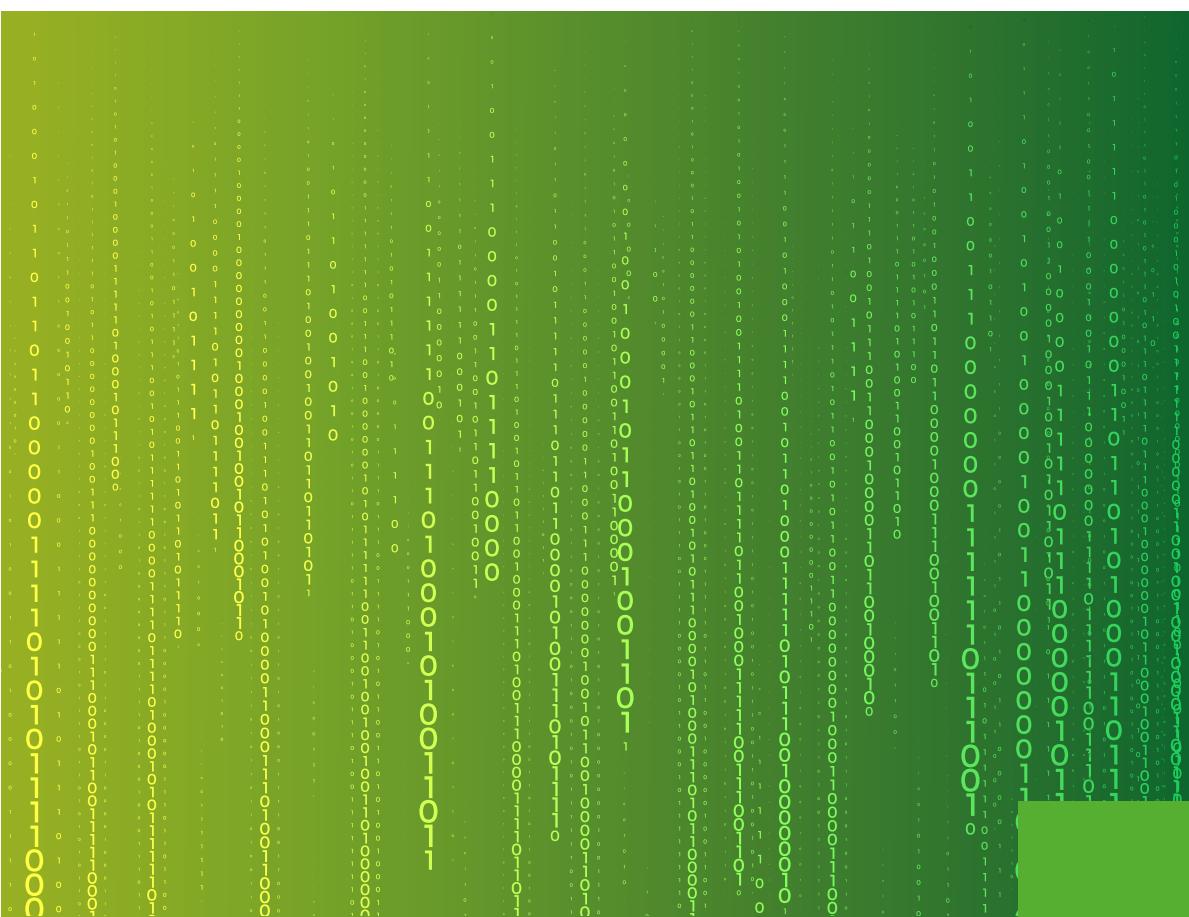


# MPHIA 2020

Malawi  
Population-based  
HIV Impact Assessment



## FLOW DIAGRAMS FOR ANALYTIC VARIABLES



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# Malawi Population-based HIV Impact Assessment 2020-2021

## MPHIA 2020-2021

This project is supported by the US President's Emergency Plan for AIDS Relief (PEPFAR) through CDC under the terms of cooperative agreement U2GGH002173. The findings and conclusions are those of the authors and do not necessarily represent the official position of the funding agencies.



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## Flow diagrams for analytic variables

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This section contains flow diagrams for analytic variables provided in the MPHIA 2020-2021 datasets. These diagrams are designed to facilitate use of analytic variables by illustrating which source variables are incorporated into each analytic variable and how participants are categorized based on data from these variables. See the flow diagram key on page SA3-1 for a visual guide to these diagrams.

### List of flow diagrams

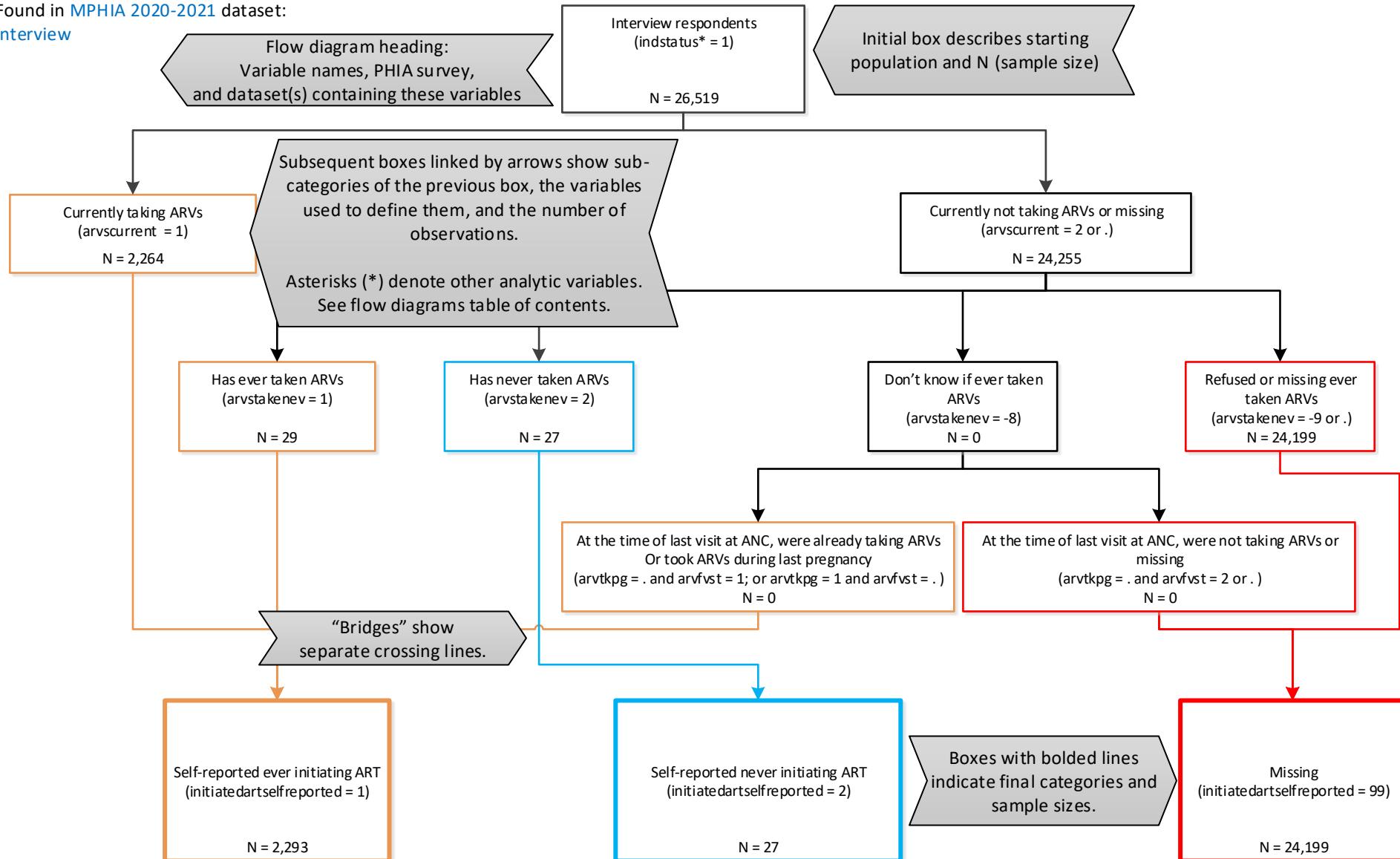
Variable name (example)	Description	Page
	<i>Flow diagram example key (based on initiatedartselselfreported)</i>	SA3-1
hhstatus/indstatus/bt_status	Indicator of household, interview, and blood test eligibility and response status	SA3-2
hivstatusfinal/vls	Final HIV-1 and viral load status, for survey analysis	SA3-4
cd4cat	CD4 category	SA3-6
knownhivstatus	Summary of self-reported HIV test results received	SA3-8
awareselfreported	Indicator of whether individual self-reported as aware of their HIV seropositive status	SA3-10
aware	Indicator of whether individual is aware of their HIV seropositive status, combining self-report and ARV testing	SA3-12
artselfreported	Indicator of whether individual self-reported as on ART	SA3-14
art	Indicator of whether individual is on ART, combining self-report and ARV testing	SA3-16
awareartselfreported	Indicator combining individual self-reporting of previous diagnosis and ART status	SA3-18
awareart	Indicator combining previously diagnosed and ART status, using self-report and ARV testing	SA3-20
arvstatus	Indicator of whether individual has detectable ARVs according to PHIA blood test	SA3-22
artinitiated12months	Indicator of whether individual initiated ART in past 12 months, among those ever reported to be on ART	SA3-24
tri90	Flag for inclusion in 90-90-90 analysis, combining self-reported information and lab ARV data	SA3-26
tri90aware	Indicator of whether individual is aware of their HIV seropositive status, for 90-90-90 analysis, combining self-reported information and lab ARV data	SA3-28
tri90art	Indicator of whether individual is on ART, for 90-90-90 analysis, combining self-reported information and lab ARV data	SA3-30
tri90vls	Indicator of whether individual has suppressed viral load, for 90-90-90 analysis, combining self-reported information and lab ARV data	SA3-32
tri90sr	Flag for inclusion in 90-90-90 analysis using only self-reported awareness and ART data	SA3-34
tri90sraware	Indicator of whether individual self-reported aware of their HIV seropositive status, for 90-90-90 analysis using only self-reported awareness and ART data	SA3-36
tri90srart	Indicator of whether individual self-reported on ART, for 90-90-90 analysis using only self-reported awareness and ART data	SA3-38

tri90srvl	Indicator of whether individual has suppressed viral load, for 90-90-90 analysis using only self-reported awareness and ART data	SA3-40
tri90vl	Flag for inclusion in 90-90-90 analysis using self-reported awareness and a viral load threshold of 200 copies/mL	SA3-42
tri90vlaware	Indicator of whether individual self-reported aware of their HIV seropositive status, for 90-90-90 analysis using self-reported awareness and a viral load threshold of 200 copies/mL	SA3-44
tri90vlart	Indicator of whether individual self-reported on ART, for 90-90-90 analysis using self-reported awareness and a viral load threshold of 200 copies/mL	SA3-46
tri90vlvl	Indicator of whether individual has suppressed viral load, for 90-90-90 analysis using self-reported awareness and a viral load threshold of 200 copies/mL	SA3-48
tested12months	Indicator of whether individual was last tested for HIV during the last 12 months	SA3-50
uniontype	Marital/live-in partner union type	SA3-52
education	Highest level of school ever attended	SA3-54
pregnancystatus	Current pregnancy status	SA3-56
testedpregawaredetail	Indicator of HIV testing during pregnancy and HIV test outcome	SA3-58
delivered12months	Indicator of whether mother has given birth during the past 12 months	SA3-60
delivered3years	Indicator of whether mother has given birth during the past 3 years	SA3-62
anclastchild	Receipt of antenatal care during last pregnancy, among mothers who delivered in past 3 years	SA3-64
arvspregnancydetail	Self-reported ARV treatment status of mothers before/during pregnancy and labor	SA3-66
hivstatuslastpregnancy	Self-reported HIV status of mothers during last pregnancy	SA3-68
lastbornhivstatus	HIV status of last born child, reported by mother/guardian	SA3-70
lastborntestedbirthdetail	Timing of HIV testing for last born child, reported by mother/guardian	SA3-72
breastfedlastchild	Breastfeeding status for last born child	SA3-74
sexever	Indicator for whether individual has ever had sex	SA3-76
sex12months	Indicator for whether individual had sexual intercourse in past 12 months	SA3-78
condomlastsex12months	Indicator of whether individual used a condom at last sexual encounter in past 12 months	SA3-80
allpartspouselivein12mo	Indicator of whether all partners in the past 12 months were spouses or live-in partners	SA3-82
condomlastnonmarital12mo	Indicator of whether individual used a condom at last sexual intercourse with their last non-marital non-cohabitating partner in past 12 months	SA3-84
recentlagvl/recentlagvlarv	Indicators for recent HIV infection	SA3-86
evertested	Indicator of whether individual has ever been tested for HIV	SA3-88
initiatedartselfreported	Individual's self-report of whether they ever initiated ART	SA3-90
arvinterralt	Indicator of having an interruption to individual ARV treatment due to living away from home in the past 12 months	SA3-92
arvswitchalt	Indicator of individual having switched ARV regimen	SA3-94
arvlocalt	Usual location of pickup of ART, for individuals self-reported on ART	SA3-96

## Variable: [initiatedartselfreported](#)

Found in [MPHIA 2020-2021](#) dataset:

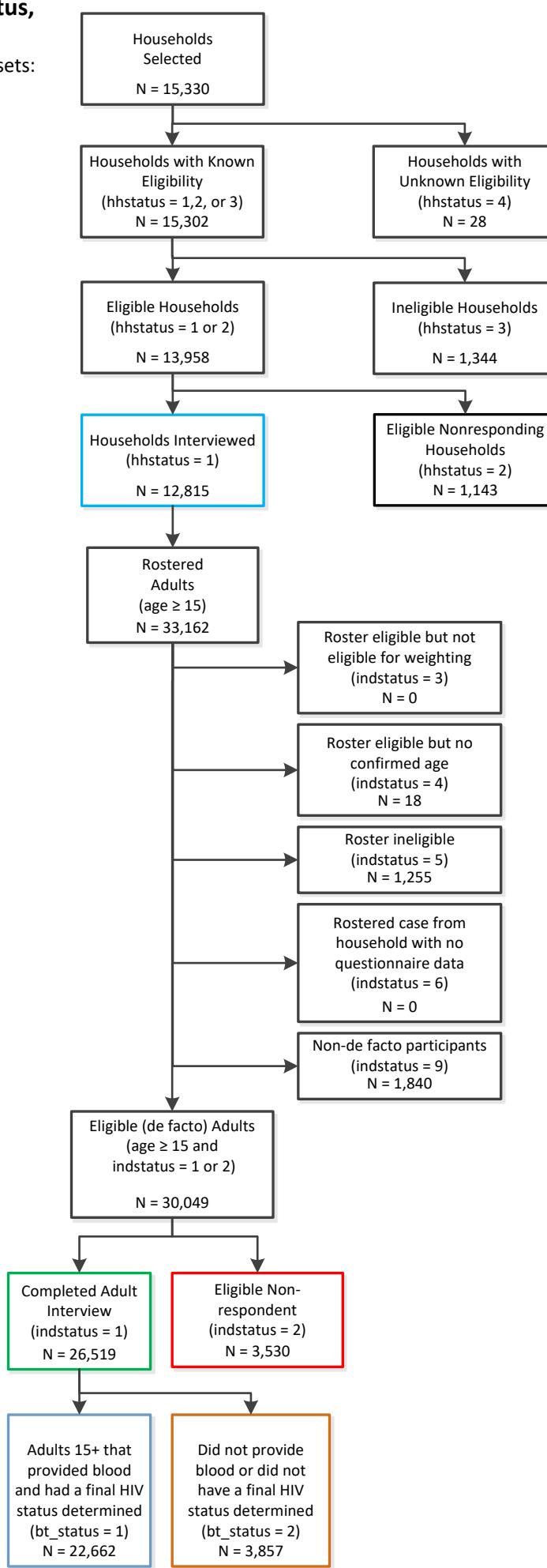
Interview



## Variables: hhstatus, indstatus, bt\_status

Found in MPHIA 2020-2021 datasets:

Household  
Interview  
Biomarker



**Variables: hhstatus, indstatus, bt\_status**

Use the following MPHIA 2020-2021 variables:

