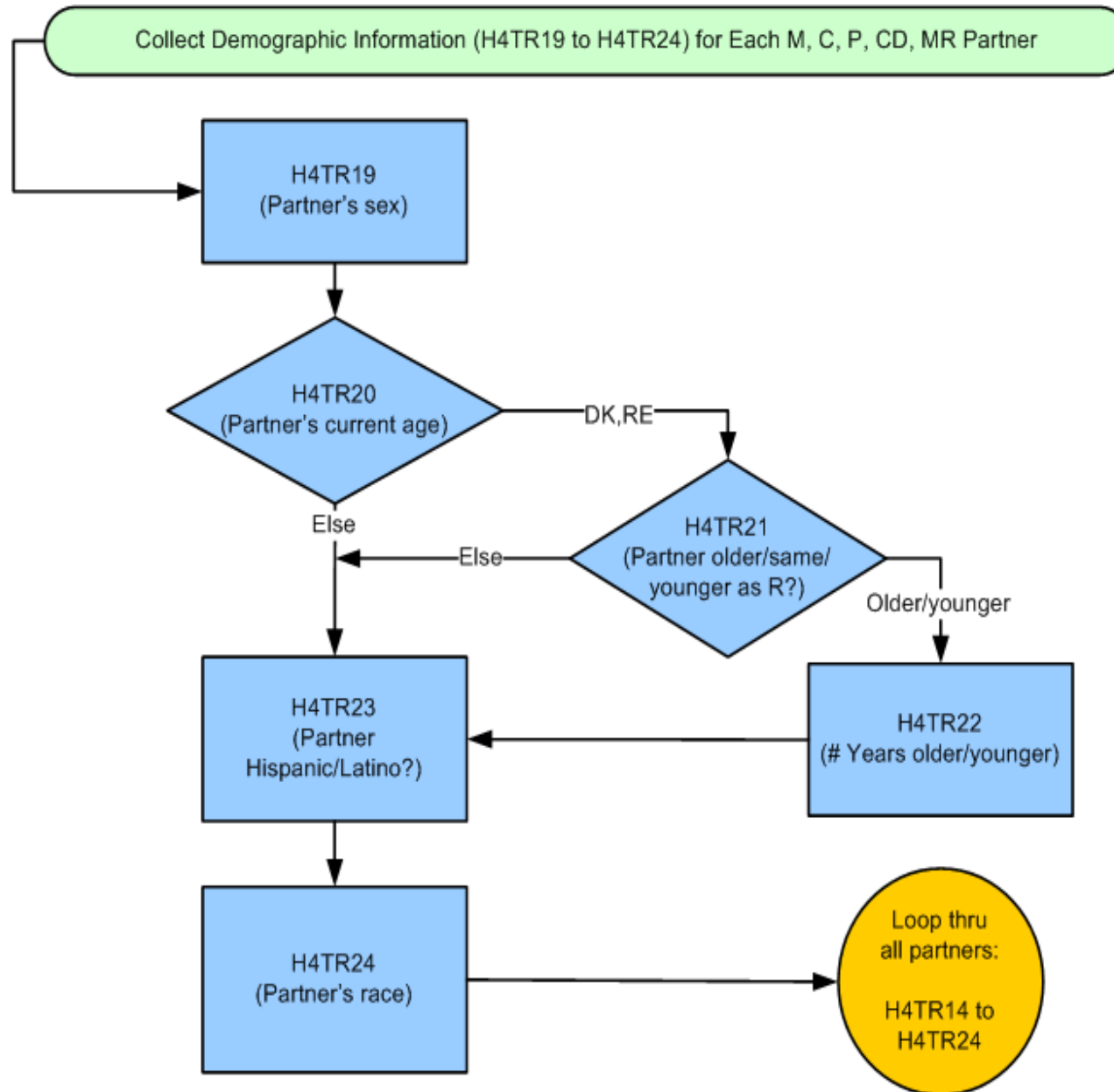
### *S16B: Relationship/Partner characteristics*

- **Unit of Analysis** – Partners (N=30,263)
- **Record ID:** AID + PTNR\_ID
- **Contents:**
  - Type of relationship listed with R ('M', 'C', 'P', 'CD', 'MR' partner)
  - Relationship current?
  - # Times married to partner ('M')
  - Ever lived together? ('M')
  - # Times lived together with partner ('M', 'C')
  - # Times pregnant with partner ('M', 'C', 'P')
  - Partner's biological sex, age, Hispanic background, and race.

# Section 16B: Relationships – Partner Level



## Section 16B: Relationships – Partner Level (Cont.)



## Wave IV Romantic/Sexual Relationships

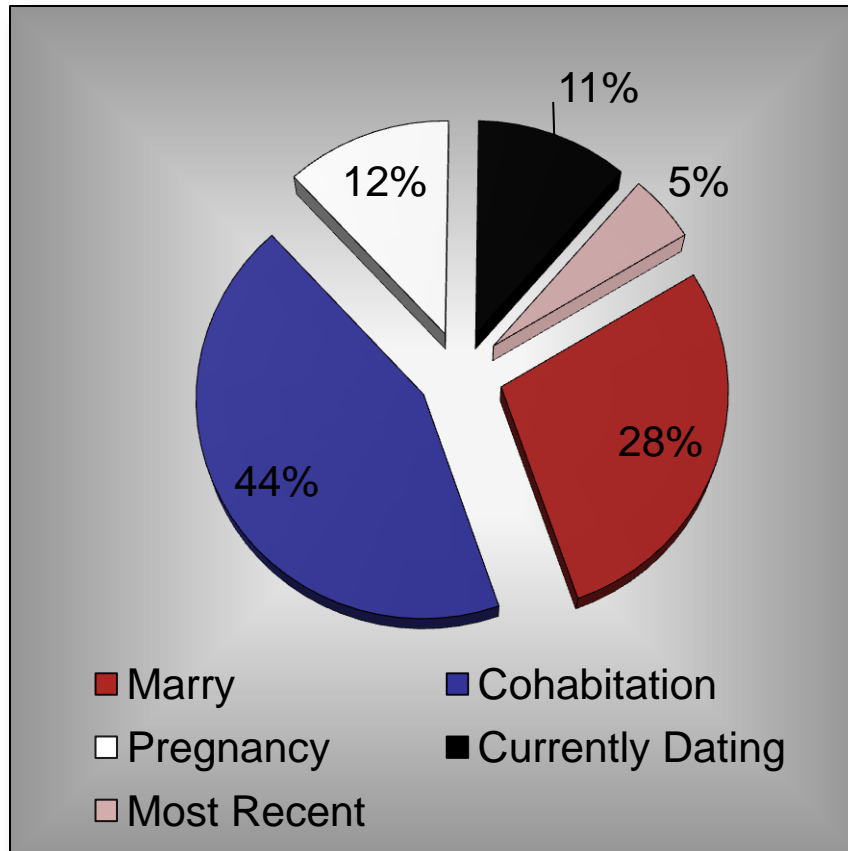
### *S16B: Relationship/Partner characteristics*

- Among 15,701 respondents, 2.5% did not report any partner records in S16B.

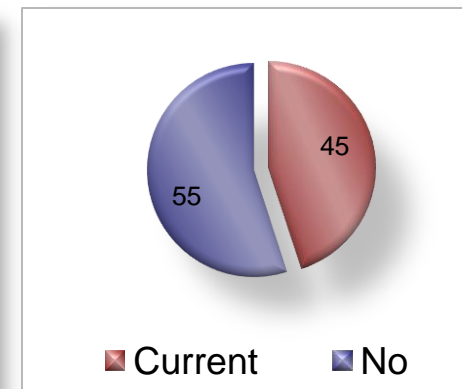
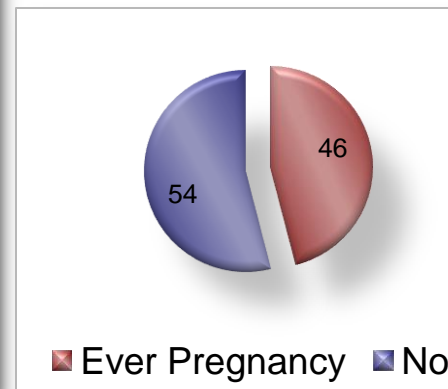
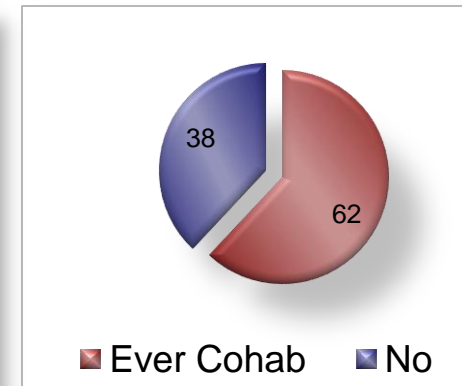
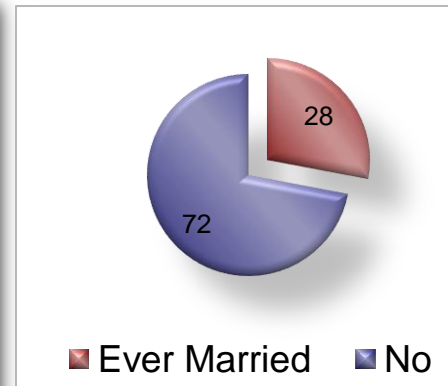


# Wave IV Hierarchical Data Structure of Individual, Relationship, Pregnancy, Live Birth, and Child Records

Relationship Type (H4TR13)



Among all relationships, percent ...





## Wave IV Romantic/Sexual Relationships

### *S16C: Relationship Time-segments*

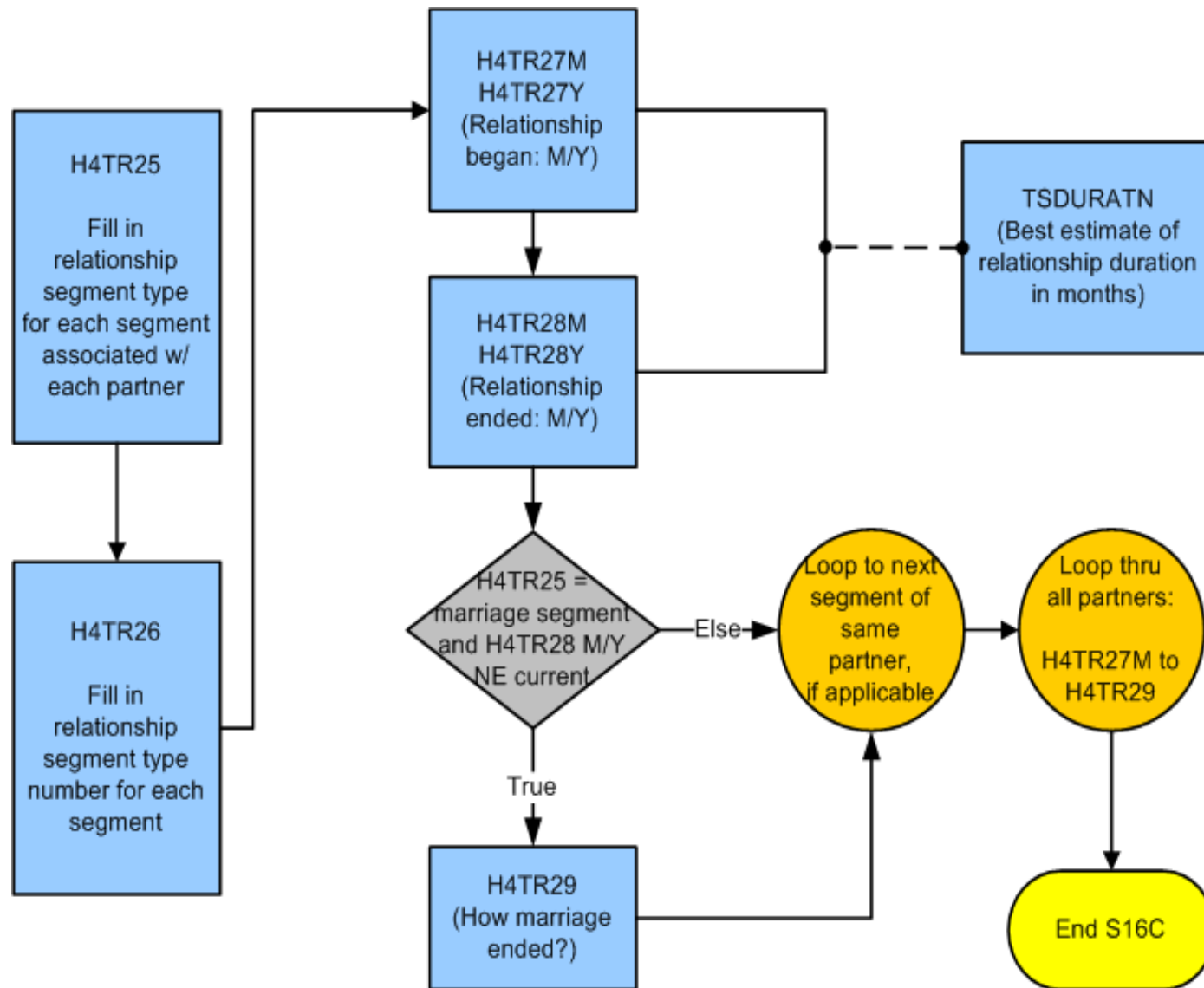
- **Unit of Analysis** – Time-segment (N=36,133)
- **Record ID:** AID + PTNR\_ID + H4TR25 + H4TR26
- **Contents:**
  - Type of relationship time-segment ('M', 'C', 'P', 'CD', 'MR') [H4TR25]
  - Time-segment number [H4TR26]
  - Relationship begin and end dates
  - Best estimate of relationship duration
  - How marriage ended

## Wave IV Romantic/Sexual Relationships

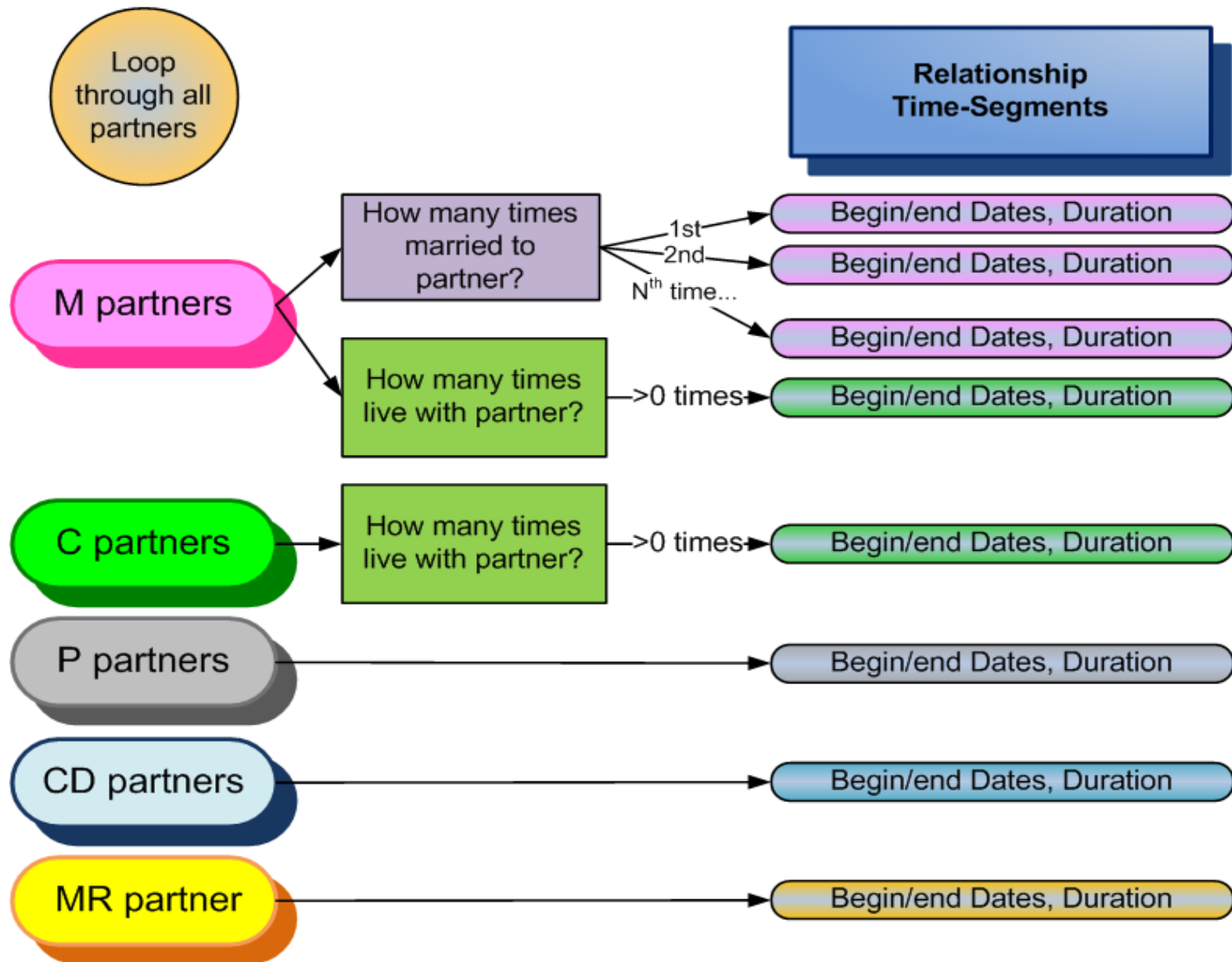
### *S16C: Relationship Time-segments*

Partner ID <i>PTNR_ID</i>	Partner Type <i>H4TR13</i>	Relationship Time-segment Type <i>H4TR25</i>	Time-segment number <i>H4TR26</i>
1	M	M (1 <sup>st</sup> time )	1=1 <sup>st</sup> time
		M (2 <sup>nd</sup> time)	2=2 <sup>nd</sup> time
2	M	M(1 <sup>st</sup> time)	1=1 <sup>st</sup> time
		C	8=All
3	C	C	8=All
4	P	P	8=All
5	CD	CD	8=All

# Section 16C: Relationships – Time-segment Level



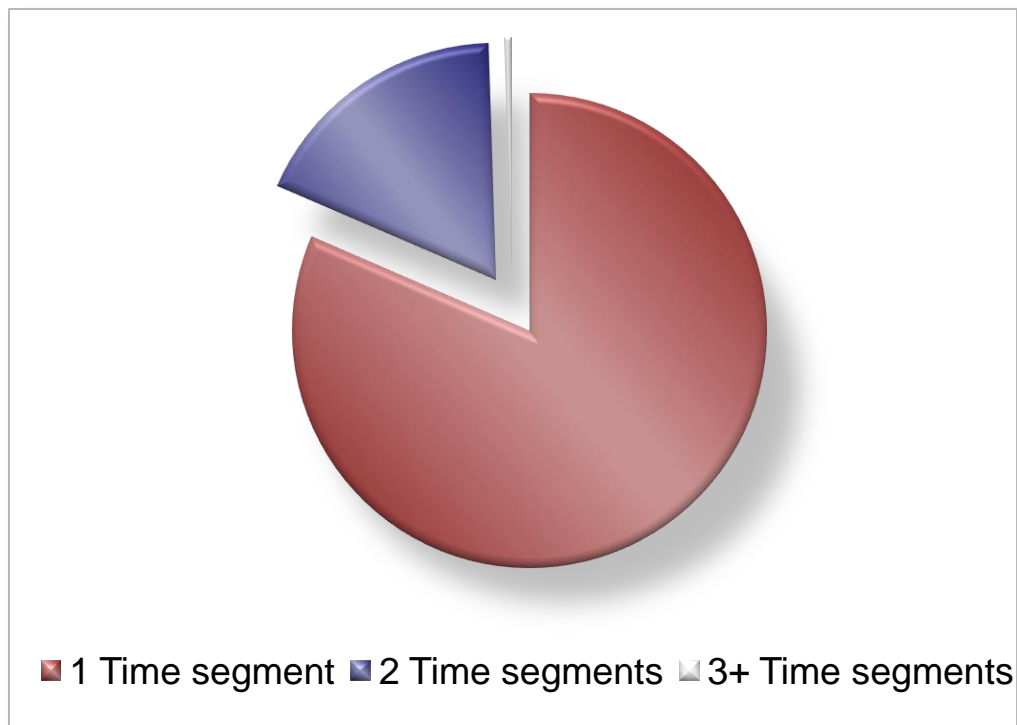
# Wave IV Hierarchical Data Structure: Relationship and Relationship Time-Segments



## Wave IV Romantic/Sexual Relationships

### *S16B: Relationship/Partner characteristics*

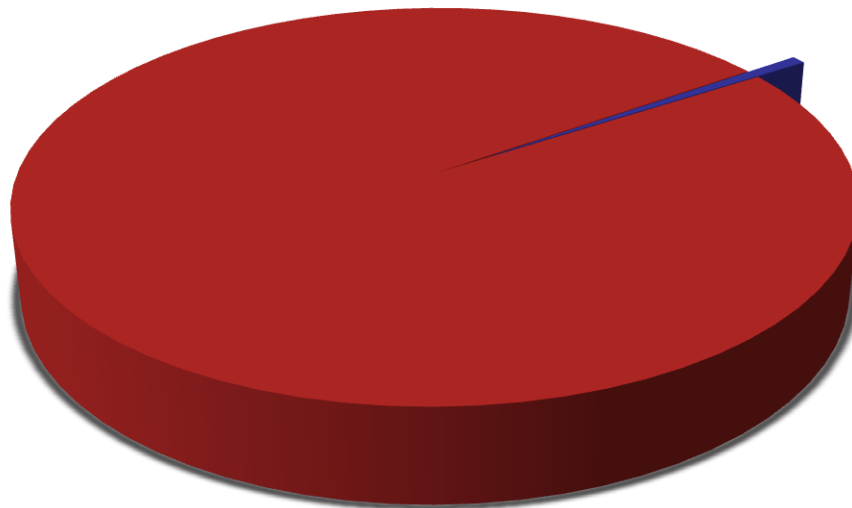
- Among 30,263 partner records, 81% link to 1 time-segment in S16C; 19% to 2 segments; only a few to 3 or more.



## Wave IV Romantic/Sexual Relationships

### *S17: Relationship in Detail*

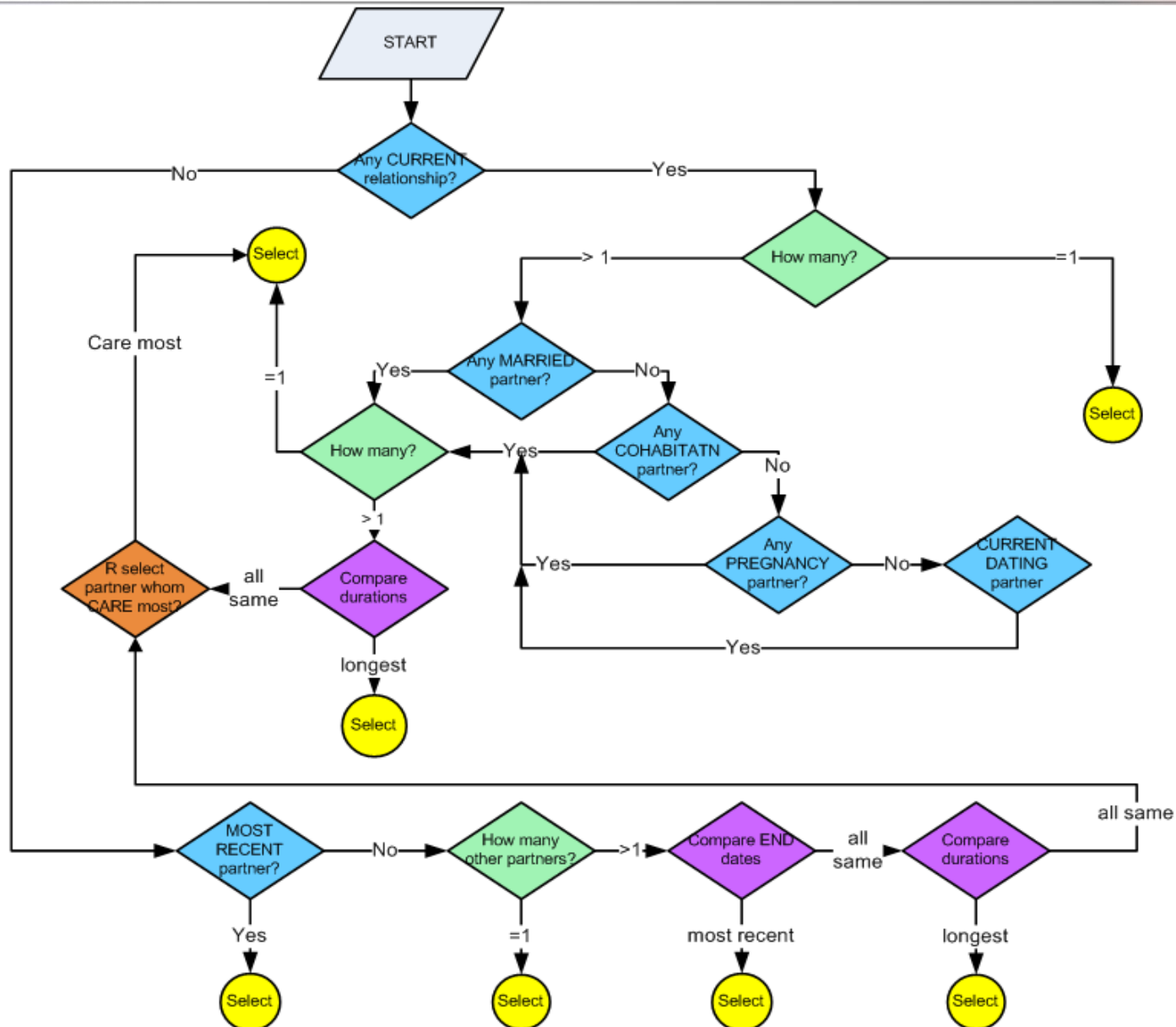
- Among 15,315 respondents who have at least 1 partner record in S16B, 15,216 of them have given details on 1 partner in S17.