Household dataset

hhstatus

Interview dataset

age

indstatus

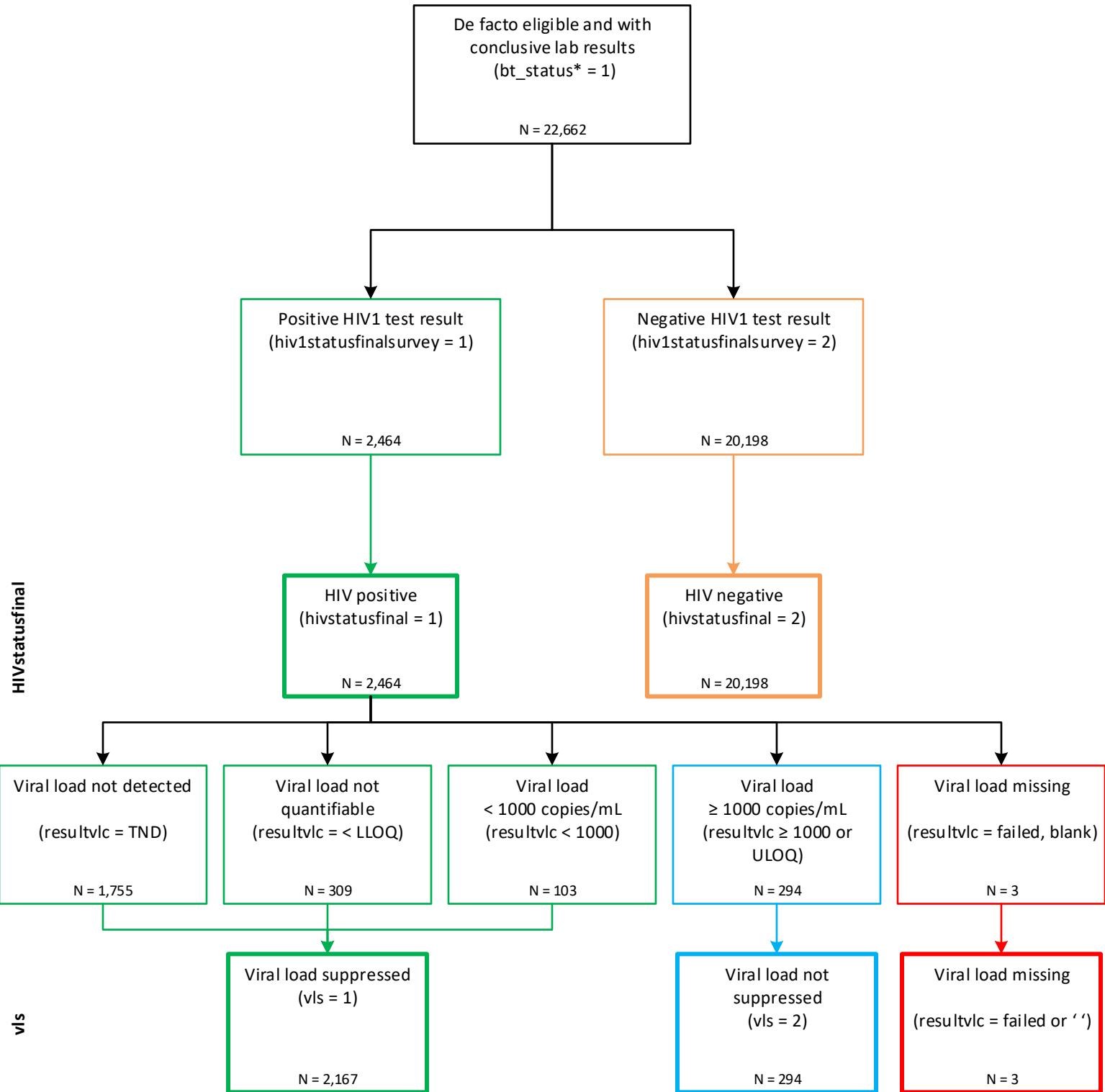
Biomarker dataset

bt\_status

## Variables: hivstatusfinal, vls

Found in MPHIA 2020-2021 datasets:

Biomarker



**Variables: hivstatusfinal, vls**

Uses variables from MPHIA 2020-2021 datasets:

Biomarker

bt\_status

hiv1statusfinalsurvey

hivstatusfinal

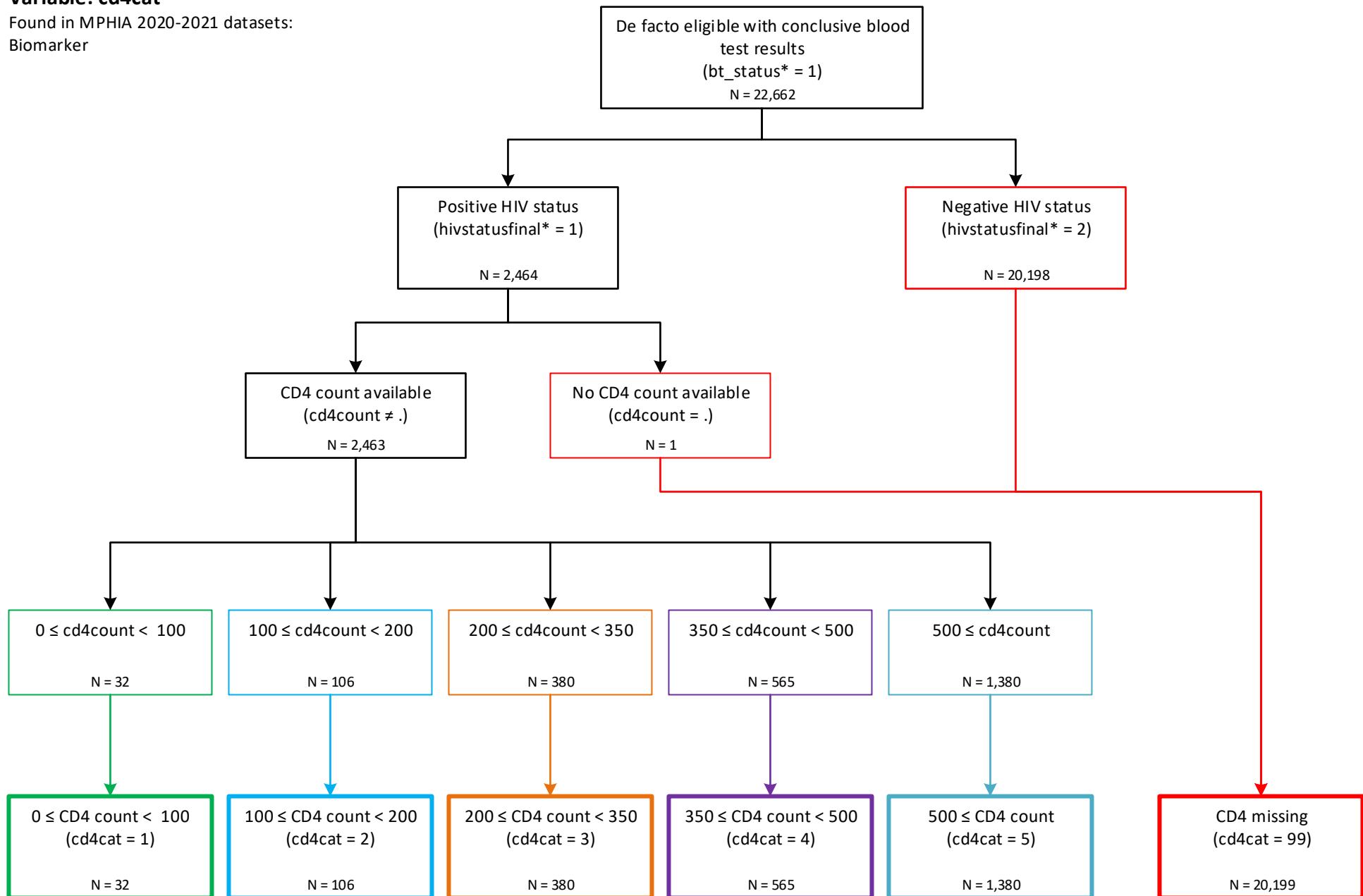
resultvlc

vls

## Variable: cd4cat

Found in MPHIA 2020-2021 datasets:

Biomarker



**Variable: cd4cat**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

bt\_status

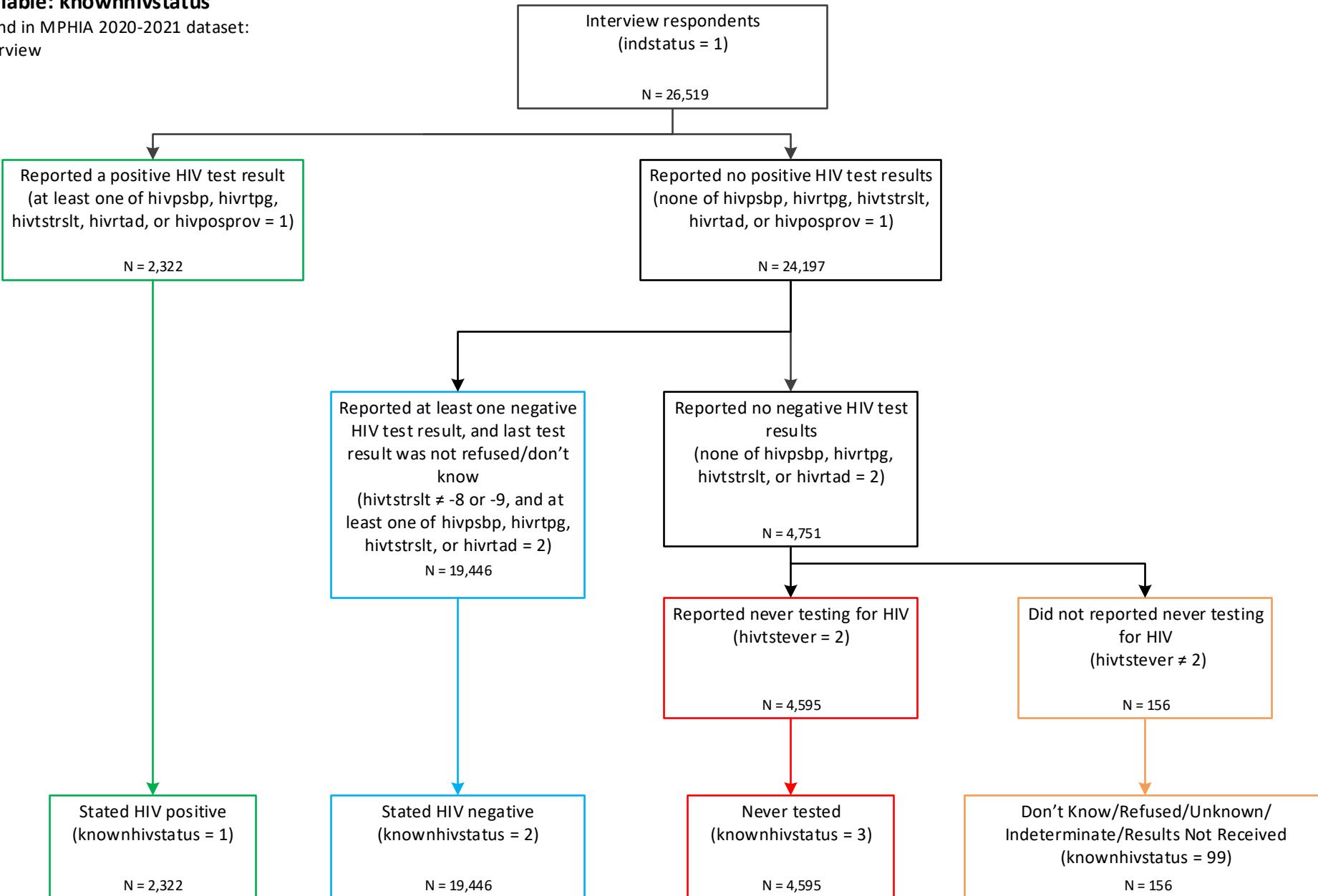
hivstatusfinal

cd4count

## Variable: knownhivstatus

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: knownhivstatus**

Uses the following MPHIA 2020-2021 variables:

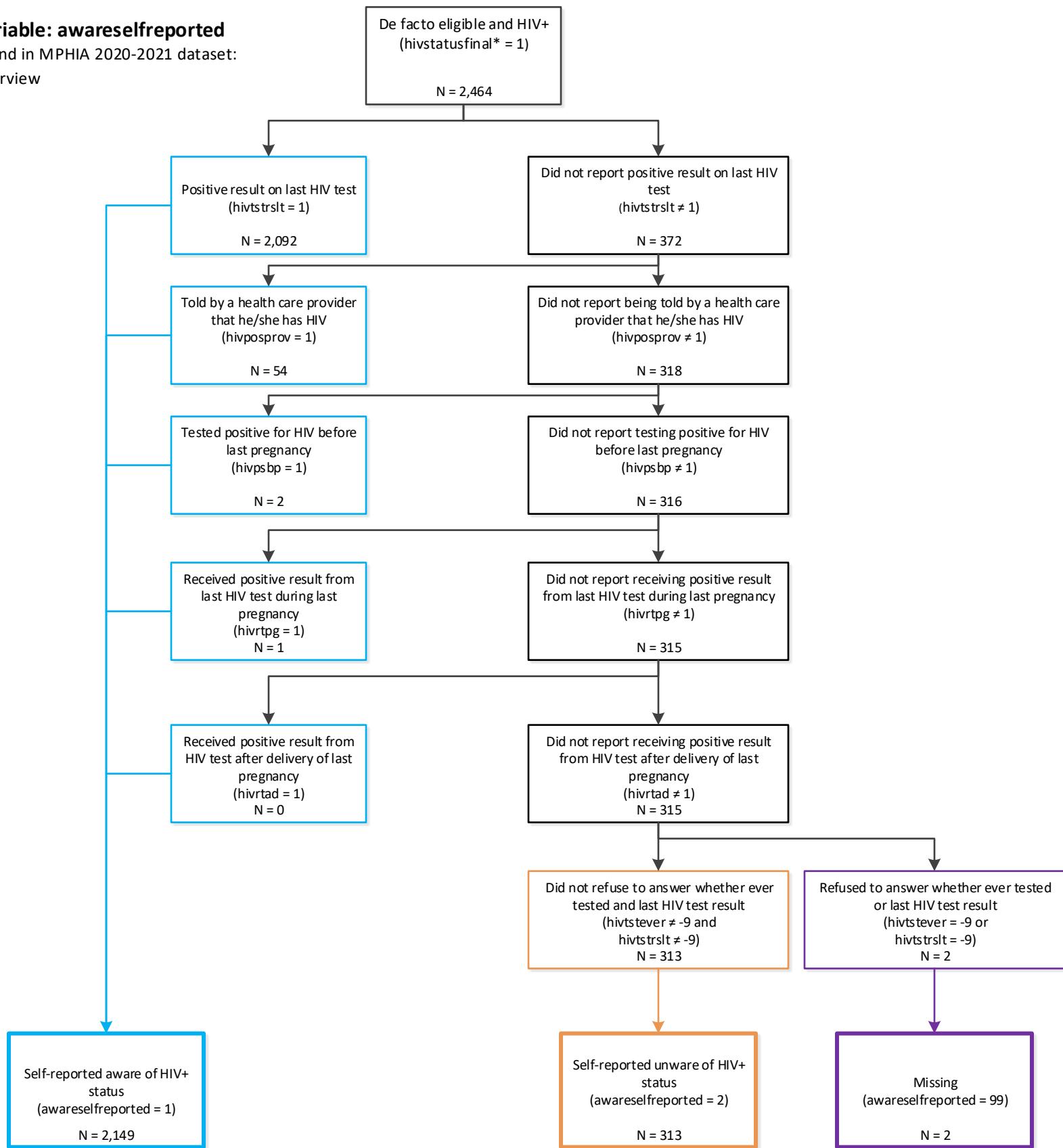
Interview dataset

age  
indstatus  
hivtsteve  
hivposprov  
hivtstrslt  
hivrtad  
hivpsbp  
hivrtpg