■ With details ■ No detail



# Criteria to Choose 1 Partner among All Reported For Gathering Detailed information in S17



## Wave IV Romantic/Sexual Relationships

### *S17: Relationship in Detail*

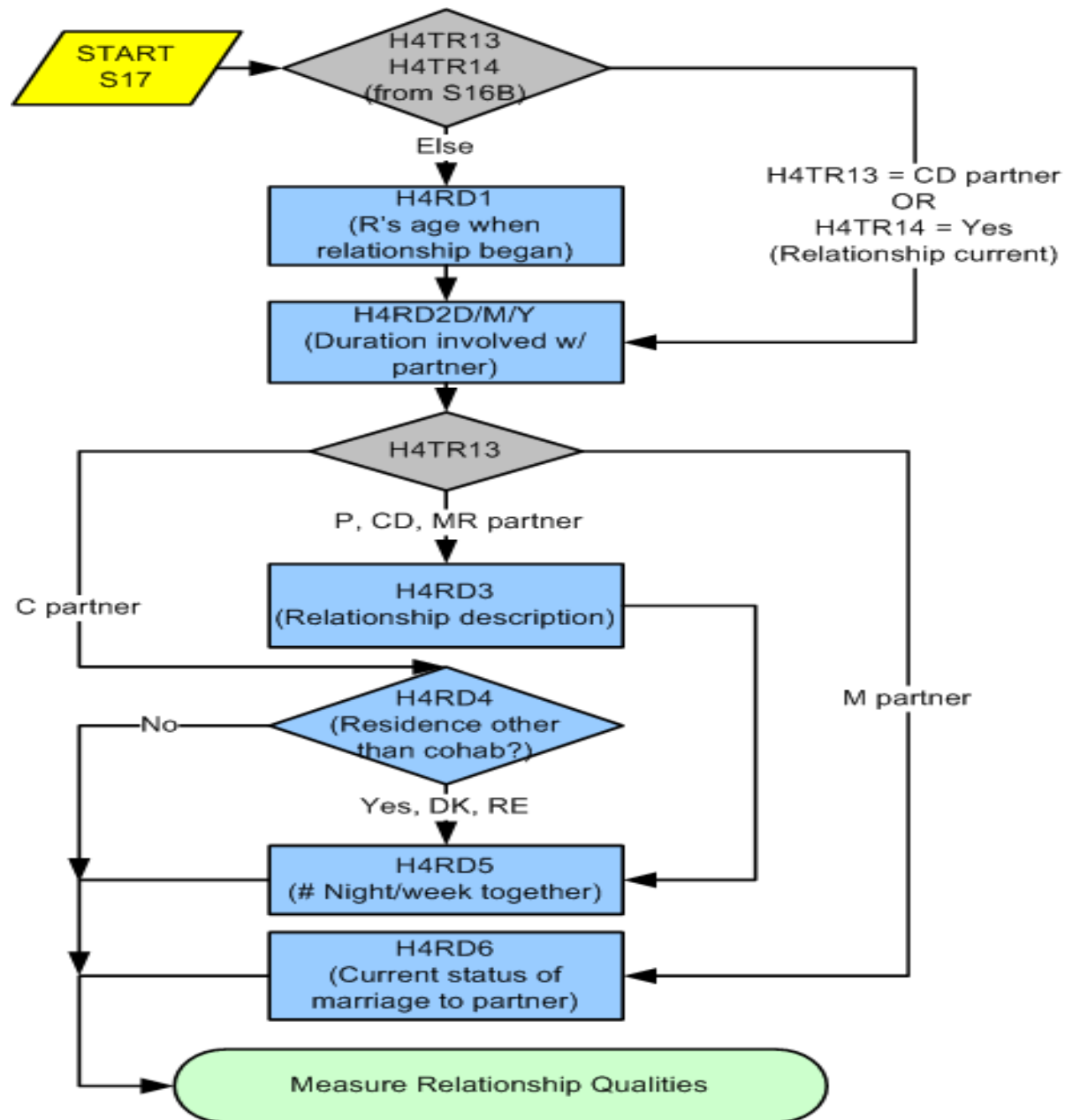
- **Unit of Analysis** – Partner (N=15,216)
- **Record ID:** AID + PTNR\_ID
- **Contents:**
  - Age when relationship began
  - Duration involved current partner
  - Relationship description
  - Home other than the one cohabiting
  - # nights together
  - Current marital status to partner
  - Relationship qualities (enjoy ordinary things, handling problems, finances, partner listens, sex life, trust partner, love for partner, happy w/ partner, commitment)

## W4 Romantic/Sexual Relationships

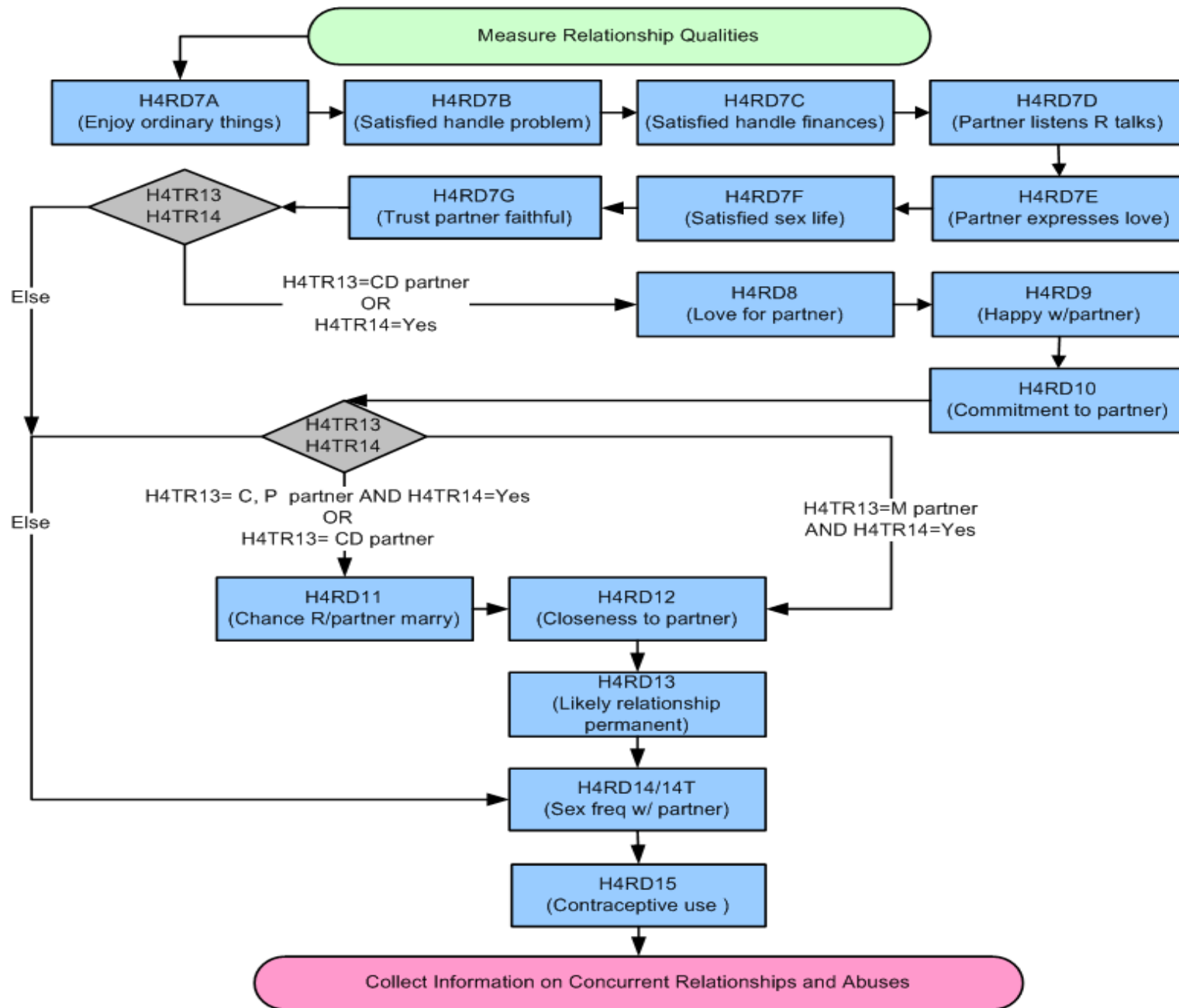
### *S17: Relationship in Detail*

- **Contents: (Cont.)**
  - Chance marrying partner
  - Closeness to partner
  - Likelihood relationship permanent
  - Frequency of sexual activities
  - Contraceptives use
  - On both R's and Partner's side:
    - ☐ Concurrent partner?
    - ☐ Any violence?
    - ☐ Slap/hit/kick ?
    - ☐ Injured?
    - ☐ Forced sex?

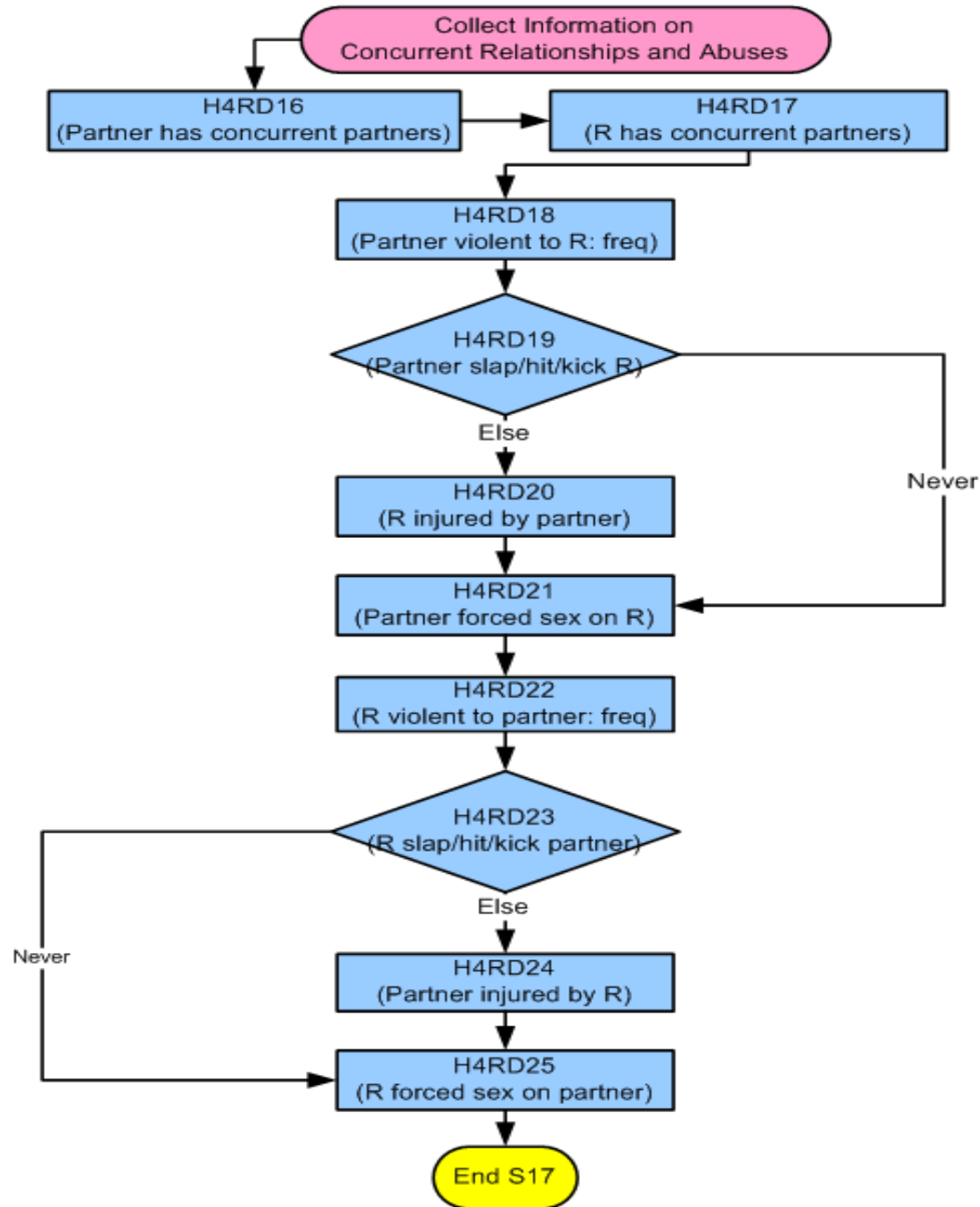
## Section 17: Relationship in Detail



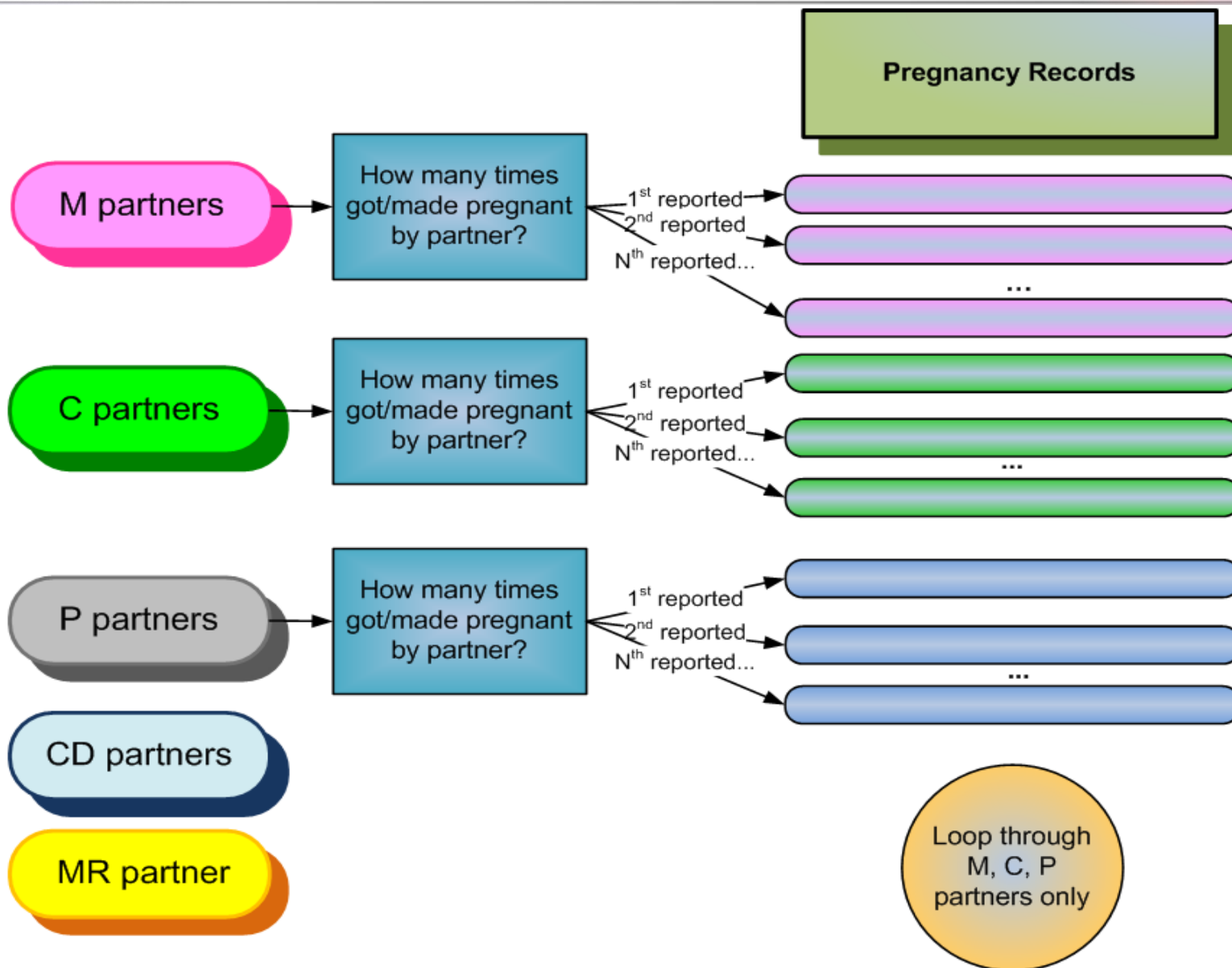
# Section 17: Relationship in Detail (Cont.)



## Section 17: Relationship in Detail (Cont.)



# Wave IV Hierarchical Data Structure: Relationship and Pregnancy Records





## Wave IV Fertility History

### *S18 Pregnancy Table*

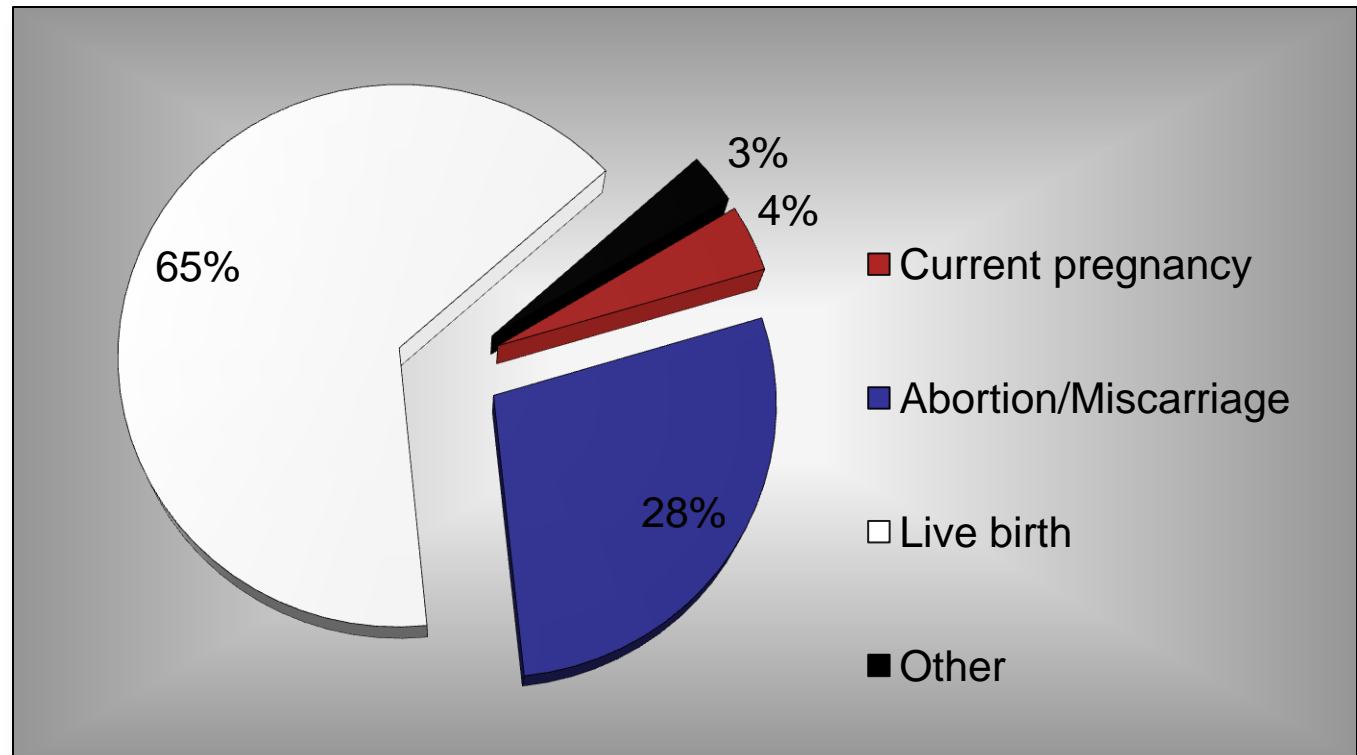
- **Unit of Analysis** – Pregnancy (N=21,966)
- **Record ID:** AID + PTNR\_ID + PRGNO
- **Contents:** Pregnancy outcomes
  - ☐ Abortion
  - ☐ Ectopic/tubal pregnancy
  - ☐ Miscarriage
  - ☐ Still birth
  - ☐ Live birth (C-section)
  - ☐ Live birth (vaginal delivery)
  - ☐ Pregnancy not ended.

## Wave IV Fertility History

### *S18 Pregnancy Table*

#### **Contents:** Pregnancy outcomes

- 4% current pregnancy; 28% abortion/miscarriage; 65% live birth; 3% other

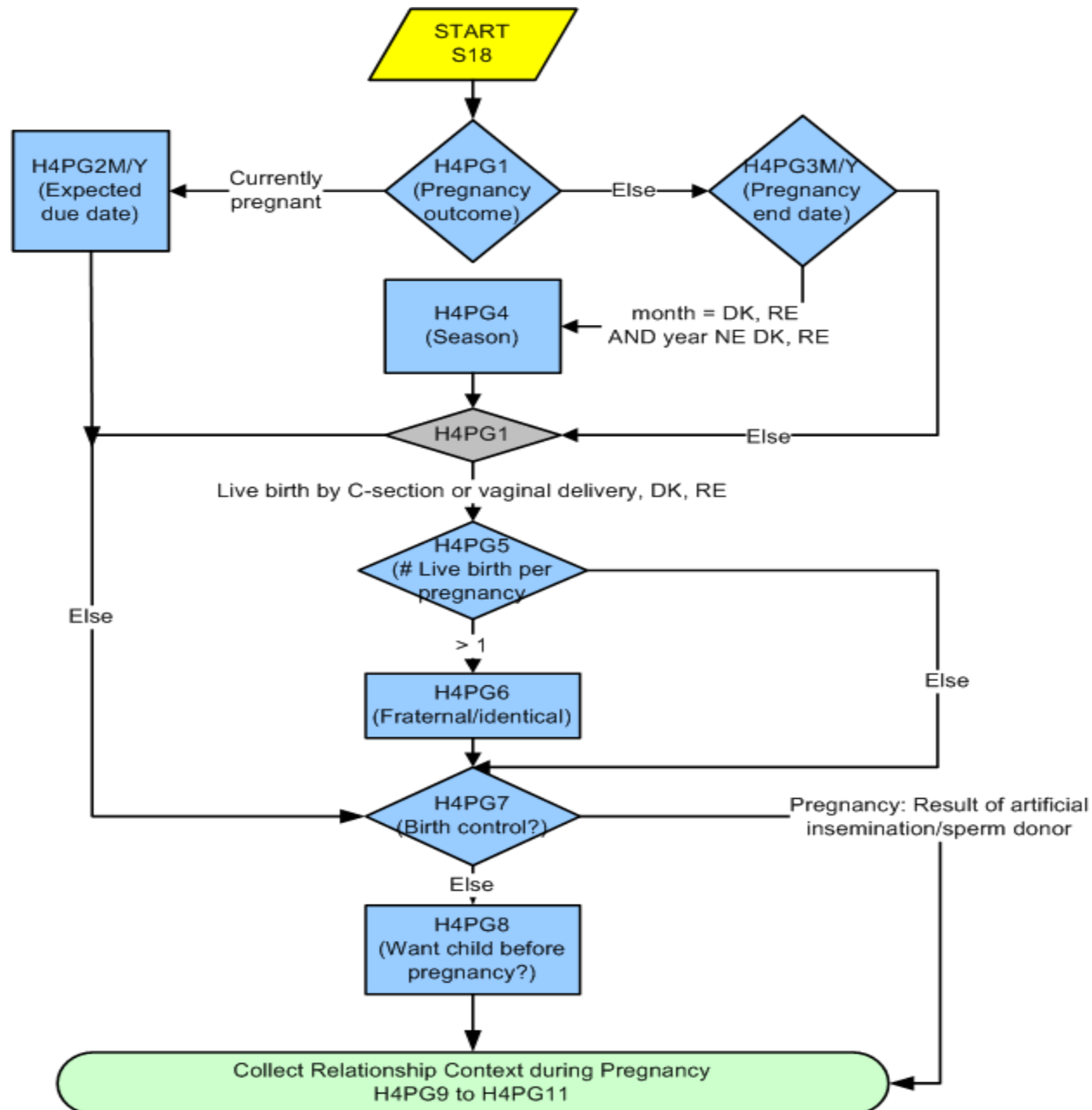


## Wave IV Fertility History

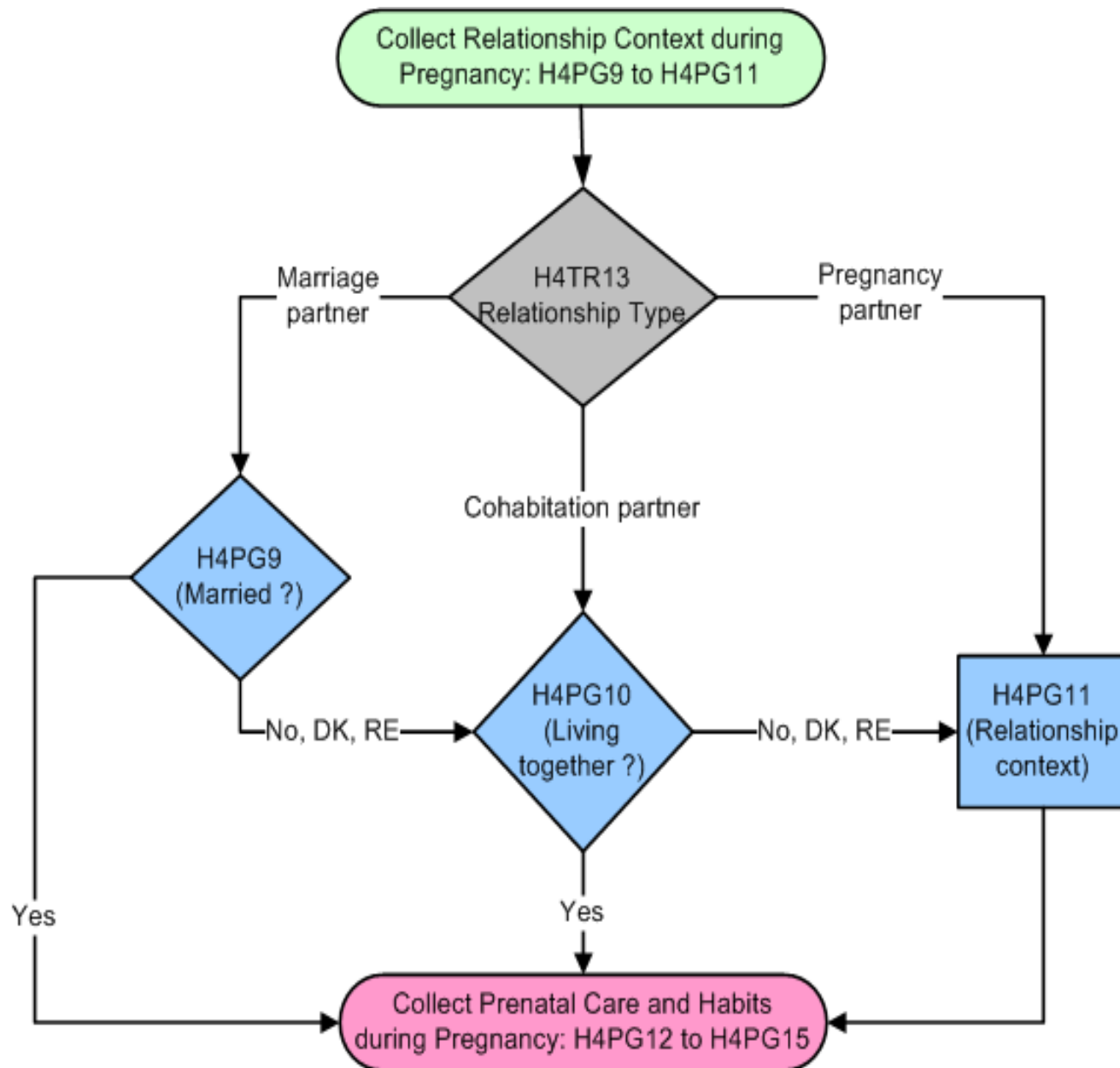
### *S18 Pregnancy Table (Cont.)*

- **Contents:**
  - Pregnancy end/due dates
  - # live birth(s) per pregnancy
  - Babies fraternal/identical?
  - Birth control use prior to pregnancy
  - Want child then?
  - Relationship context at pregnancy/birth
  - R/partner went to prenatal care together; # weeks pregnant at 1<sup>st</sup> visit
  - Drinking and smoking habits during pregnancy