## Variable: awareselfreported

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: awareselfreported**

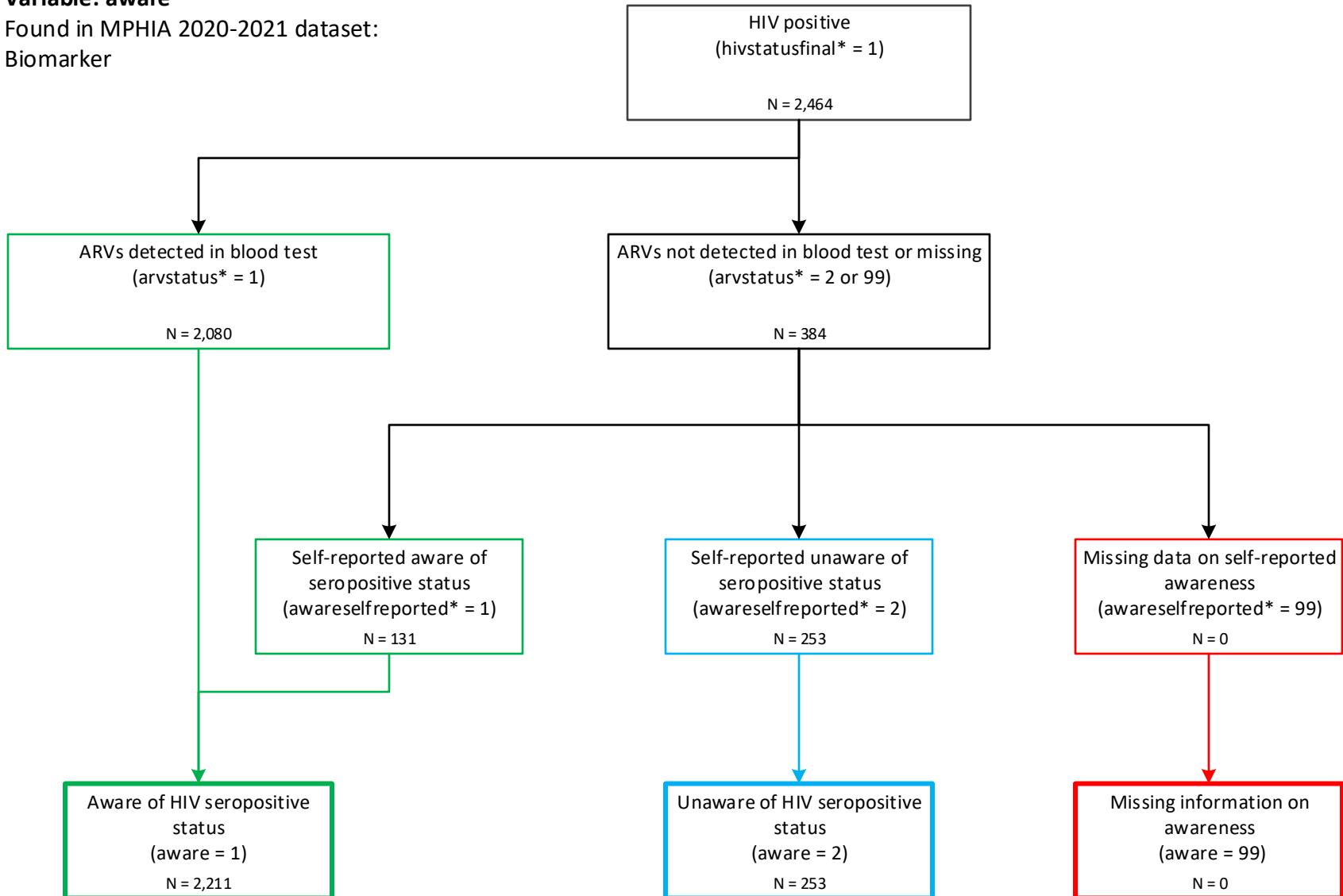
Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus  
hivstatusfinal  
hivtstrslt  
hivposprov  
hivpsbp  
hivrtpg  
hivrtad  
hivtstever

## Variable: aware

Found in MPHIA 2020-2021 dataset:  
Biomarker



## **Variable: aware**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

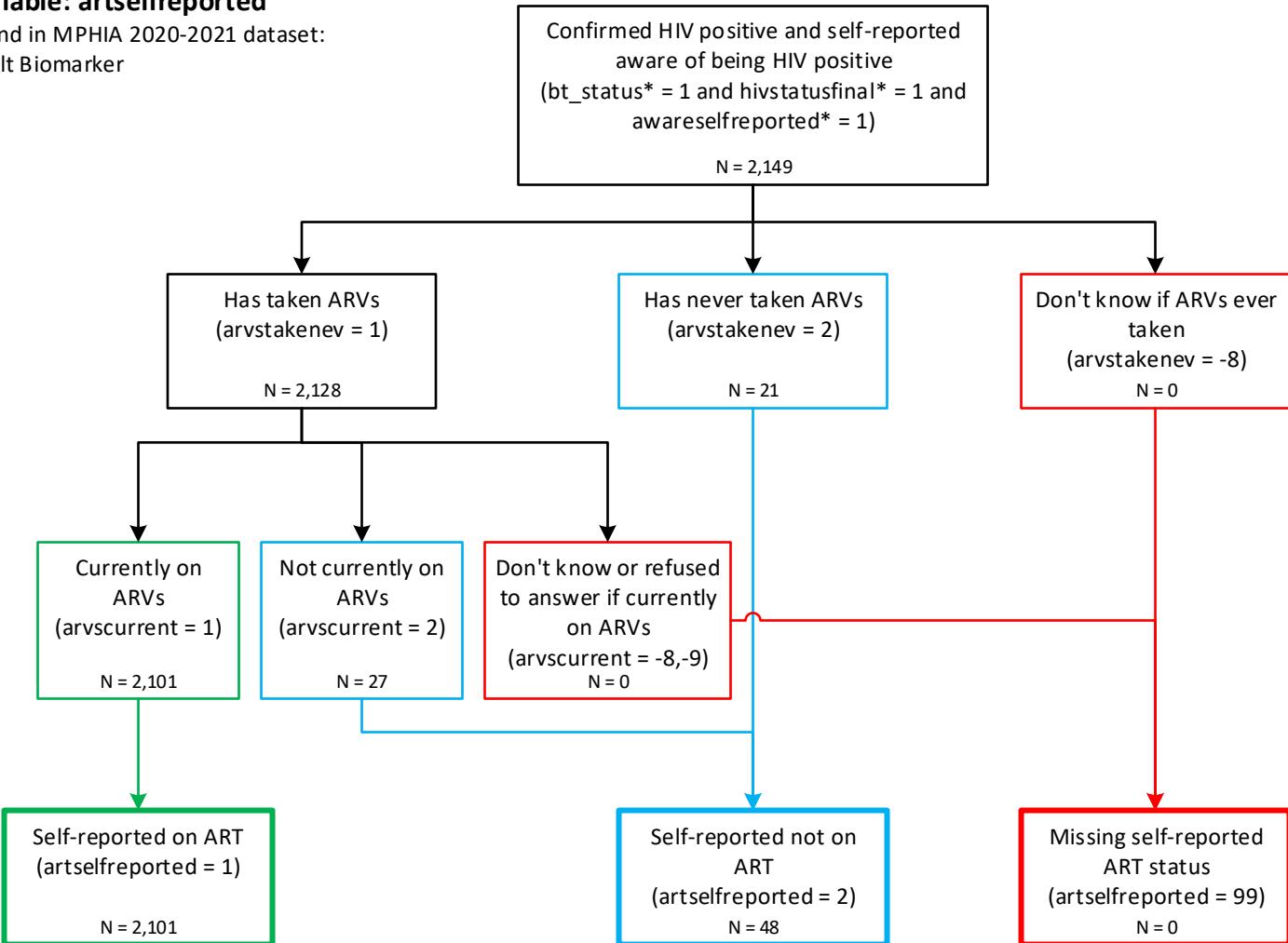
arvstatus

awareselfreported

## Variable: artselfreported

Found in MPHIA 2020-2021 dataset:

Adult Biomarker



## **Variable: artselfreported**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

arvstakenev

arvscurrent

Biomarker dataset

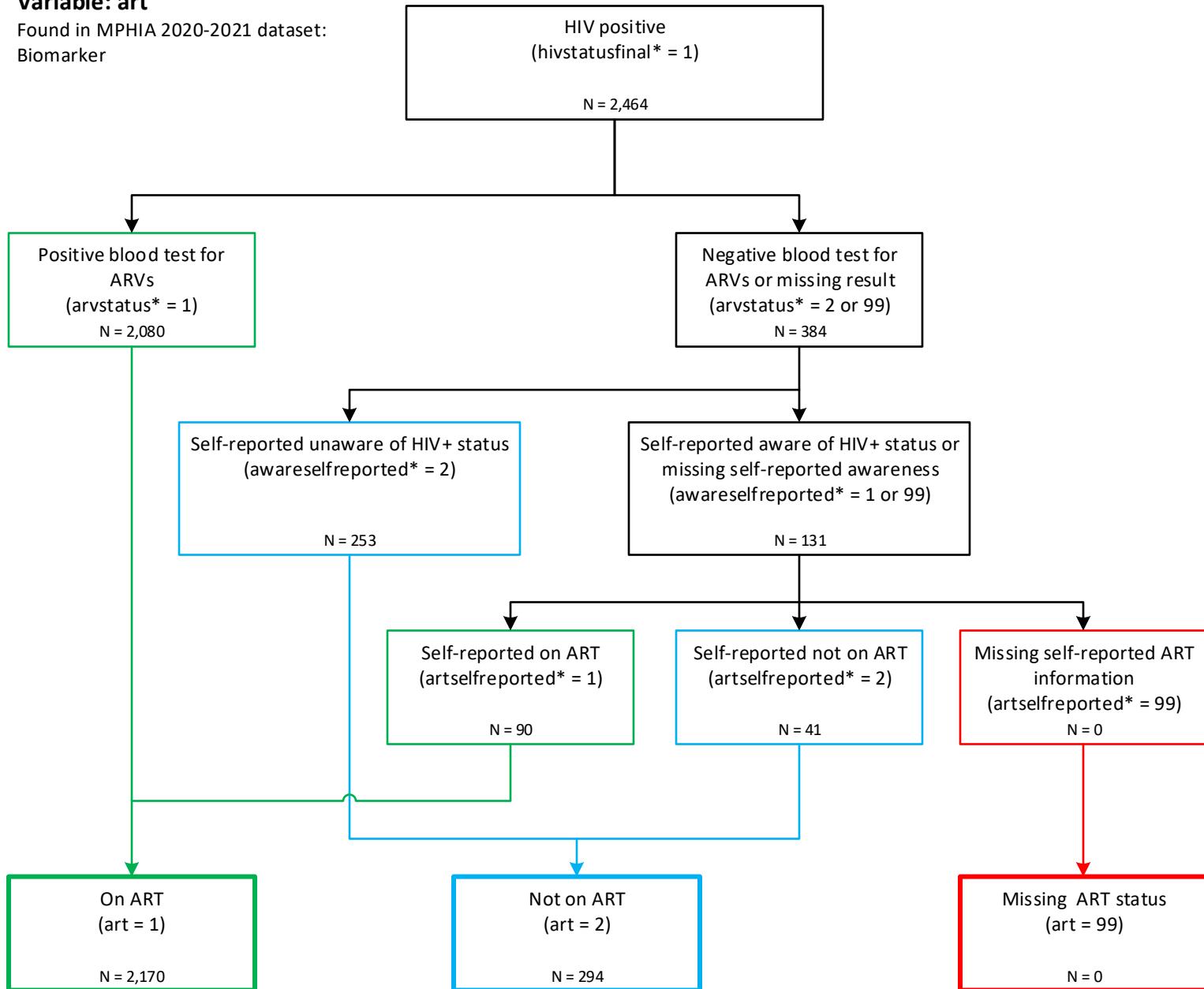
bt\_status

hivstatusfinal

awareselfreported

## Variable: art

Found in MPHIA 2020-2021 dataset:  
Biomarker



## **Variable: art**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

arvstatus

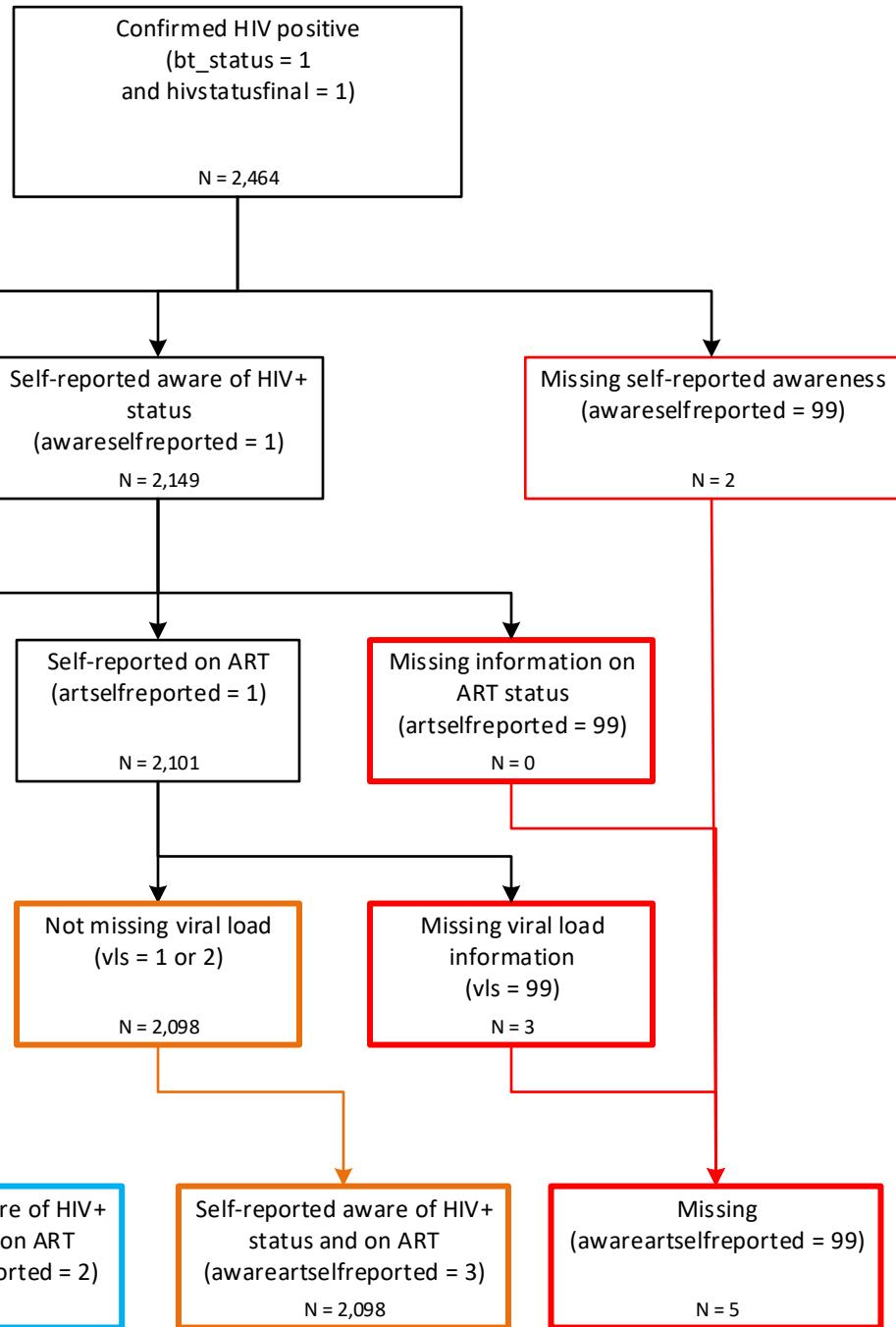
awareselfreported

artsselfreported

## Variable: awareartselreported

Found in MPHIA 2020-2021 dataset:

Biomarker



## **Variable: awareartsselfreported**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

bt\_status

hivstatusfinal

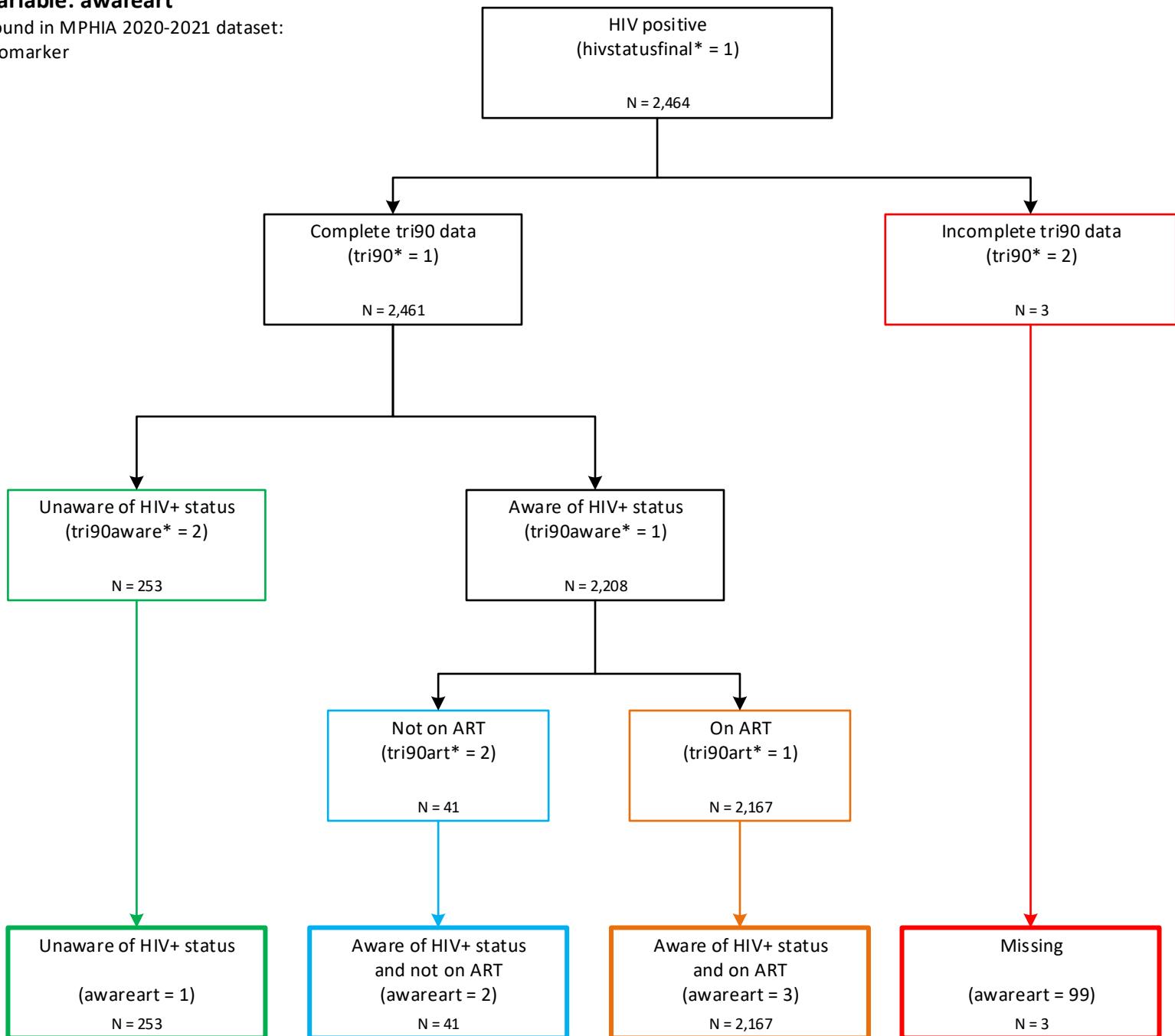
awareselfreported

artsselfreported

vls

## Variable: awareart

Found in MPHIA 2020-2021 dataset:  
Biomarker



## **Variable: awareart**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

    hivstatusfinal

    tri90

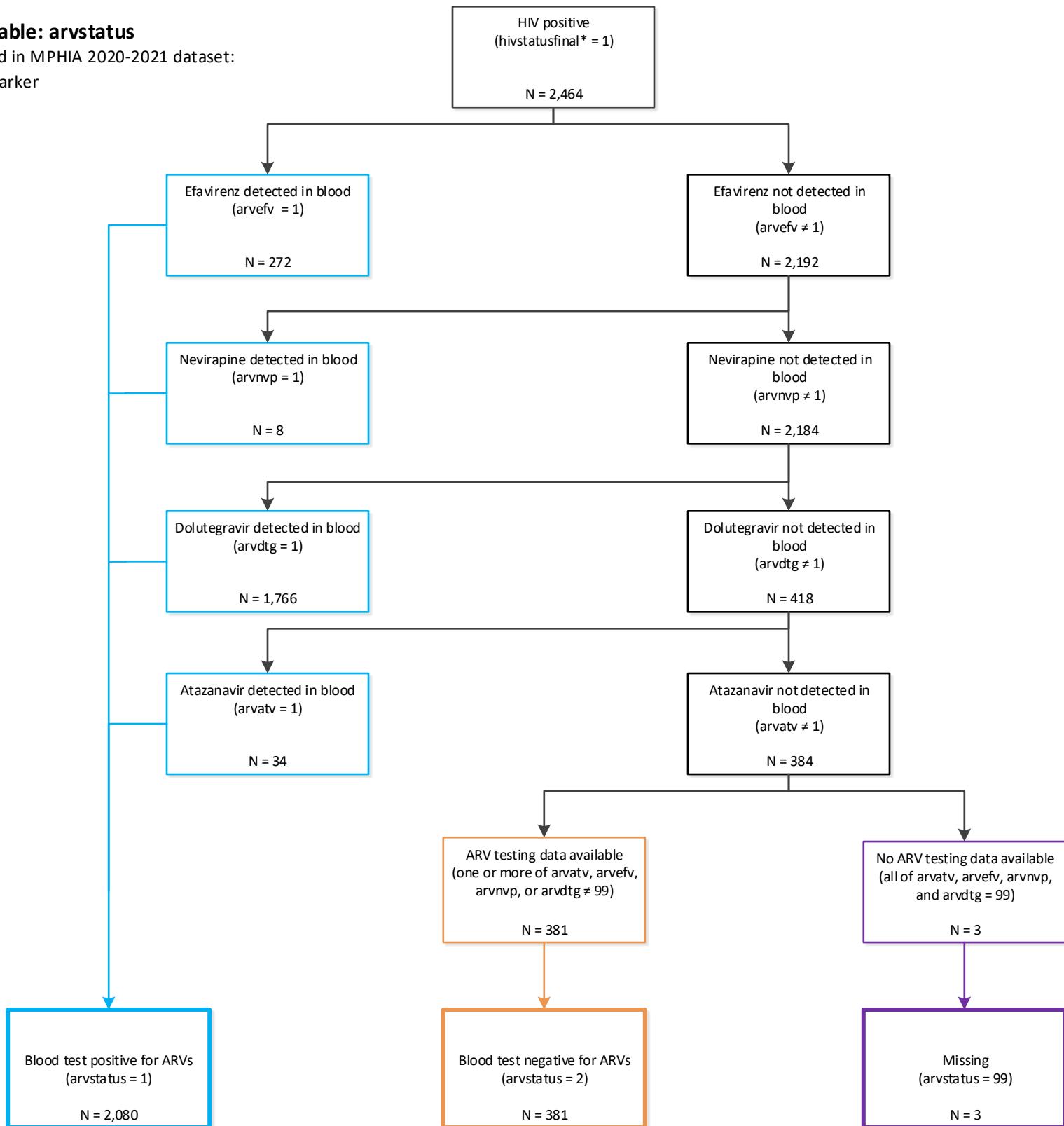
    tri90aware

    tri90art

## Variable: arvstatus

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: arvstatus**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

arvatv

arvefv

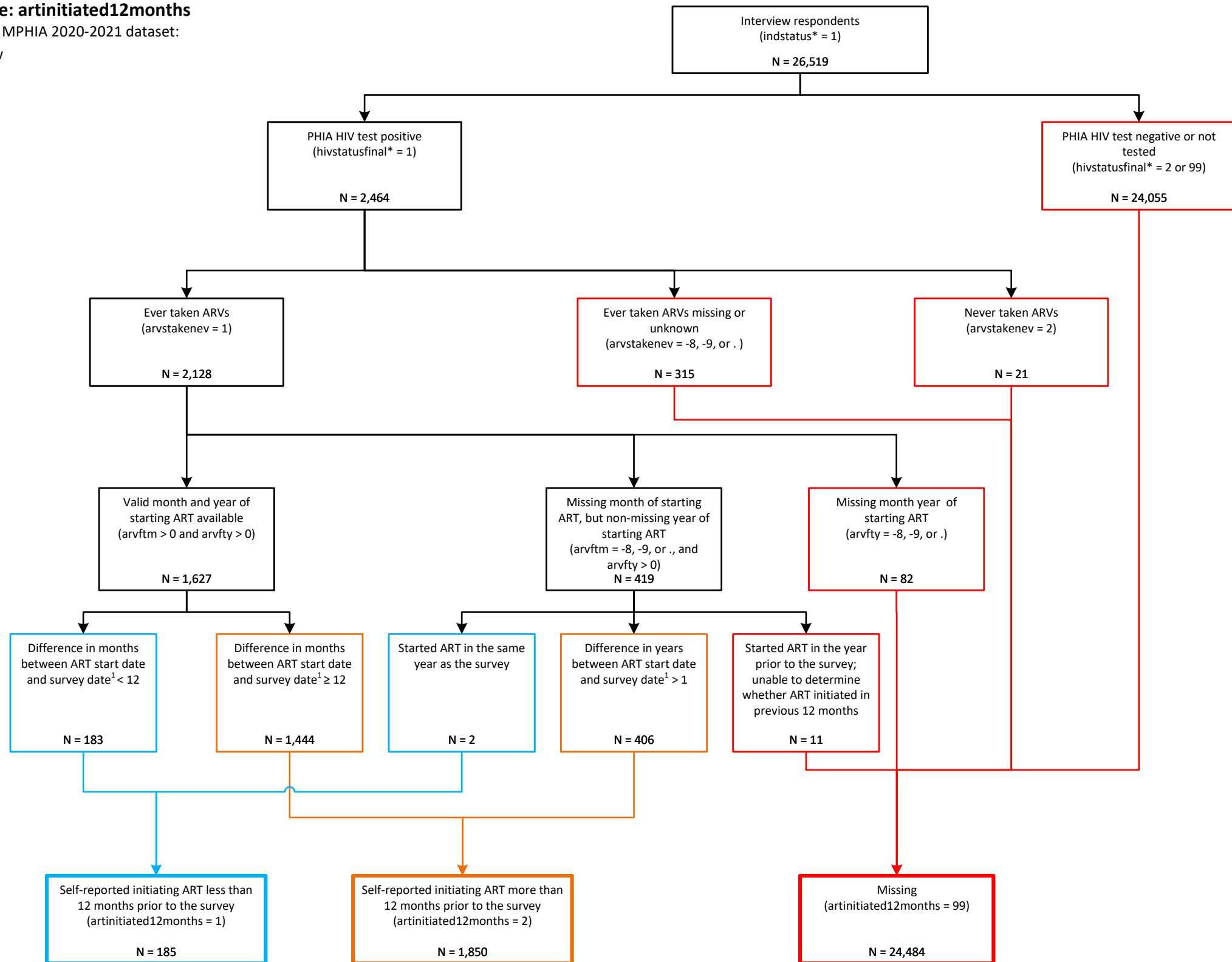
arvnvp

arvdtg

## Variable: artinitiated12months

Found in MPHIA 2020-2021 dataset:

Interview



1. Survey date is derived from surveystday†, surveystmonth, and surveystyear.

**Variable: artinitiated12months**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

    hivstatusfinal  
    artinitiated12months

Interview dataset

indstatus

arvstakenev

arvftm

arvfty

surveystday†

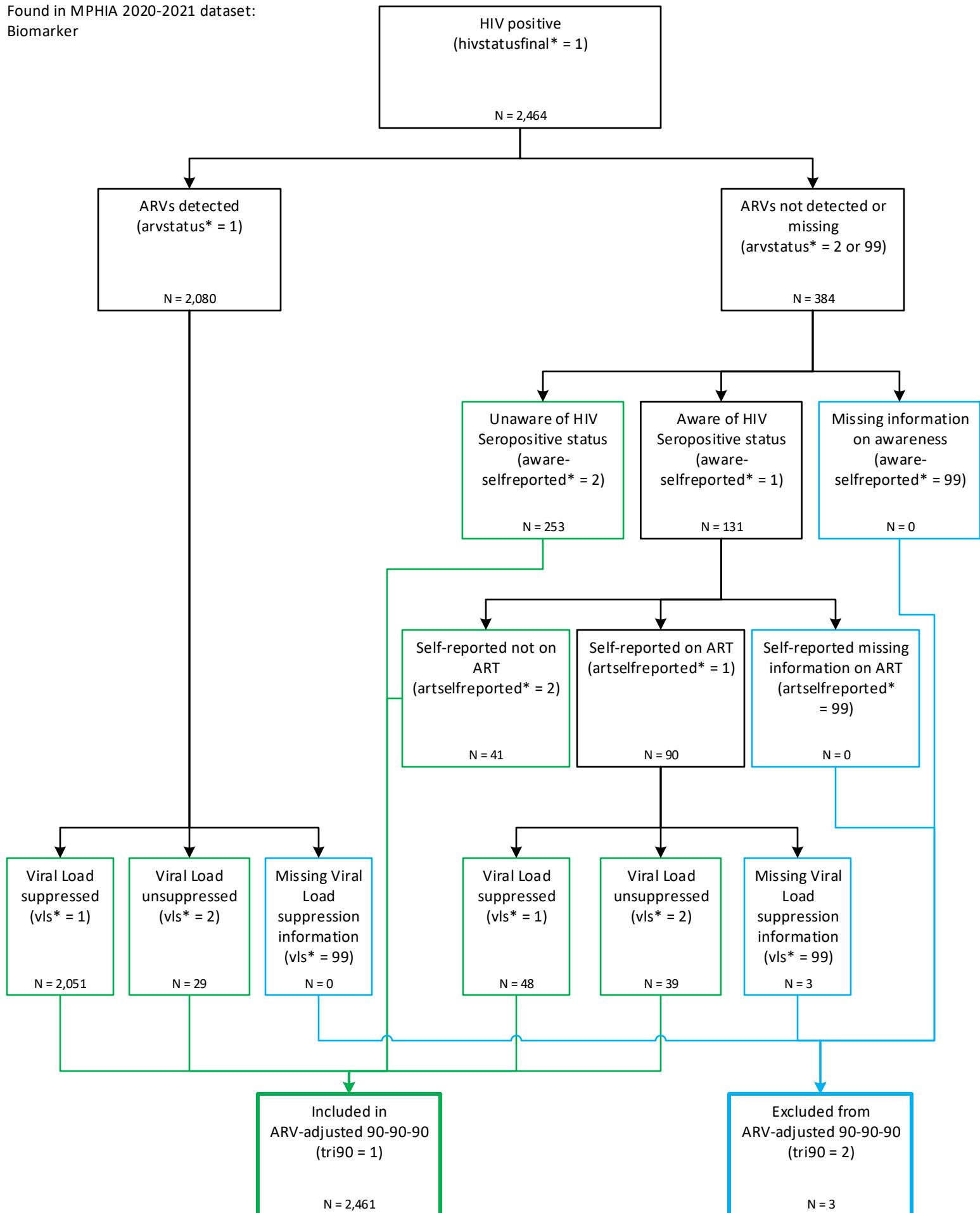
surveystmonth

surveystyear

† Variable redacted from final dataset due to small counts and disclosure risk

## Variable: tri90

Found in MPHIA 2020-2021 dataset:  
Biomarker



**Variable: tri90**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

arvstatus

awareselfreported

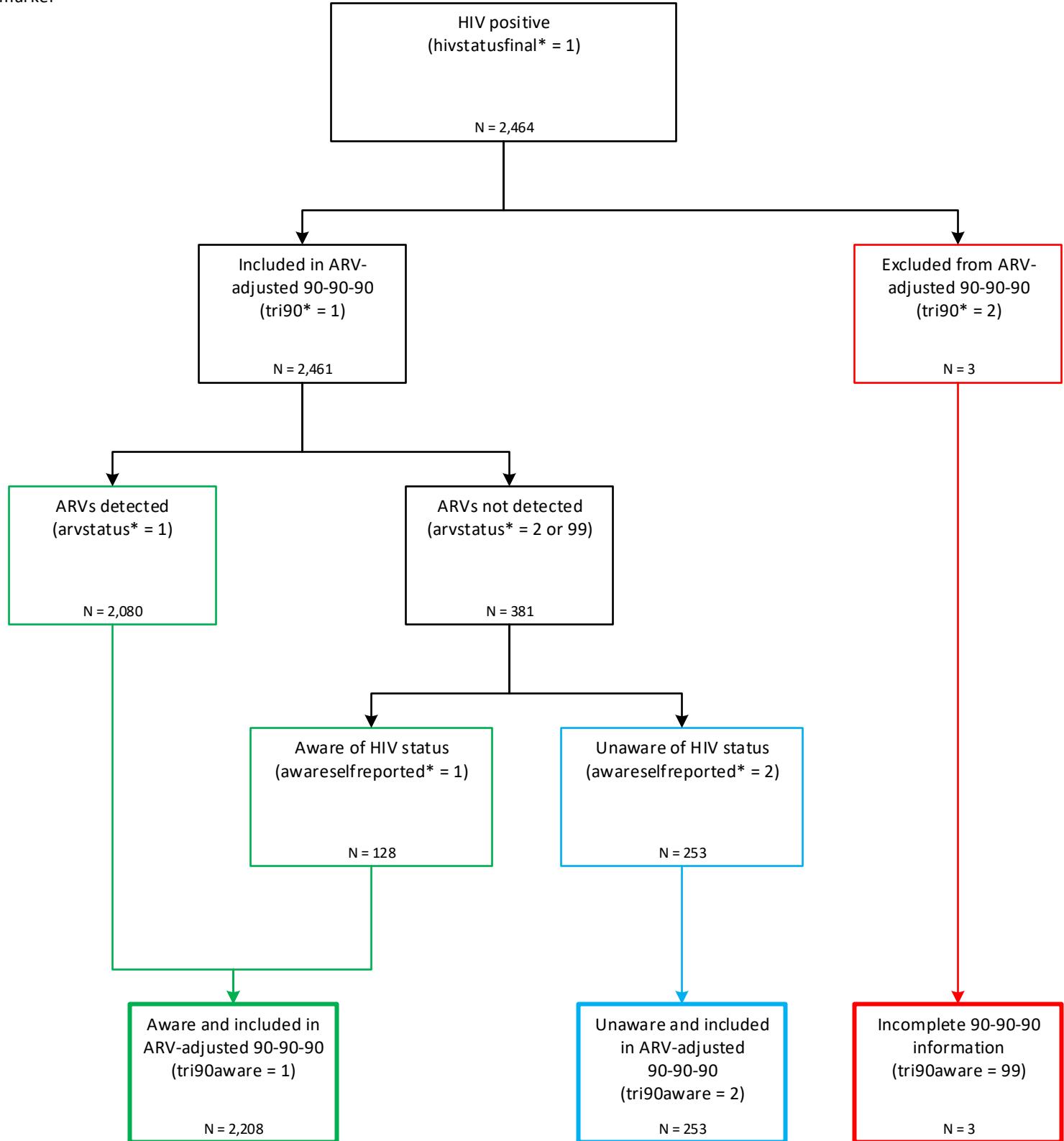
artselfreported

vls

## Variable: tri90aware

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90aware**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90