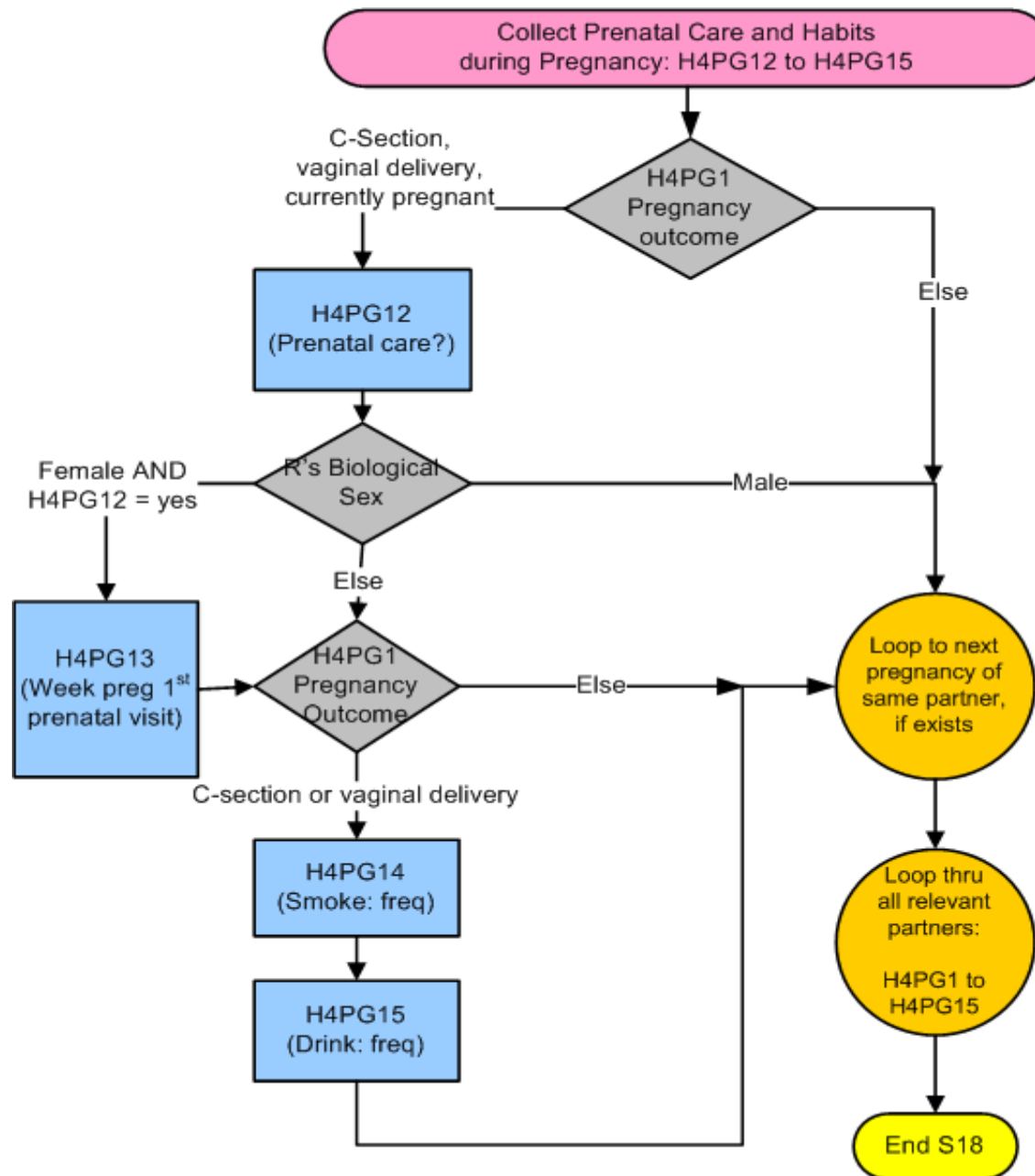
# Section 18: Pregnancy Table



## Section 18: Pregnancy Table (Cont.)

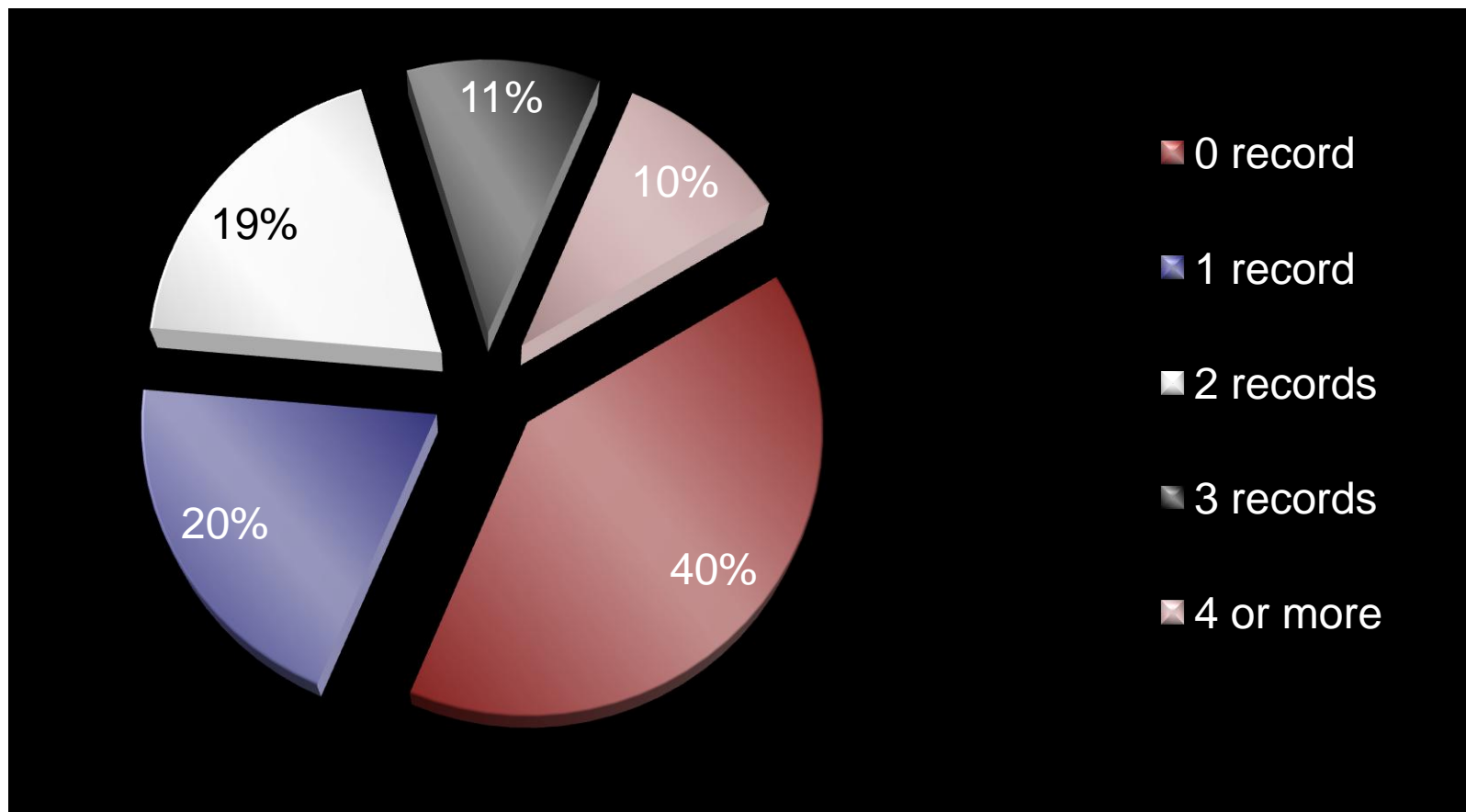


## Section 18: Pregnancy Table (Cont.)



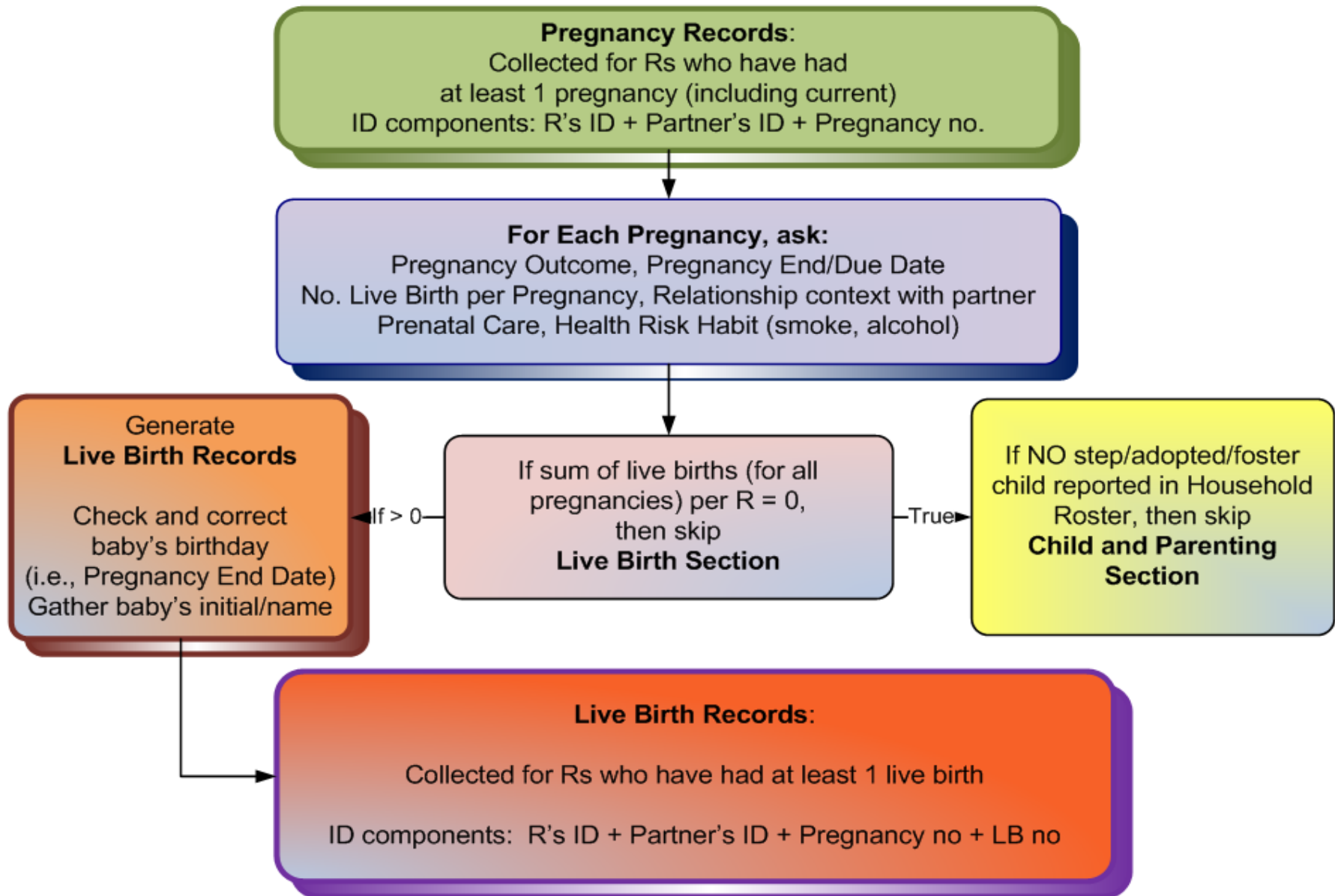
## Wave IV Fertility History

Among 15,701 respondents, 40% reported no pregnancy record in S18; 20% reported 1 pregnancy record; 19% reported 2 records; 11% reported 3 records, and less than 10% reported 4 or more.





# Wave IV Hierarchical Data Structure: Pregnancy and Live Birth Records



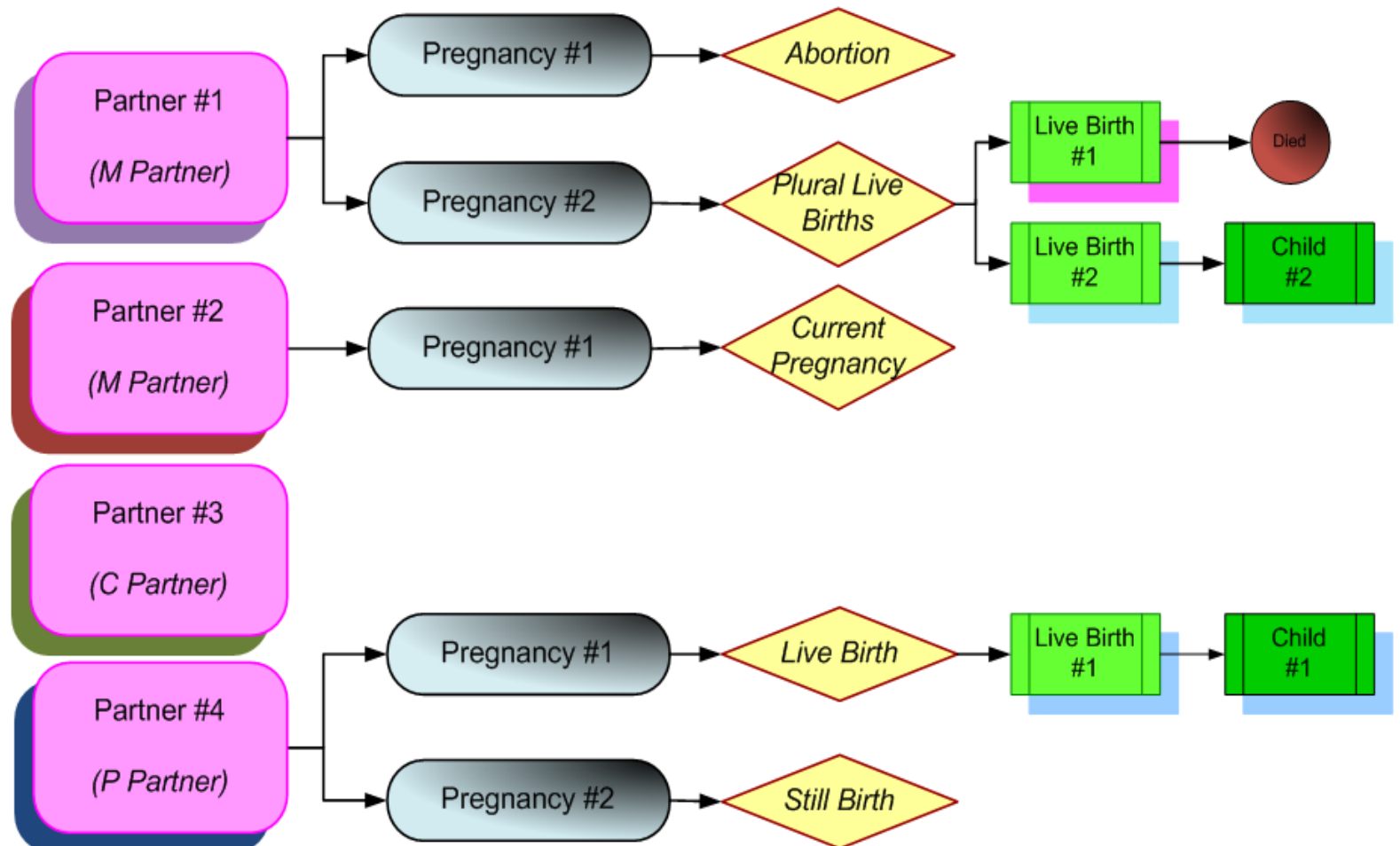
# Wave IV Hierarchical Data Structure: Pregnancy, Live Birth, and Child Records

Partner Level

Pregnancy Level

Live Birth Level

Child Level

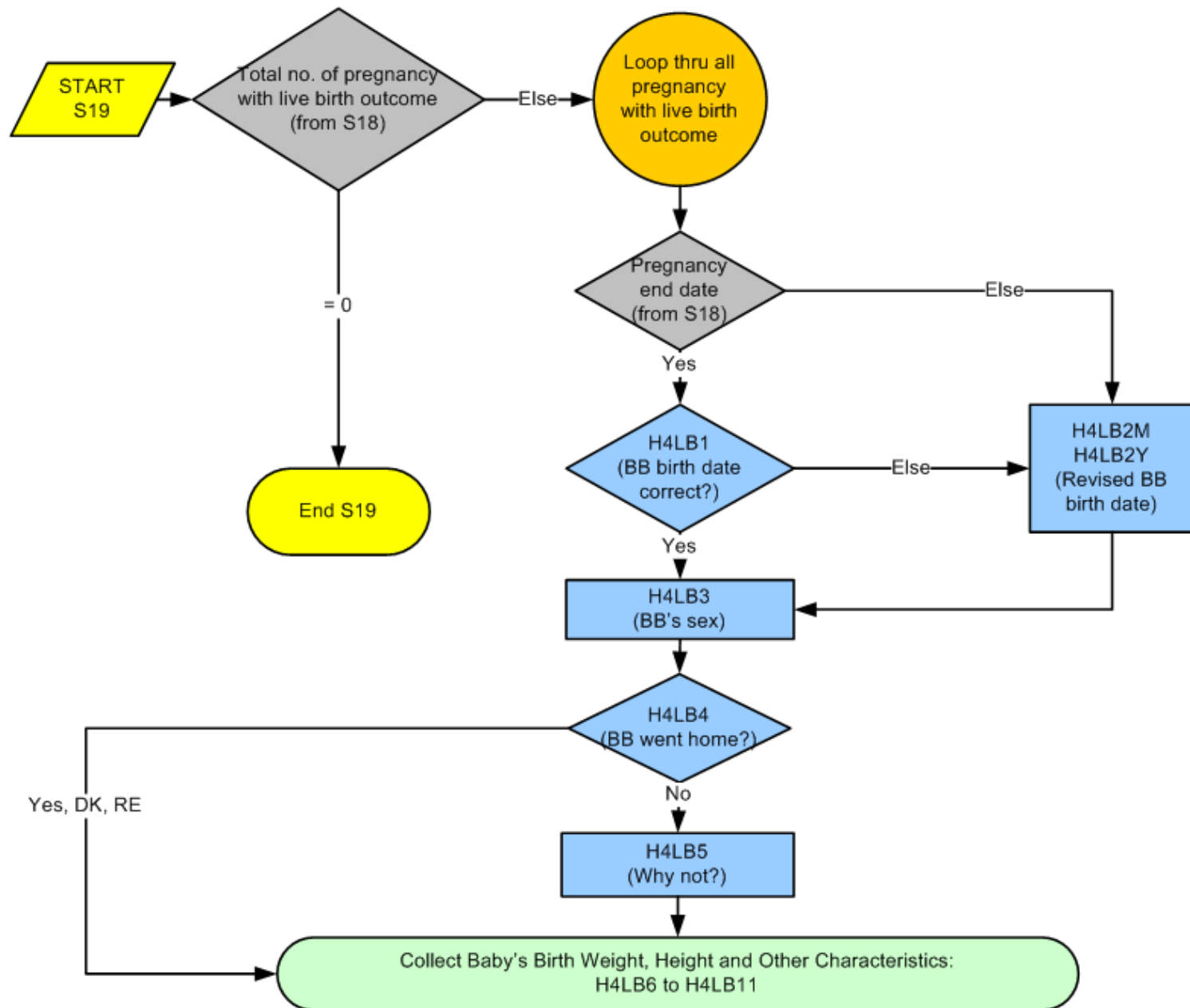


## Wave IV Fertility History

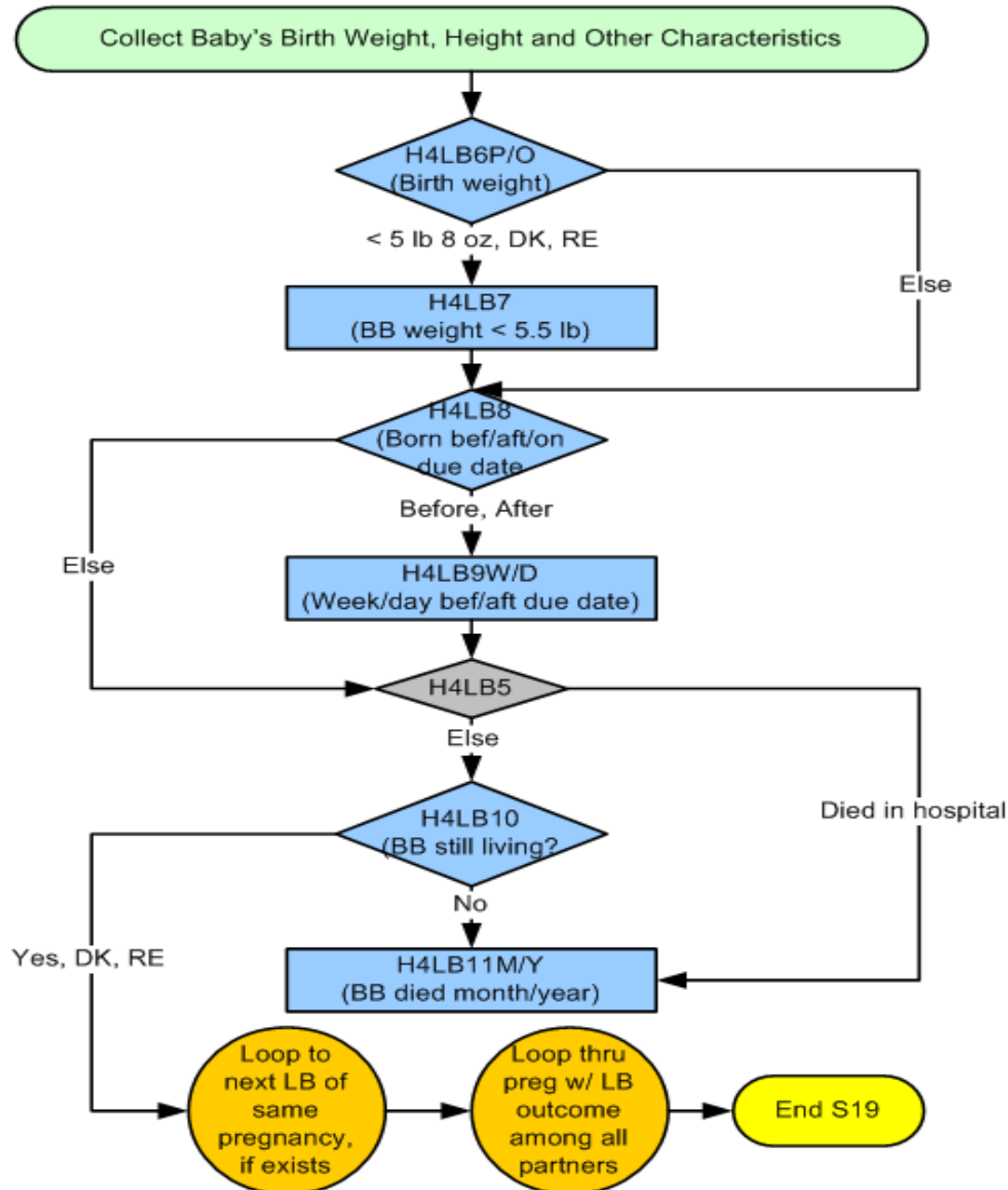
### *S19 Live Births*

- **Unit of Analysis** – Live birth (N=14,749)
- **Record ID:** AID + PTNR\_ID + PRGNO + LBNO
- **Contents:**
  - Confirm baby's birth date; corrected birth date
  - Baby's biological sex
  - Baby went home; Why not?
  - Birth weight
  - Born before/on/after due date? # weeks/days before/after
  - Still living; When died?