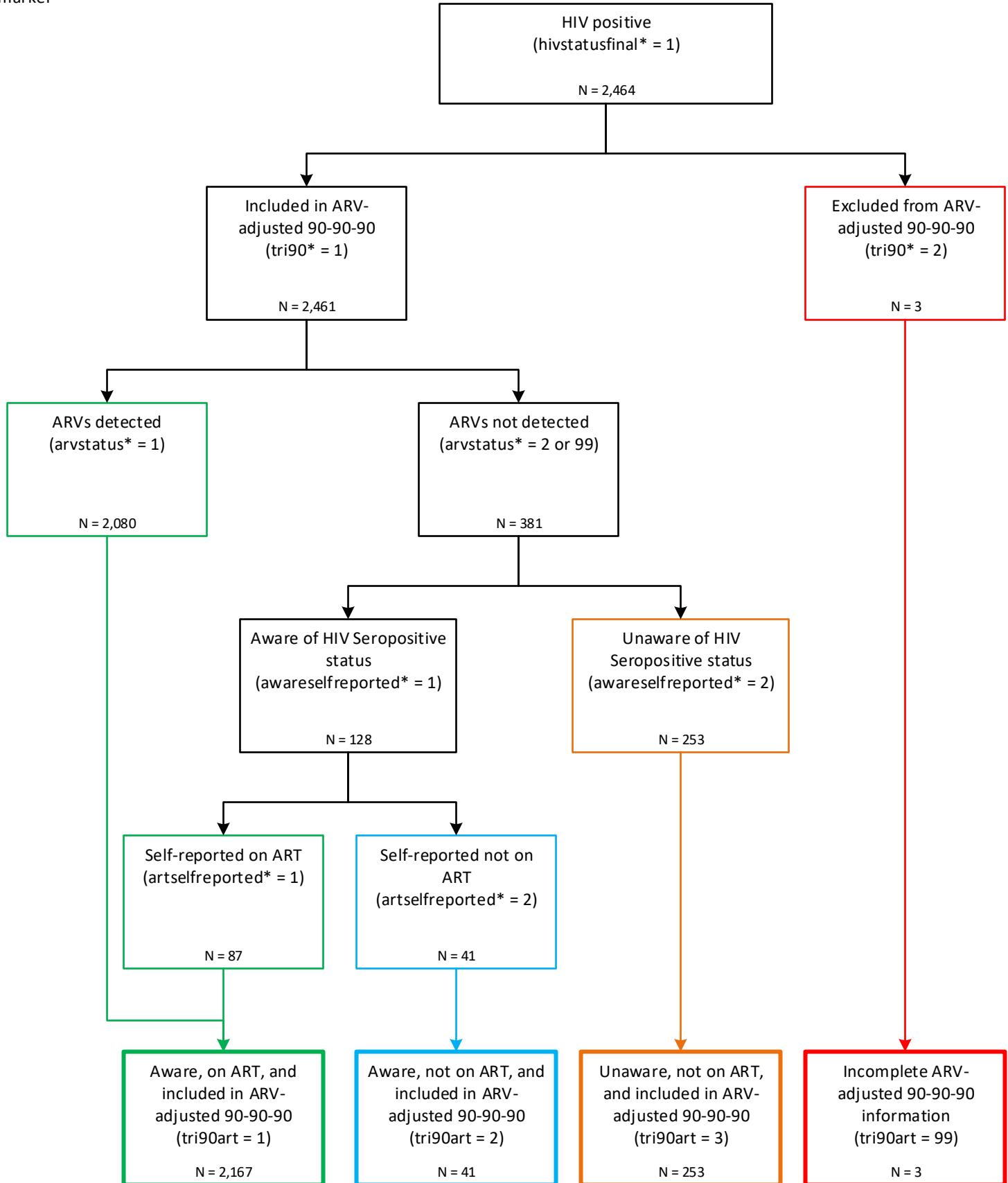
arvstatus

awareselfreported

## Variable: tri90art

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90art**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90

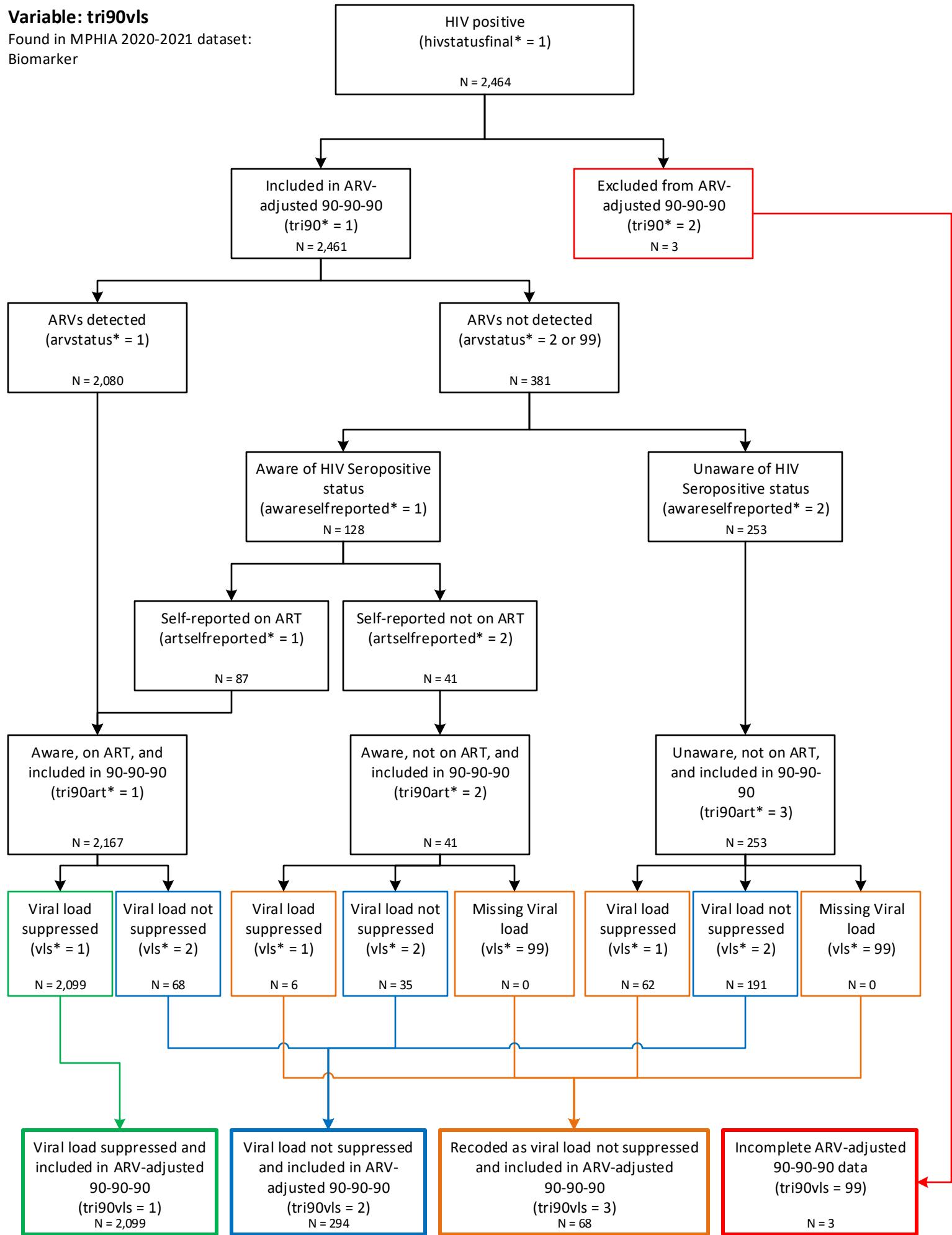
arvstatus

awareselfreported

artsselfreported

## Variable: tri90vls

Found in MPHIA 2020-2021 dataset:  
Biomarker



**Variable: tri90vls**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90

arvstatus

awareselfreported

artsselfreported

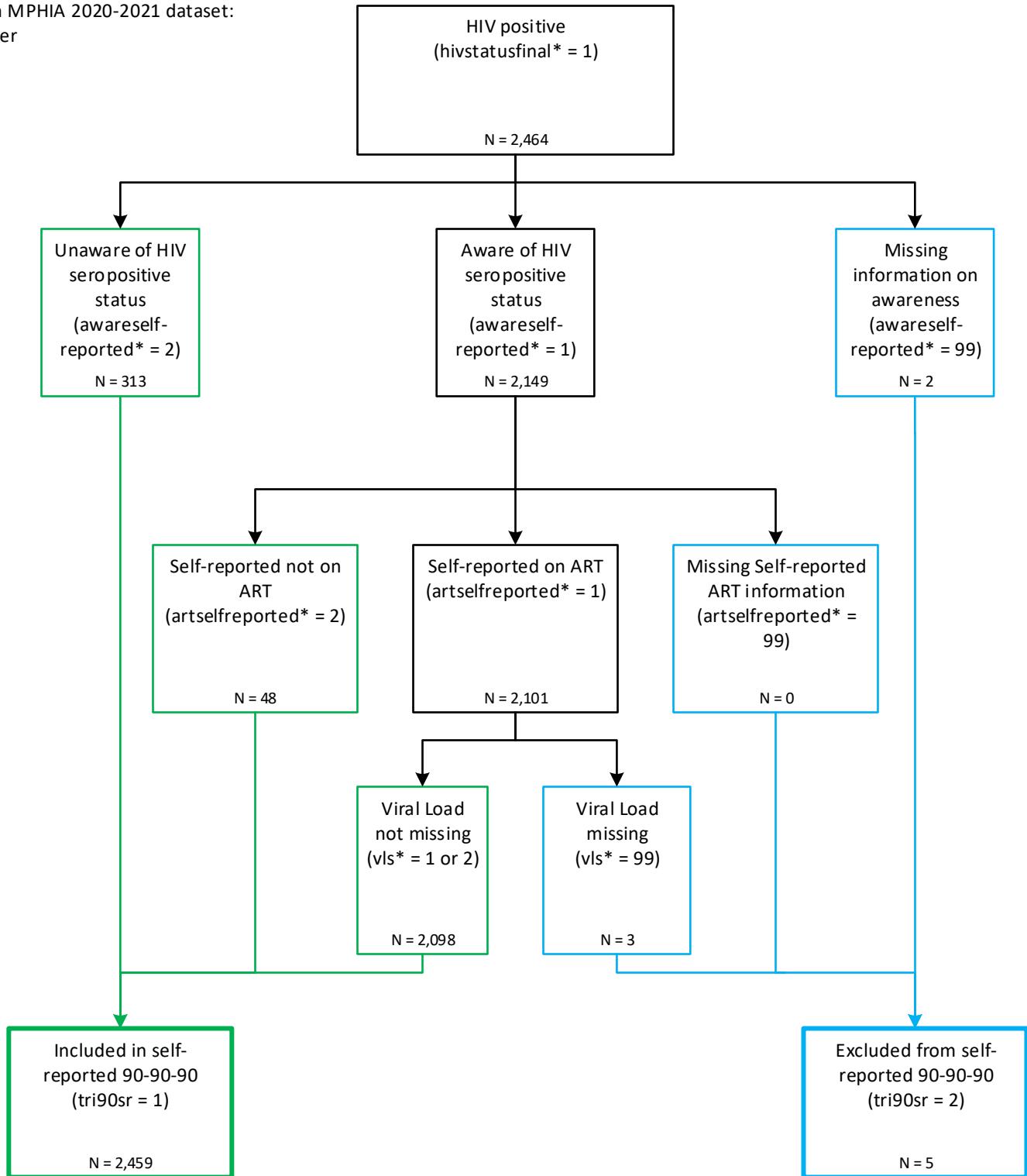
tri90art

vls

## Variable: tri90sr

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90sr**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

awareselfreported

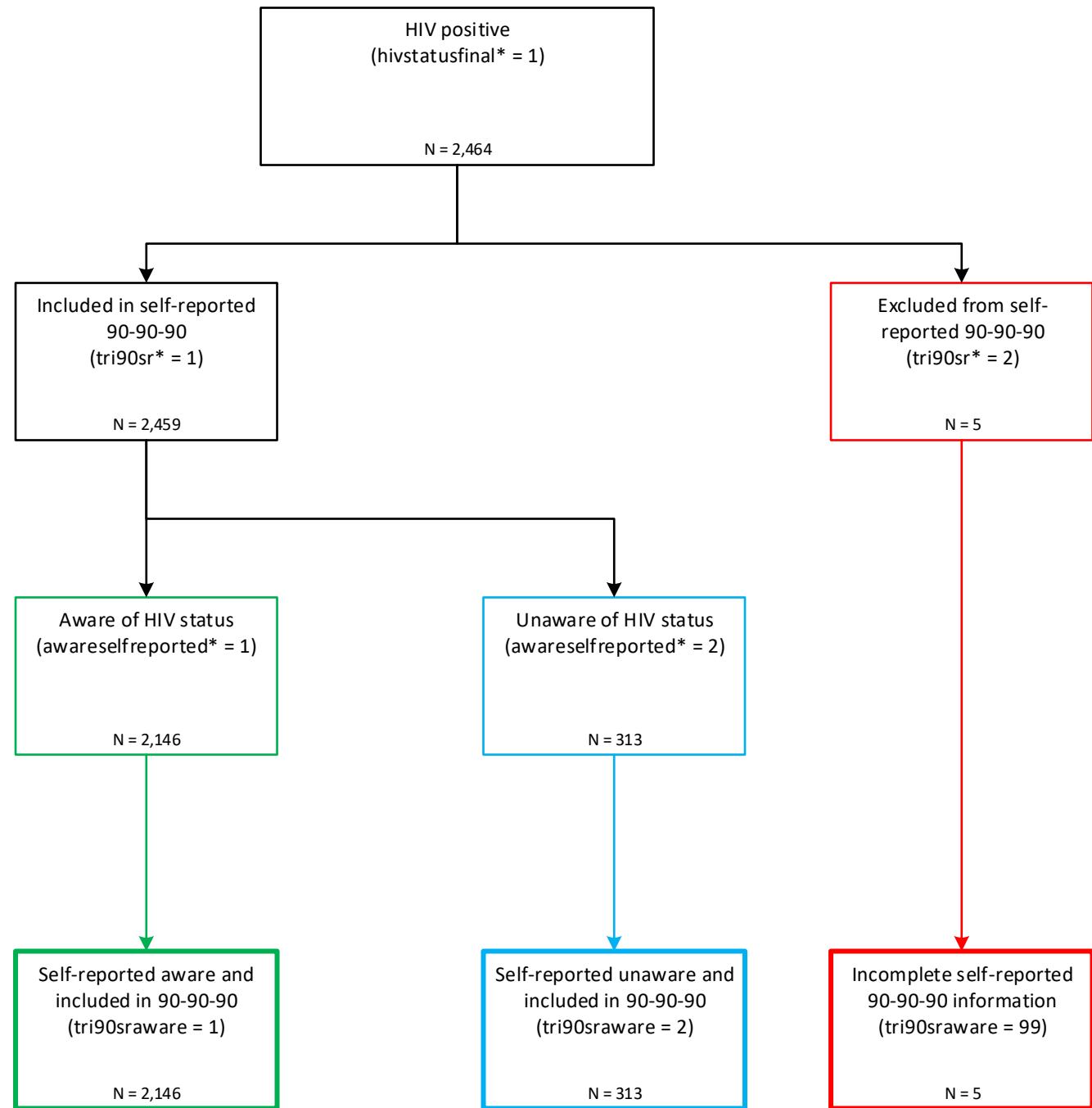
artselfreported

vls

## Variable: tri90sraware

Found in MPHIA 2020-2021 dataset:

Biomarker



## **Variable: tri90sraware**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

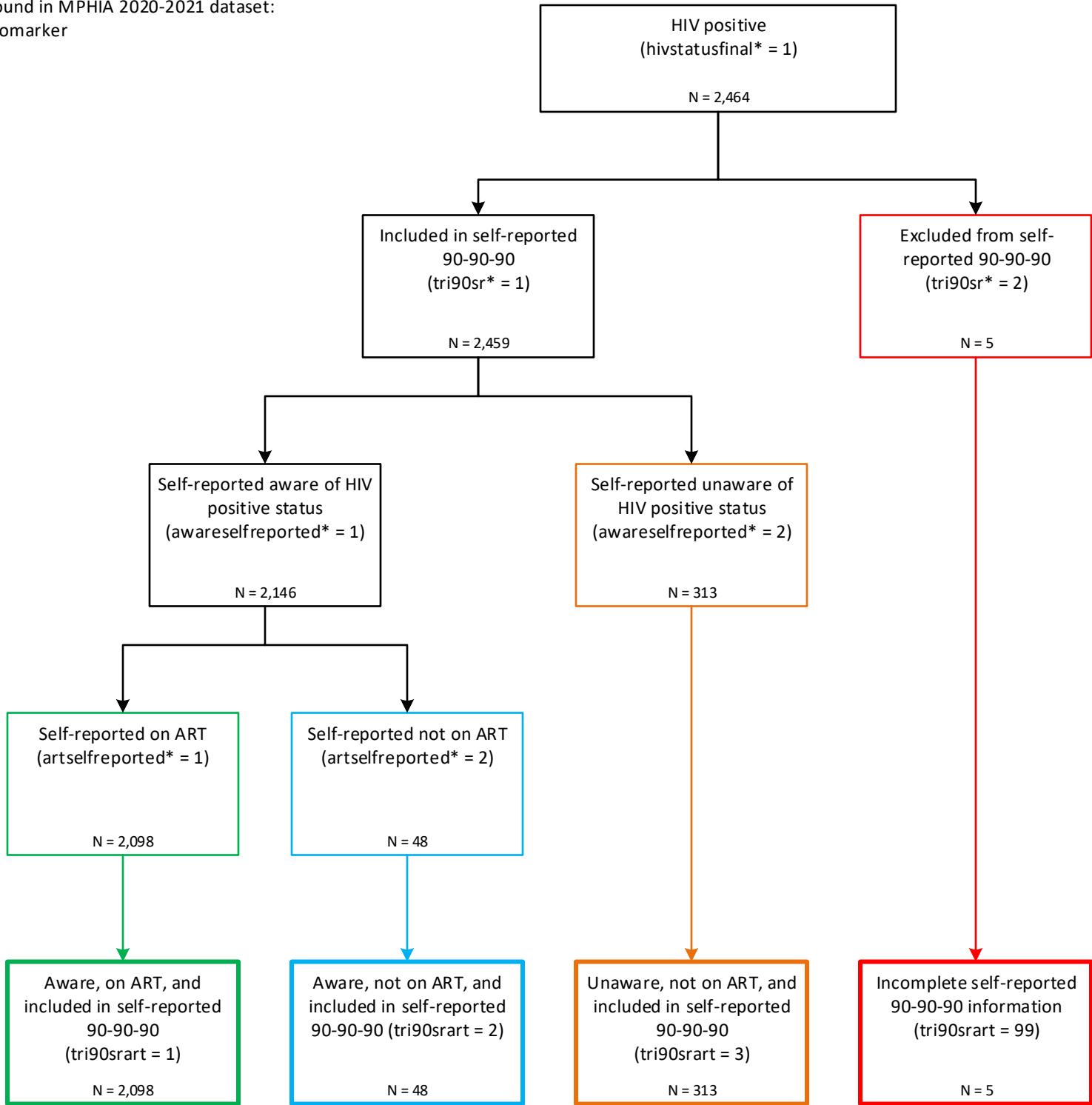
tri90sr

awareselfreported

## Variable: tri90srart

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90srart**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

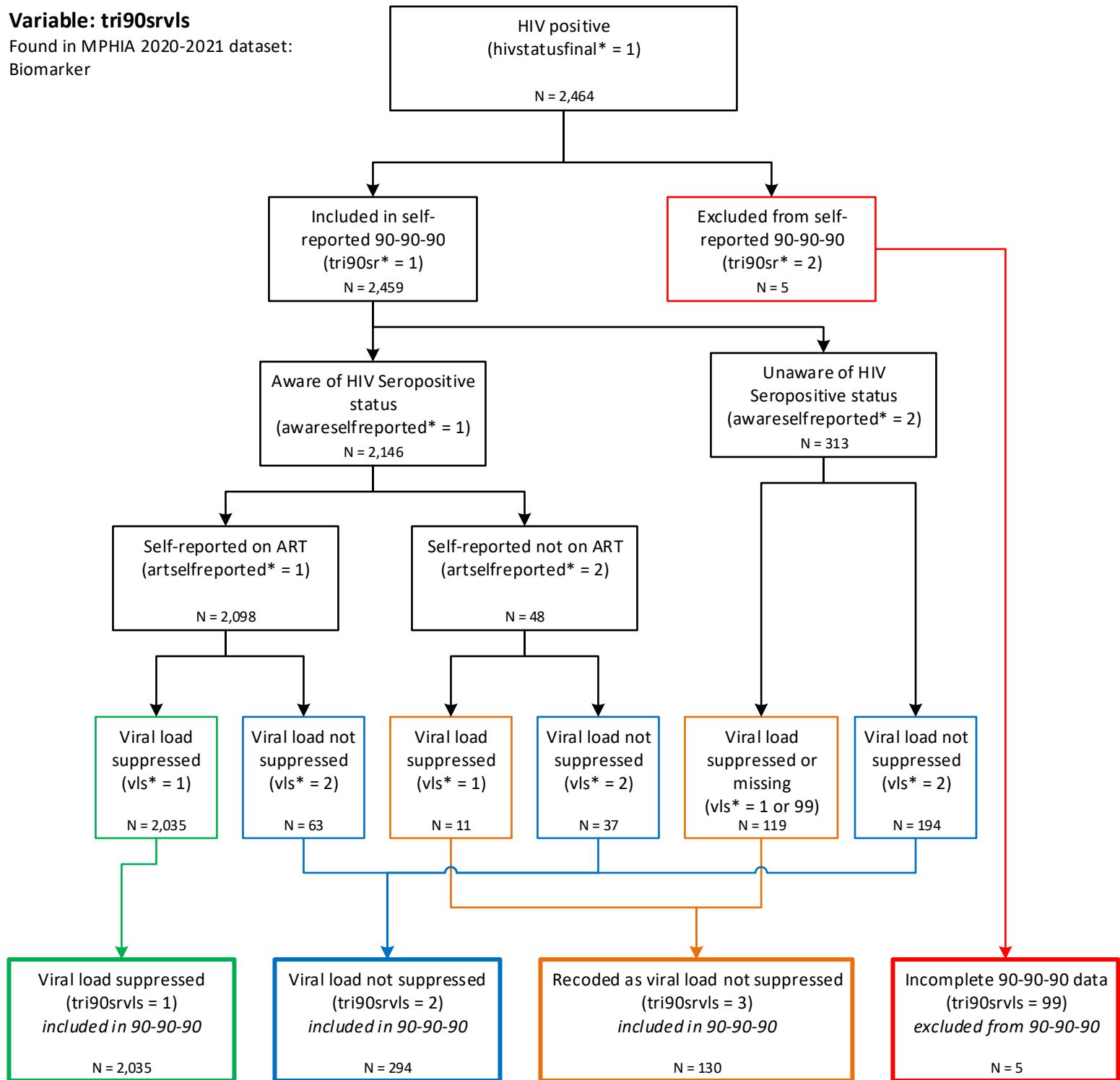
tri90sr

awareselfreported

artselfreported

## Variable: tri90srvl

Found in MPHIA 2020-2021 dataset:  
Biomarker



**Variable: tri90srvl5**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90sr

awareselfreported

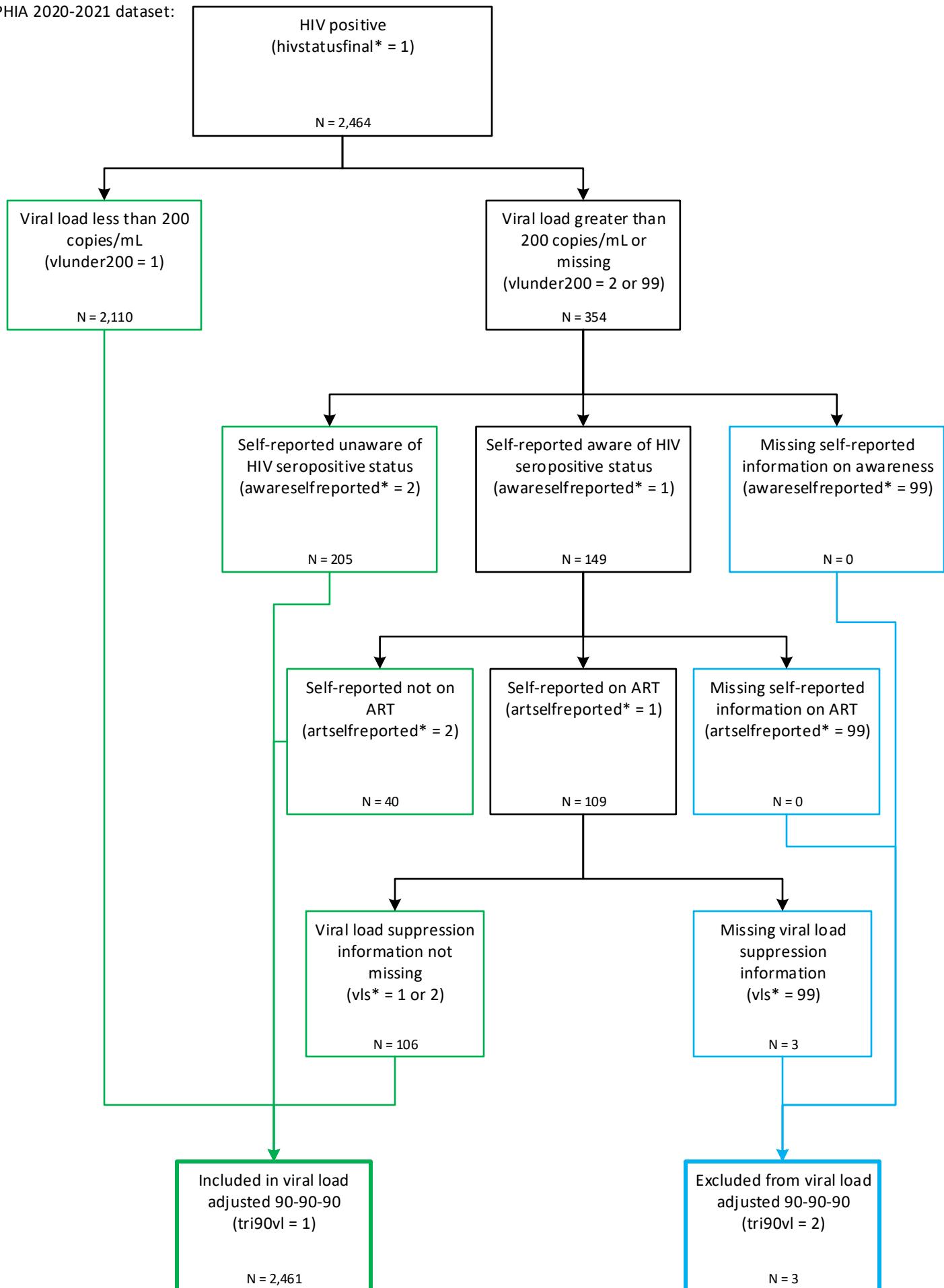
artselfreported

vls

## Variable: tri90vl

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90vl**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

vlunder200

awareselfreported

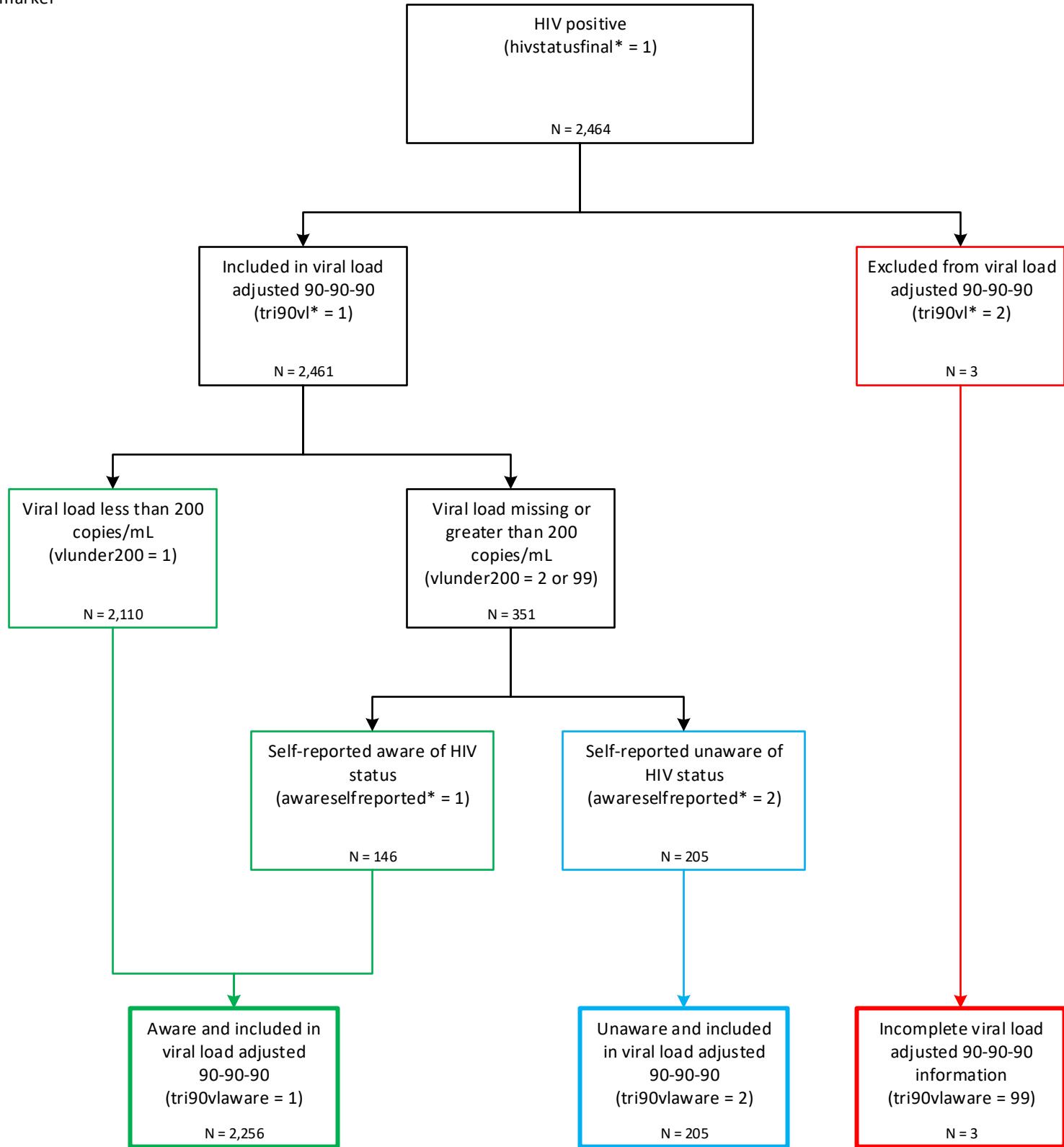
artselfreported

vls

## Variable: tri90vlaware

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90vlaware**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