## Section 19: Live Births

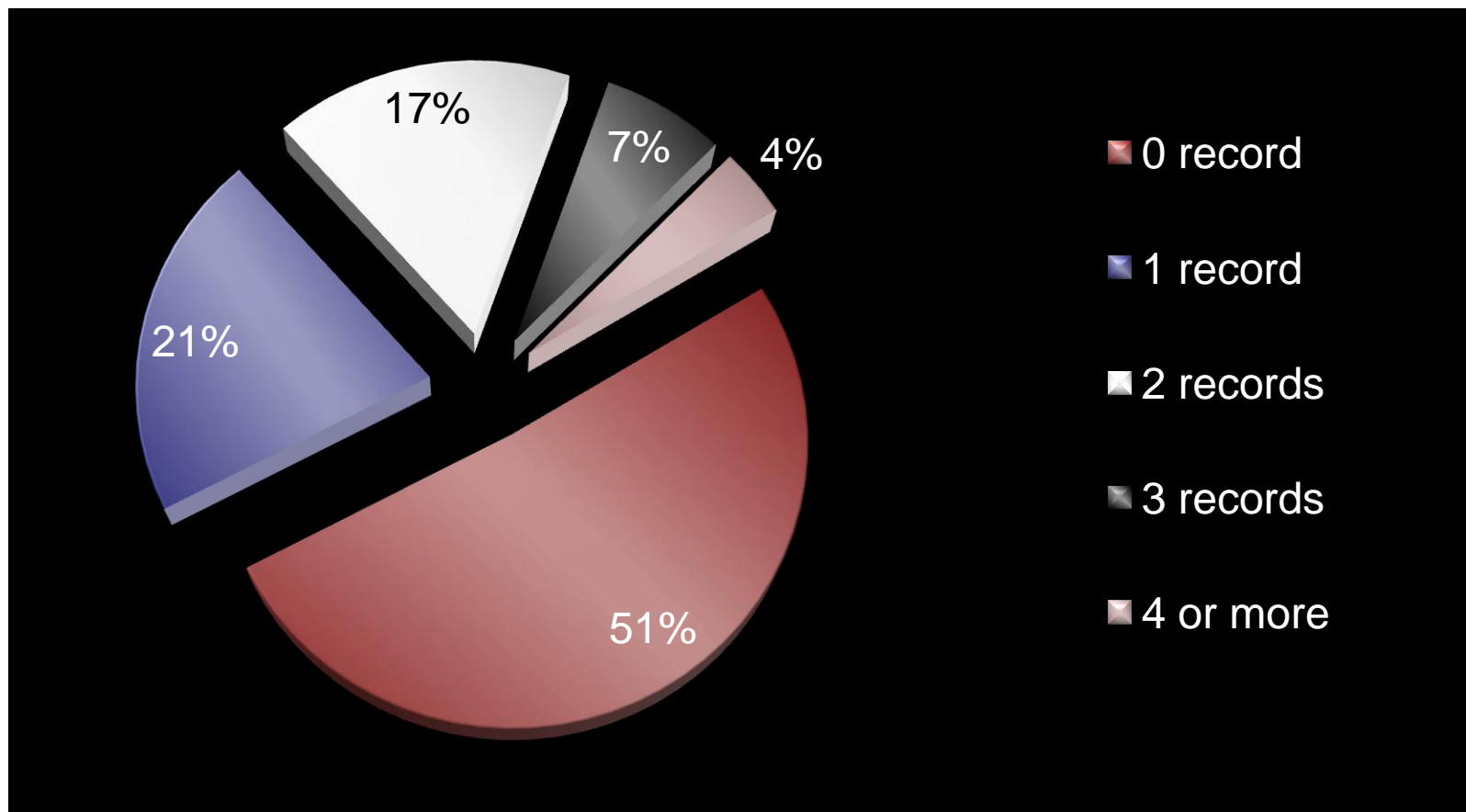


## Section 19: Live Births (Cont.)

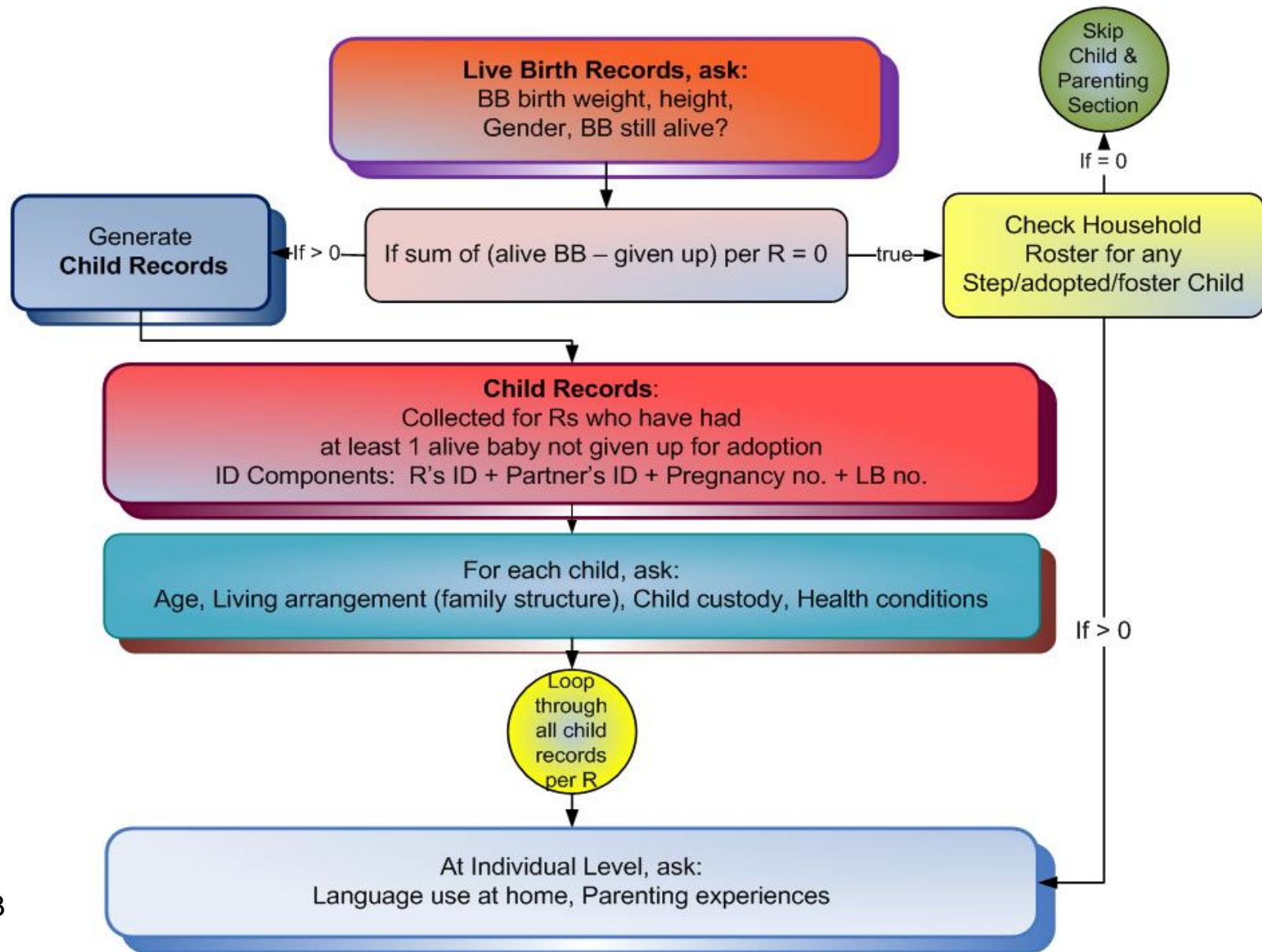


## Wave IV Fertility History

Among 15,701 respondents, 51% reported no live birth record; 21% reported 1 record; 17% reported 2; 7% reported 3; less than 4% reported 4 or more.



# Wave IV Hierarchical Data Structure: Live Birth and Child Records





## Wave IV Fertility History

### *S20 Children and Parenting: Part A*

- **Unit of Analysis** – Child (N=14,553)
- **Record ID:** AID + PTNR\_ID + PRGNO + LBNO
- **Contents:**
  - How old?
  - Child lives with R; Ever?
    - ☐ Last date living together
    - ☐ With whom child lives with
    - ☐ Distance
    - ☐ How often R see child?
  - R lives with partner?
    - ☐ If not, distance

## **Wave IV Fertility History**

### *S20 Children and Parenting: Part A (Cont.)*

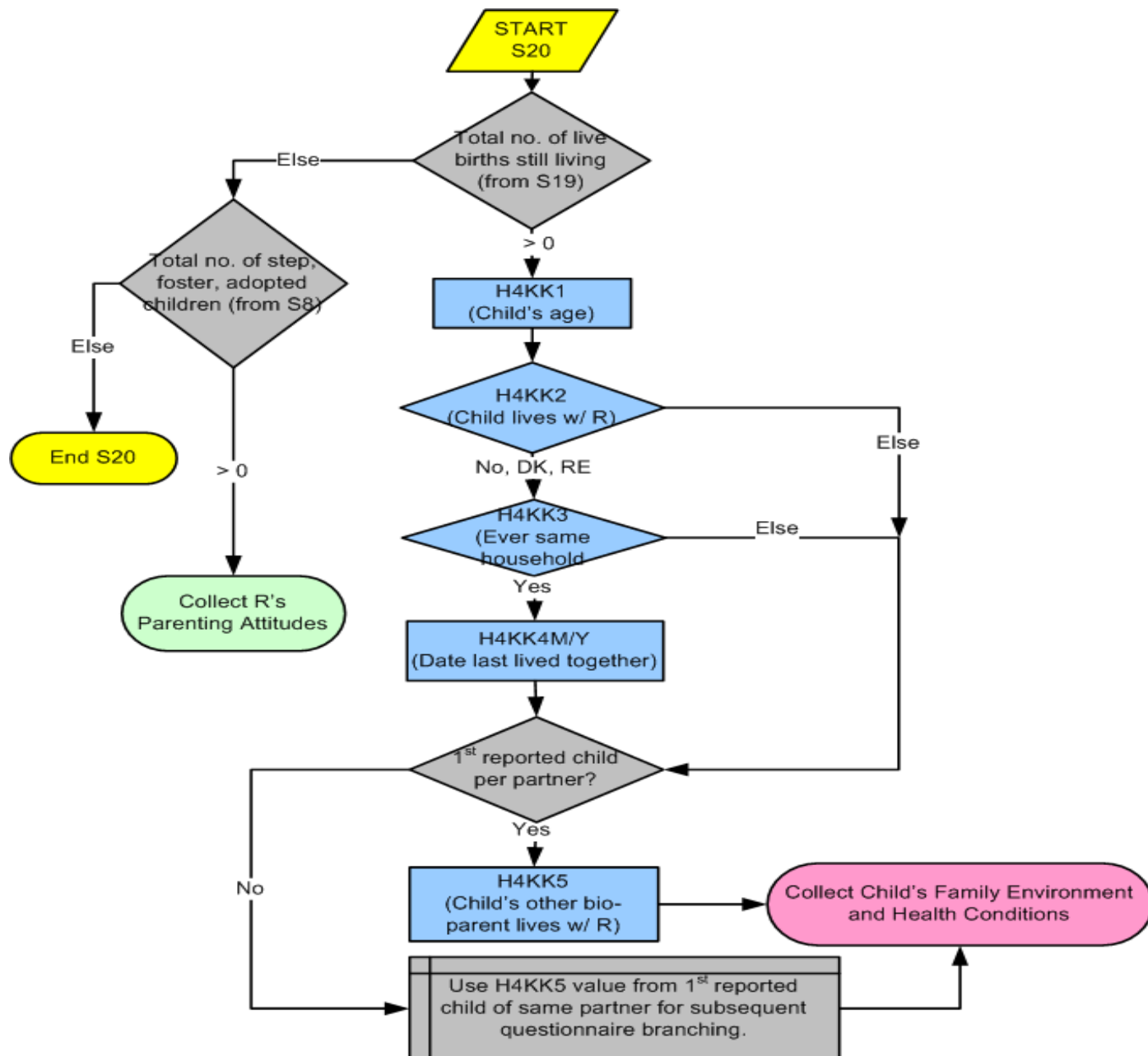
- **Contents: (Cont.)**
  - Any custody agreement?
  - How often partner see child?
  - Child's general health
  - Child's specific health problems?

## Wave IV Fertility History

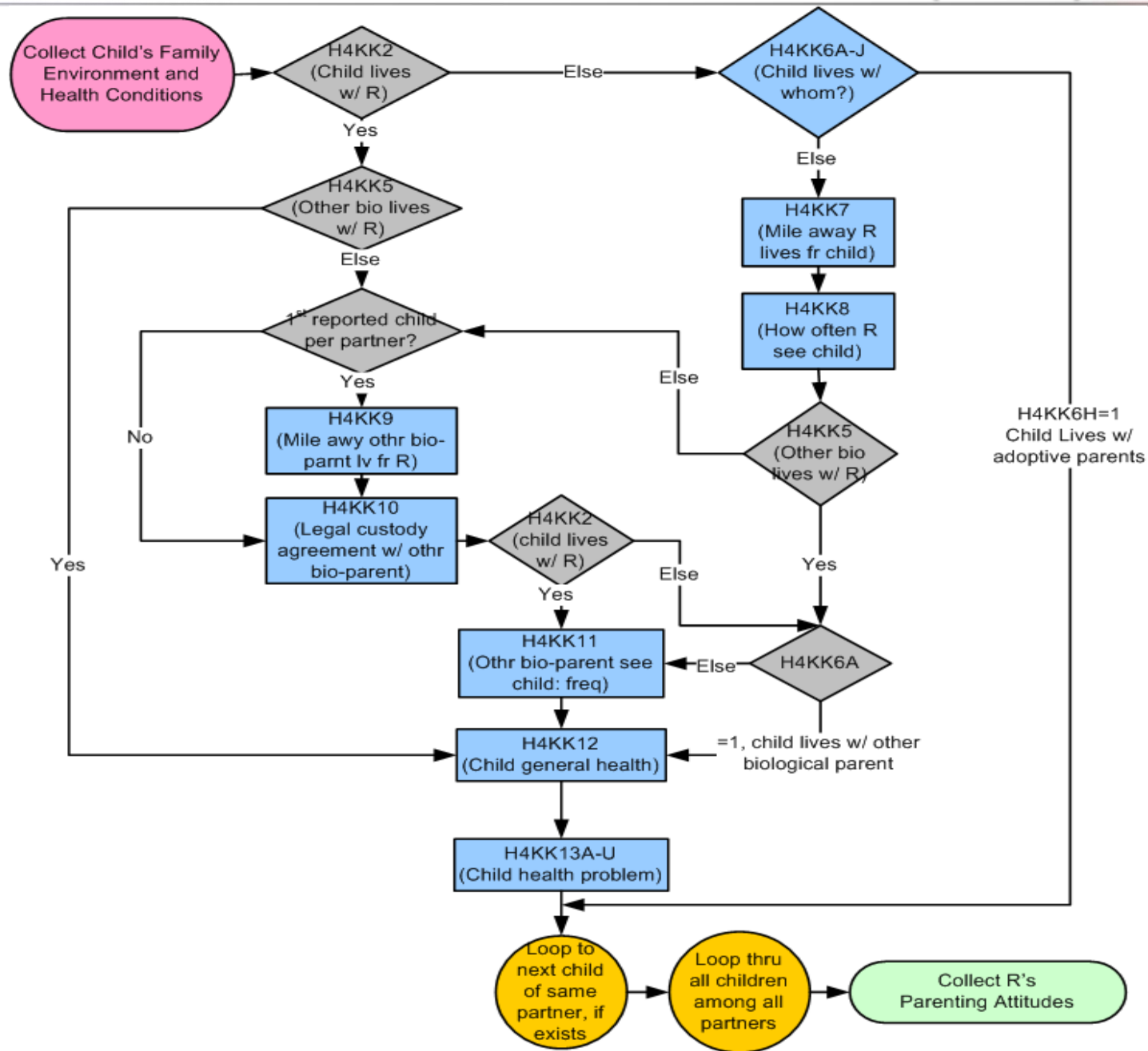
### *S20 Children and Parenting: Part B*

- **Unit of Analysis** – Respondent (N=7,877)
- **Record ID:** AID
- **Contents:**
  - Language speak to child(ren) at home
  - Happy in role as parent
  - R feels close to his/her child(ren)
  - Child(ren): major source of stress
  - R feels overwhelmed by responsibility of being a parent.