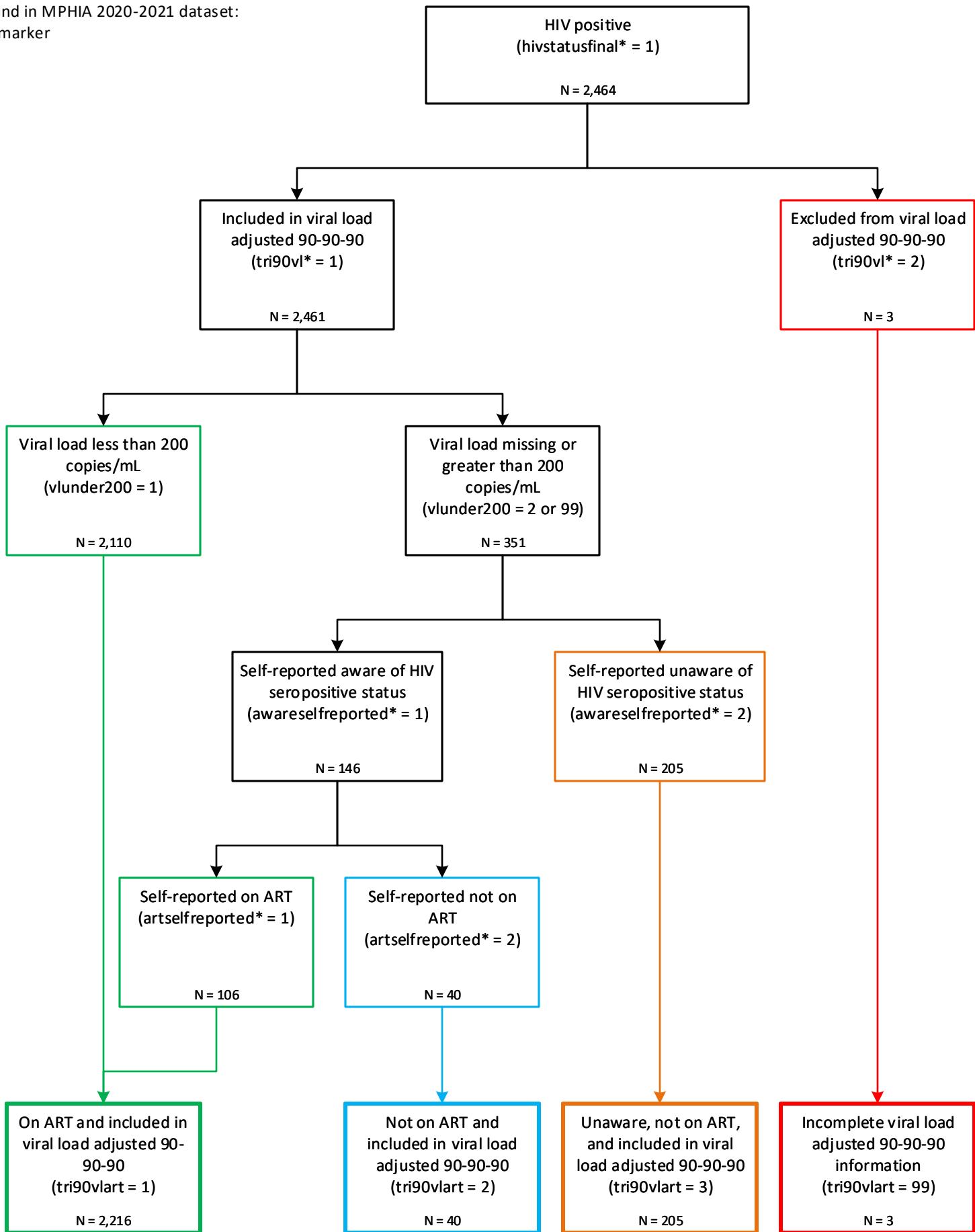
tri90vl

vlunder200

awareselfreported

## Variable: tri90vlart

Found in MPHIA 2020-2021 dataset:  
Biomarker



**Variable: tri90vlart**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90vl

vlunder200

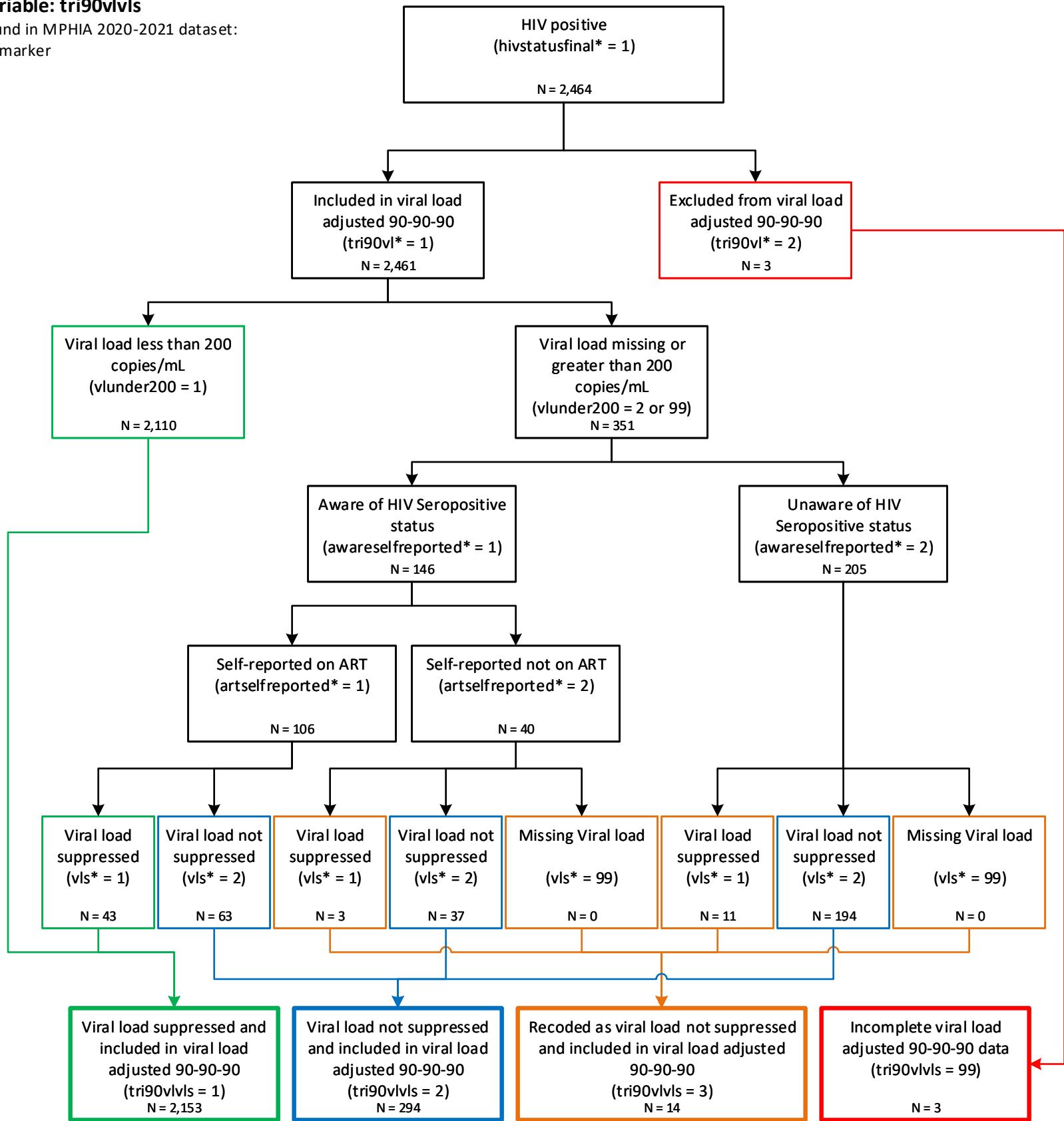
awareselfreported

artsselfreported

## Variable: tri90vlvls

Found in MPHIA 2020-2021 dataset:

Biomarker



**Variable: tri90vlvl**

Uses the following MPHIA 2020-2021 variables:

Biomarker dataset

hivstatusfinal

tri90vl

vlunder200

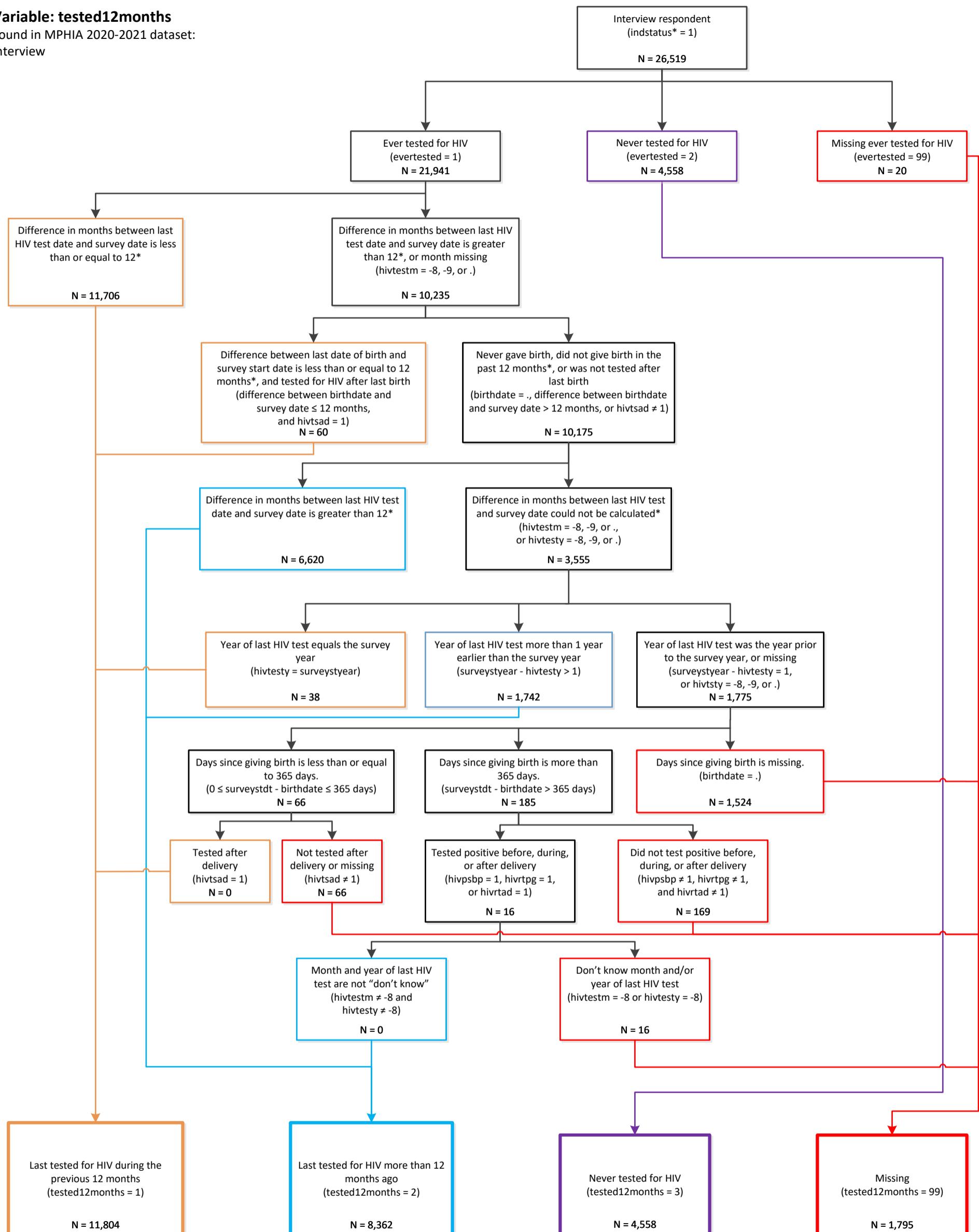
awareselfreported

artsselfreported

vls

## Variable: tested12months

Found in MPHIA 2020-2021 dataset:  
Interview



### \* Notes on date difference calculation and cleaning

The difference between HIV test date and survey date is calculated from the variables hivtestm, hivtesy, and surveystdt, which is derived from surveystday/month/year.

Birth date is derived from birthday, birthmonth, and birthyr.

Impossible or implausible date values are set to missing. This includes all dates later than the date of the interview (surveystdt), and HIV testing dates prior to 1985.

## **Variable: tested12months**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

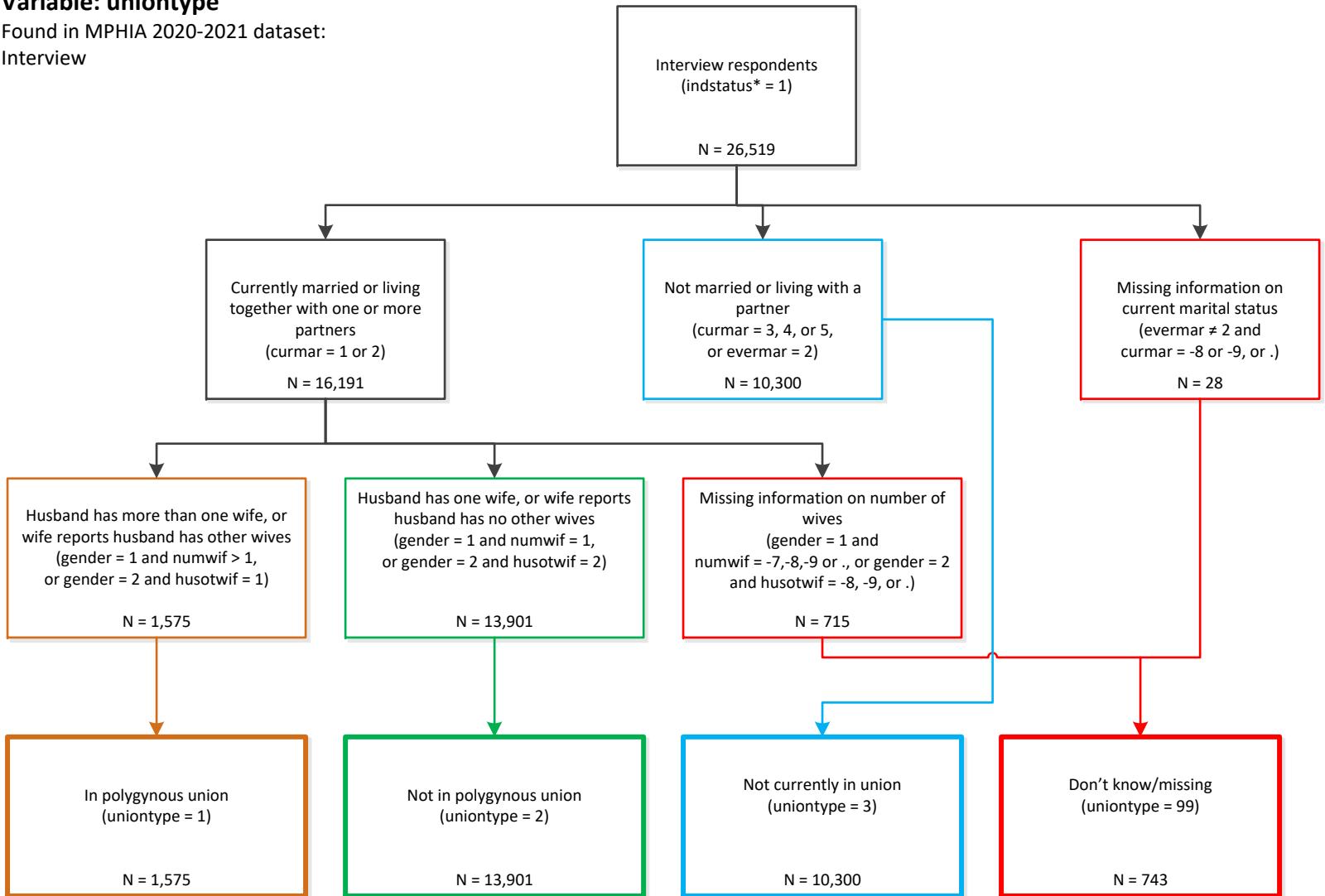
- indstatus
- evertested
- hivtestm
- hivtesty
- surveystday†
- surveystmonth
- surveystyear
- hivtsad
- hivpsbp
- hivrtpg
- hivrtad
- birthday†
- birthmont†
- birthyr