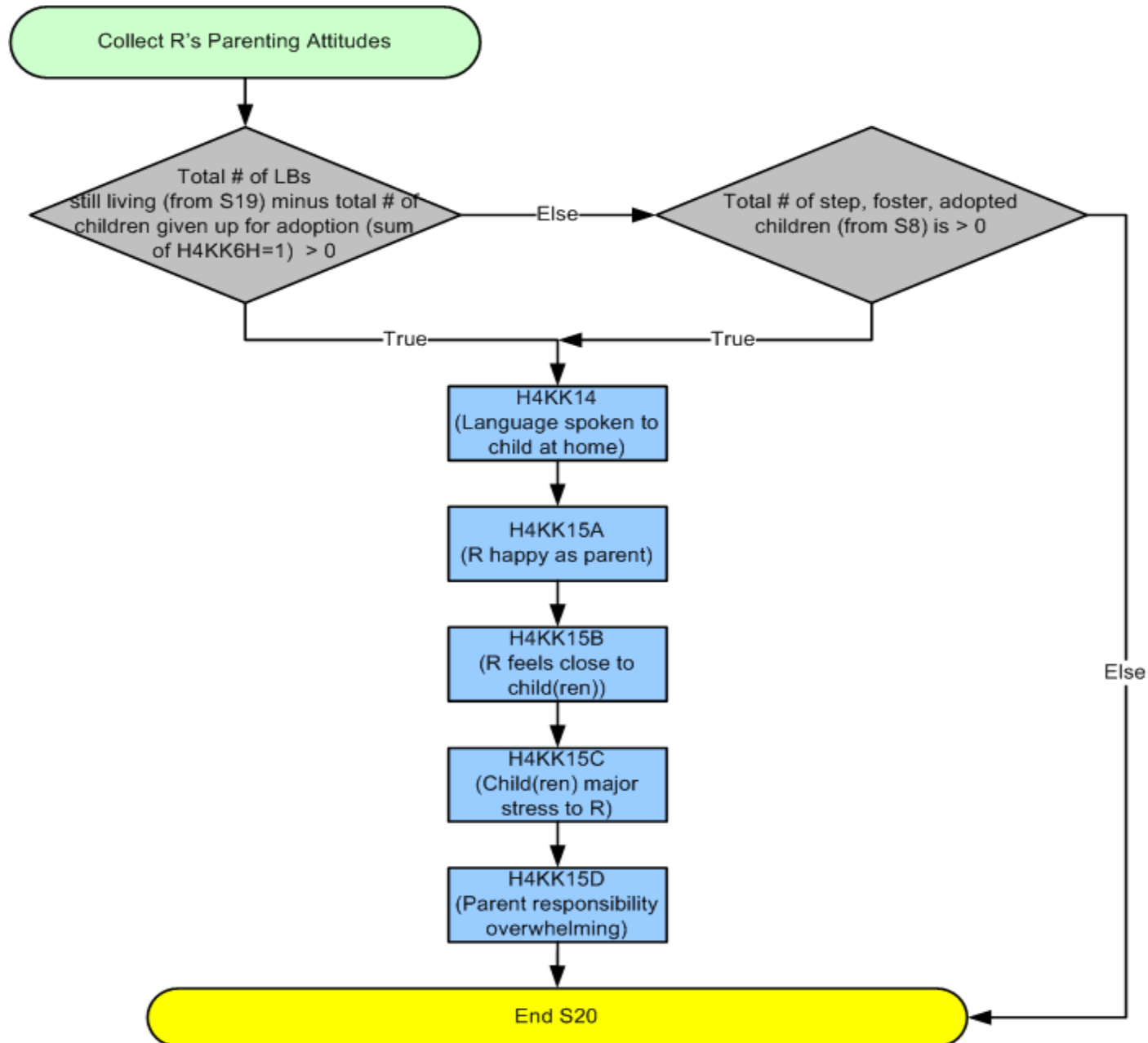
# Section 20 Part A: Child Records



# Section 20 Part A: Child Records (Cont.)

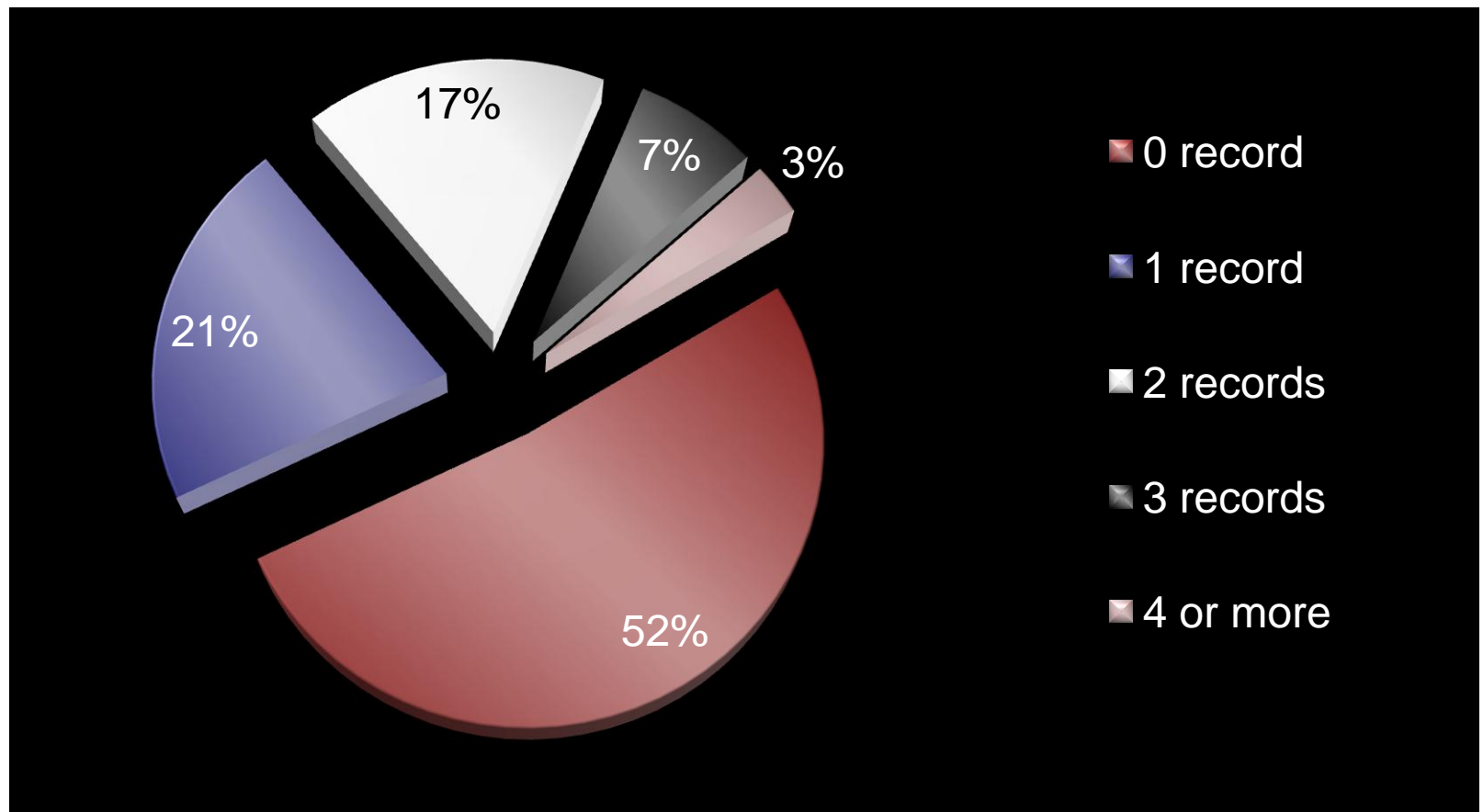


## Section 20 Part B: Individual level -- Parenting



## Wave IV Fertility History

Among 15,701 respondents, 51% reported no child record in S20A; 21% reported 1 child record; 17% reported 2 records; 7% reported 3. Only about 3% reported 4 or more.





## Computational and Technical Tips

# Data Structure Transformation for Hierarchical Files

### 1. Construct unique record IDs for each file

Individual ID	<i>AID</i>
Relationship ID	<i>AID</i> + <i>PTNR_ID</i>
Time-segment ID	<i>AID</i> + <i>PTNR_ID</i> + <i>H4TR25</i> + <i>H4TR26</i>
Pregnancy ID	<i>AID</i> + <i>PTNR_ID</i> + <i>PRGNO</i>
Live birth ID	<i>AID</i> + <i>PTNR_ID</i> + <i>PRGNO</i> + <i>LBNO</i>
Child ID	<i>AID</i> + <i>PTNR_ID</i> + <i>PRGNO</i> + <i>LBNO</i>

## Computational and Technical Tips

# Data Structure Transformation for Hierarchical Files (Cont.)

2. Lower level file contains IDs of all higher level files

For example:

Pregnancy records contain record IDs of the corresponding individual, relationship, besides its own unique pregnancy record ID.

## Computational and Technical Tips

```

* ----- *
| Construct partner record ID and |
| pregnancy record ID (Character vars) |
* ----- *;

data pregrcds (drop=nreln npreg);
    length partner_ID $ 12  preg_ID $ 10  nreln npreg $ 2;

    set pregtable (keep=AID PTNR_ID PRGNO ...);
    if PTNR_ID <=9 then nreln="0" || put(PTNR_ID,1.);
    else nreln= PTNR_ID;
    if PRGNO <=9 then npreg="0" || put(PRGNO,1.);
    else npreg= PRGNO;
    preg_ID      =AID || nreln || npreg;
    partner_ID   =AID || nreln;

label preg_ID="Preg Rcrd ID (AID+PTNR_ID+PRGNO)"
      partner_ID="Partner Record ID (AID+PTNR_ID)"
;
run;

```

## Computational and Technical Tips

### Compute Summary Counts

1. Describe R by his/her reporting on total numbers of 'event': e.g.,
  - a. Total no. of partners reported by R
  - b. Total no. of pregnancies reported by R
2. Describe R by his/her average reporting on a certain 'event': e.g.,
  - a. Average no. of pregnancy per partner by R

## Computational and Technical Tips

```
*-----*
| Total no. of partner records reported by R. |
*-----* ;

proc sort data=partnrlds; by AID; run;
proc summary data=partnrlds;
  var partnercd;
  by AID;
  output out=sumreltn sum(partnercd)=tot_partnr;
run;

*-----*
| Total no. of pregnancy records reported by R. |
*-----* ;

proc sort data=pregrlds; by AID; run;
proc summary data=pregrlds;
  var pregrcd;
  by AID;
  output out=sumpreg sum(pregrcd)=tot_preg;
run;
```

## Computational and Technical Tips

```
*-----*
| Average no. of pregnancy per partner reported by R. |
*-----*
proc sort data=individ; by AID; run;
data individ2;
  merge individ (in=one)
        sumreltn(in=two keep=AID tot_partnr)
        sumpreg (in=three keep=AID tot_preg);
by AID;

  if one then W4main=1;      else W4main=0;
  if two then rpt_partnr=1;  else rpt_partnr=0;
  if three then rpt_preg=1;  else rpt_preg=0;

label tot_partnr="Total no. of partner rcrds reported by R"
      tot_preg  ="Total no. of preg rcrds reported by R"
      rpt_partnr="Rs who reprted at least 1 partner record"
      rpt_preg  ="Rs who reprted at least 1 preg record"
      W4main    ="Rs who are in W4 Main file"
;
```

## Computational and Technical Tips

```
*-----*
| Assign '0' to missing values in total no. of partner      |
| records and in total no. of pregnancy records reported by R. |
*-----*
array ms1[*] tot_partnr tot_preg;
      do i=1 to dim(ms1);
          if ms1[i]=. then ms1[i]=0;
      end;

*-----*
| Compute average no. of pregnancy per partner reported by R. |
*-----*
      if tot_partnr ne 0 then do;
          ave_preg_partnr = tot_preg/tot_partnr;
      end;
label ave_preg_partnr="R's average no. of pregnancy per partner"
;
run;
```

# Computational and Technical Tips

## Examples for Different Levels and Units of Analysis, and Hierarchical Files Merging

Level of analysis	Purpose	Input files		Data sorted by for computation or merging	Summary statistics/descriptive per unit of analysis	Files merged by	Output file
		Unit of analysis	Unique ID per unit of analysis				Unit of analysis
Respondent	Describe respondent by a summary of partner characteristics.  e.g., Total no. of partners reported by respondent	Respondent	AID	AID	Per respondent  e.g., Count of partners	AID	Respondent
		Partner	AID, PTNR_ID	AID			
Respondent	Describe respondent by a summary of pregnancy history.  e.g., Total no. of pregnancies with abortion as outcome	Respondent	AID	AID	Per respondent  e.g., Count of pregnancies ended in abortion	AID	Respondent
		Pregnancy	AID, PTNR_ID, PRGNO	AID			



# Computational and Technical Tips

## Examples for Different Levels and Units of Analysis, and Hierarchical Files Merging (Cont.)

Level of analysis	Purpose	Input files		Data sorted by for computation or merging	Summary statistics/descriptive per unit of analysis	Files merged by	Output file
		Unit of analysis	Unique ID per unit of analysis				Unit of analysis
Respondent	Describe respondent by a summary of live birth history.  e.g., Total no. of live births born outside marriage	Respondent	AID	AID	Per respondent  e.g., Flag live births born while R and partner not married and count up total	AID	Respondent
		Live birth	AID, PTNR_ID, PRGNO, LBNO	AID			
Partner	Associate respondent's characteristics to partners.  e.g., Identify hetero/homosexual relationship	Partner	AID, PTNR_ID	AID	Spread R's information onto each partner record	AID	Partner
		Respondent	AID	AID	e.g., spread R's biological sex onto partner record and compare		

# Computational and Technical Tips

## Examples for Different Levels and Units of Analysis, and Hierarchical Files Merging (Cont.)

Level of analysis	Purpose	Input files		Data sorted by for computation or merging	Summary statistics/descriptive per unit of analysis	Files merged by	Output file
		Unit of analysis	Unique ID per unit of analysis				Unit of analysis
Partner	Associate pregnancy characteristics to partners.	Partner	AID, PTNR_ID	AID, PTNR_ID	Per partner e.g., Flag pregnancies with non-birth outcomes and count up total.	AID, PTNR_ID	Partner
	e.g., No. of non-birth pregnancies associated with each partner	Pregnancy	AID, PTNR_ID, PRGNO	AID, PTNR_ID			
Partner	Associate partner demographics w/ partner detailed information in S17.	Partner	AID, PTNR_ID	AID, PTNR_ID	By partner	AID, PTNR_ID	Partner
		Partner	AID, PTNR_ID	AID, PTNR_ID			

## Some General Advice

- Do not assume:

Read as much as you can



- Add Health documentation on website information, documents, codebooks
- Subscribe to Add Health list server
- Check out publications using Add Health data

## Some General Advice

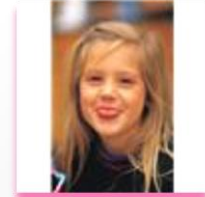
- Spend time: To know your data
  - Examine question branching; Test skipped patterns; Check value ranges; Further clean your data for odd/extreme cases. Know your variables!
  - Check your programs: When in doubt, list your cases and examine.
  - Do logical checks and analytical checks on your results. You can never be too careful!



## Some General Advice

- Take small steps: Think through your results
  - Do thorough preliminary analysis before going into sophisticated multivariate advanced statistics.
  - Take pains to document your data and programming decisions.
  - Organize your programs and results, perhaps using an electronically searchable research management database.





# Questions and Answers