† Variable redacted from final dataset due to small counts and disclosure risk

## Variable: uniontype

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: uniontype**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

curmar

evermar

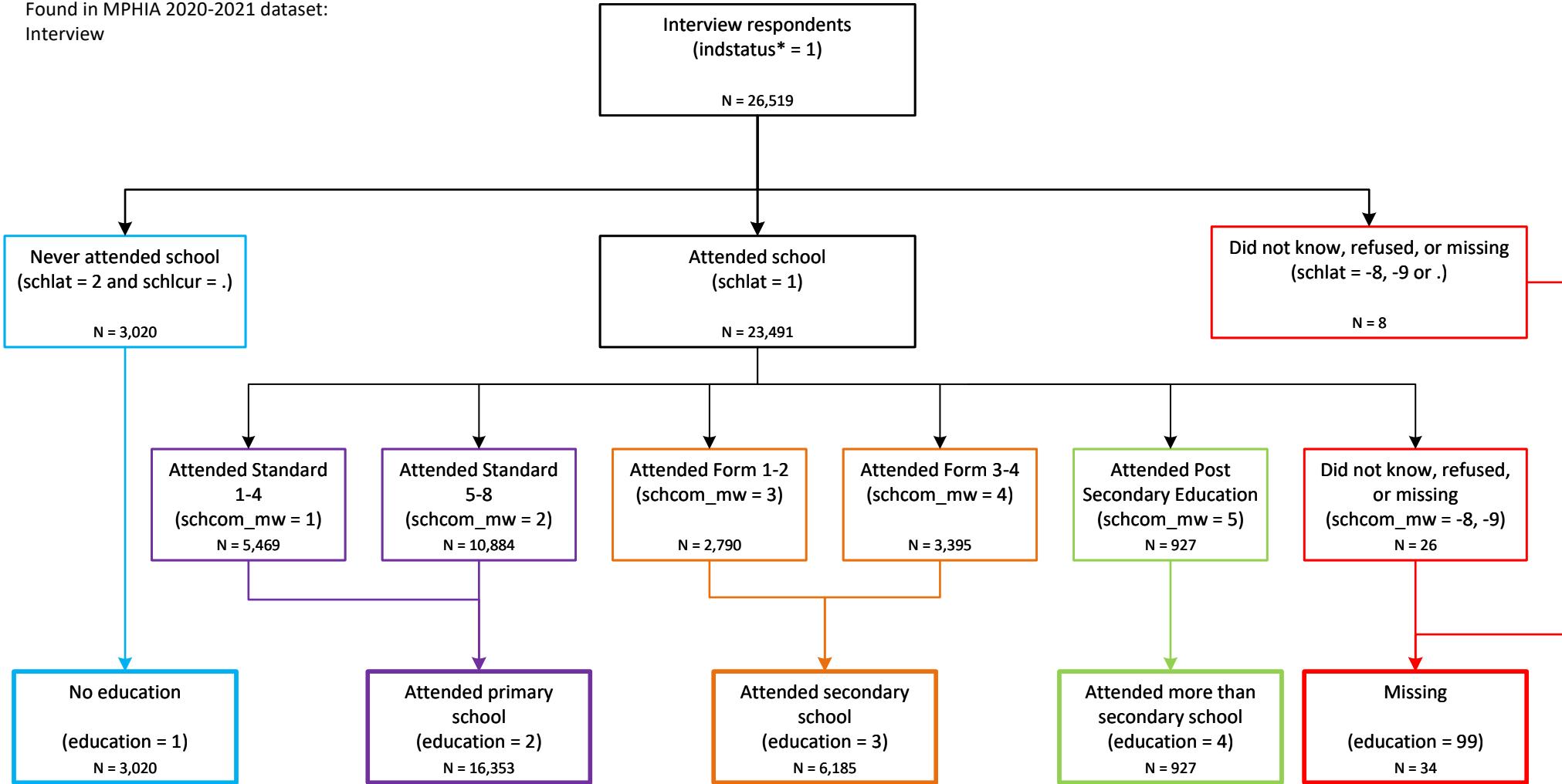
numwif

husotwif

## Variable: education

Found in MPHIA 2020-2021 dataset:

Interview



## **Variable: education**

Uses the following MPHIA 2020-2021 variables :

Interview dataset

indstatus

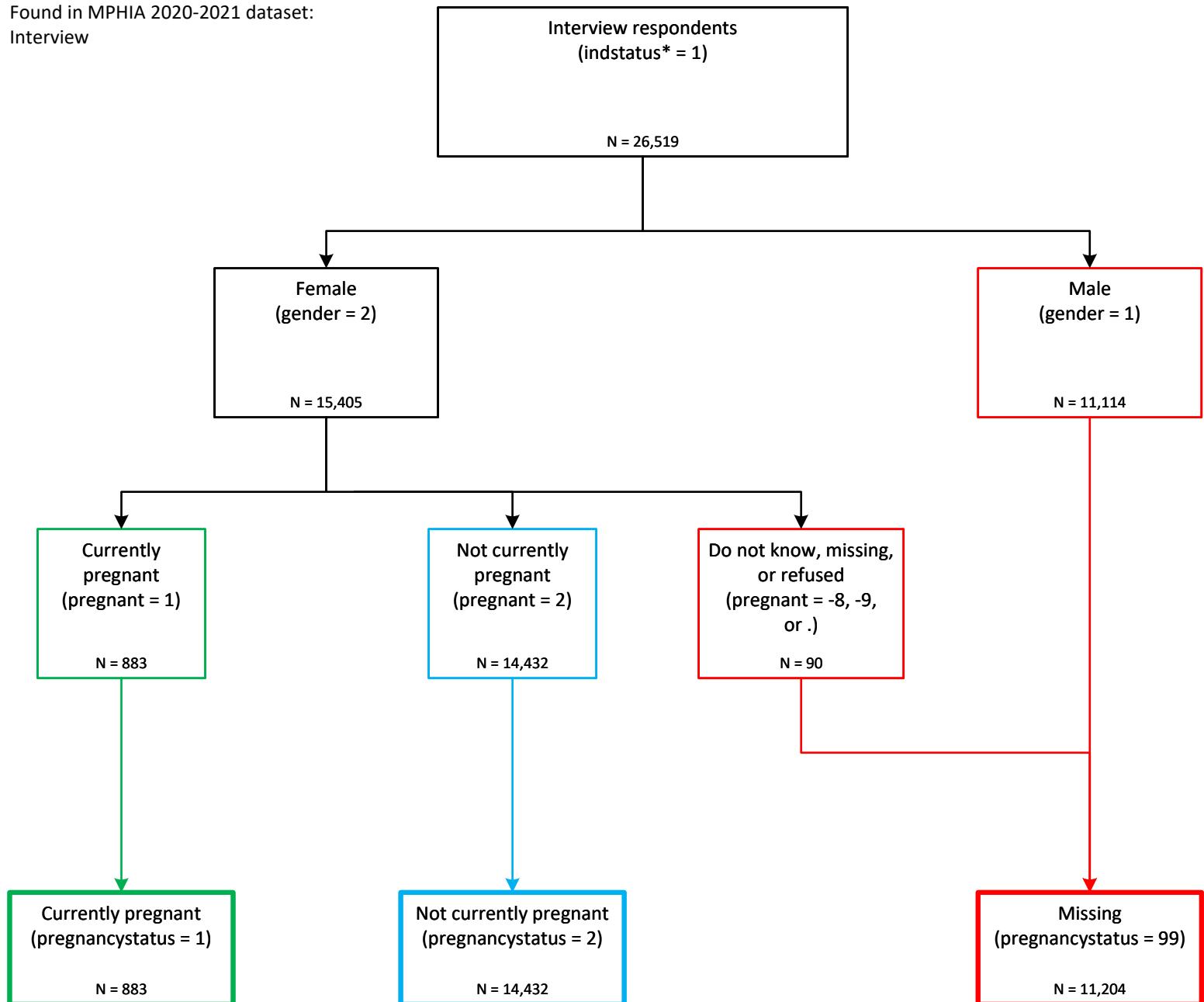
schlat

schlcur

schcom\_mw

## Variable: pregnancystatus

Found in MPHIA 2020-2021 dataset:  
Interview



**Variable: pregnancystatus**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

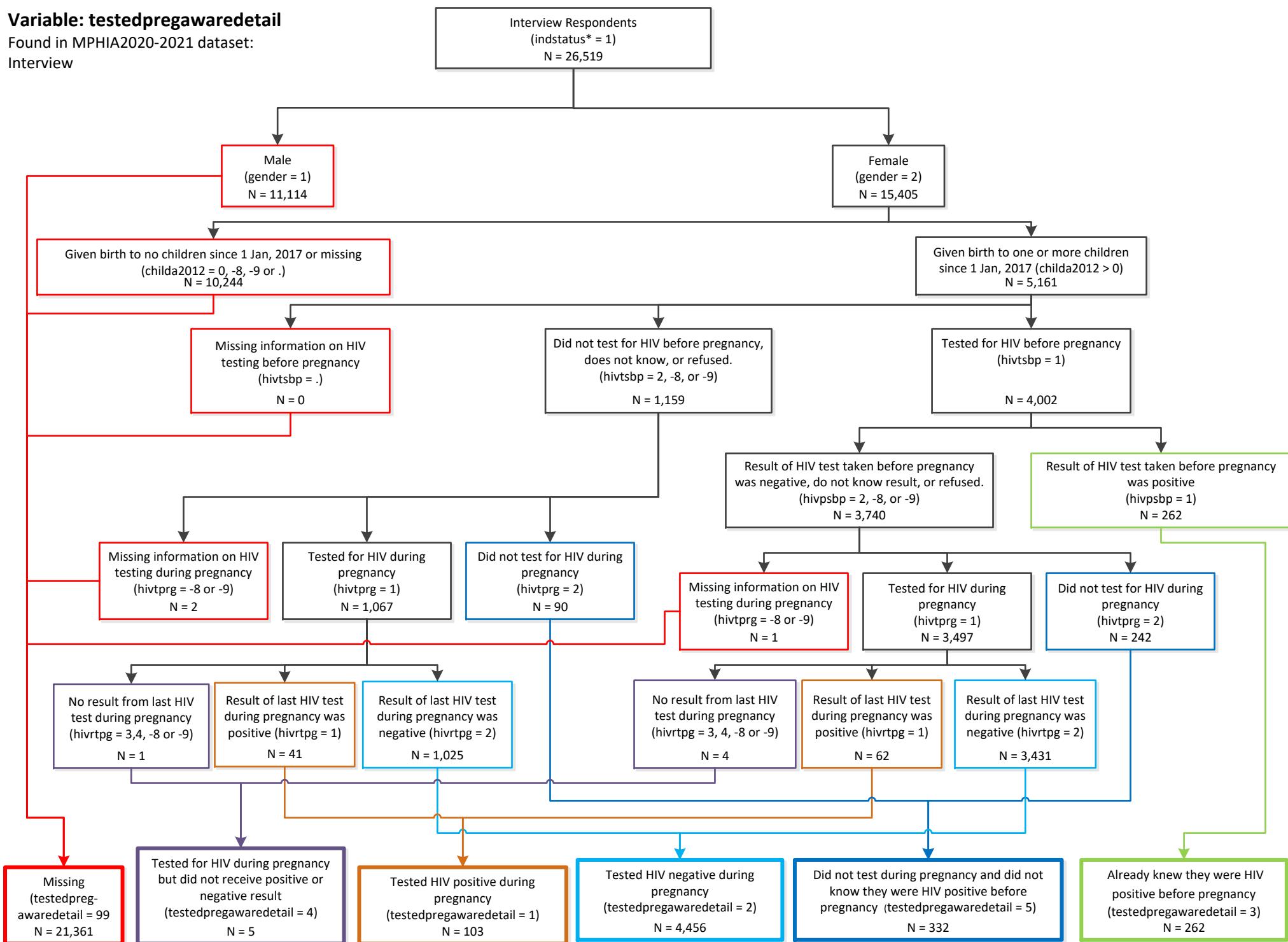
gender

pregnant

## Variable: testedpregawareddetail

Found in MPHIA2020-2021 dataset:

Interview



**Variable: testedpregawaredetail**

Uses the following MPHIA 2020-2021 variables:

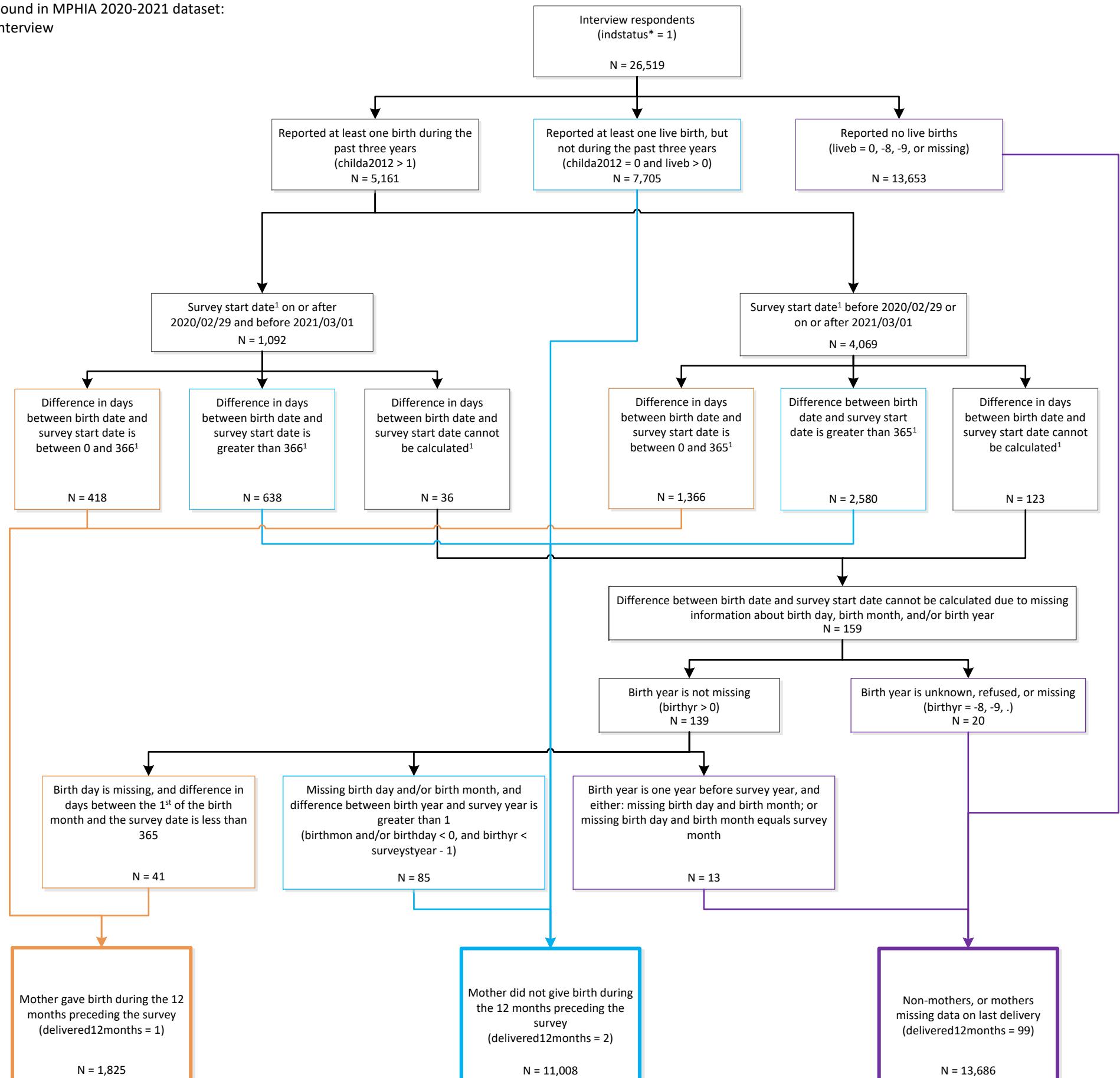
Interview dataset

indstatus  
gender  
childa2012  
hivtsbp  
hivpsbp  
hivtprg  
hivrtpg

## Variable: delivered12months

Found in MPHIA 2020-2021 dataset:

Interview



<sup>1</sup> Survey start date, the start date for the PHIA interview, is computed using surveystday, surveystmonth, and surveystyear.

Birth date, the date of the mother's most recent birth, is computed using birth month (birthmon), birth day (birthday), and birth year (birthyr). Invalid dates, such as dates after the survey start date, or invalid days (eg. 31<sup>st</sup> of September) are cleaned before calculating date differences.

**Variable: delivered12months**

Uses the following MPHIA 2020-2021 variables:

Interview

indstatus

childa2012

liveb

surveystday†

surveystmonth

surveystyear

birthyr

birthmont†

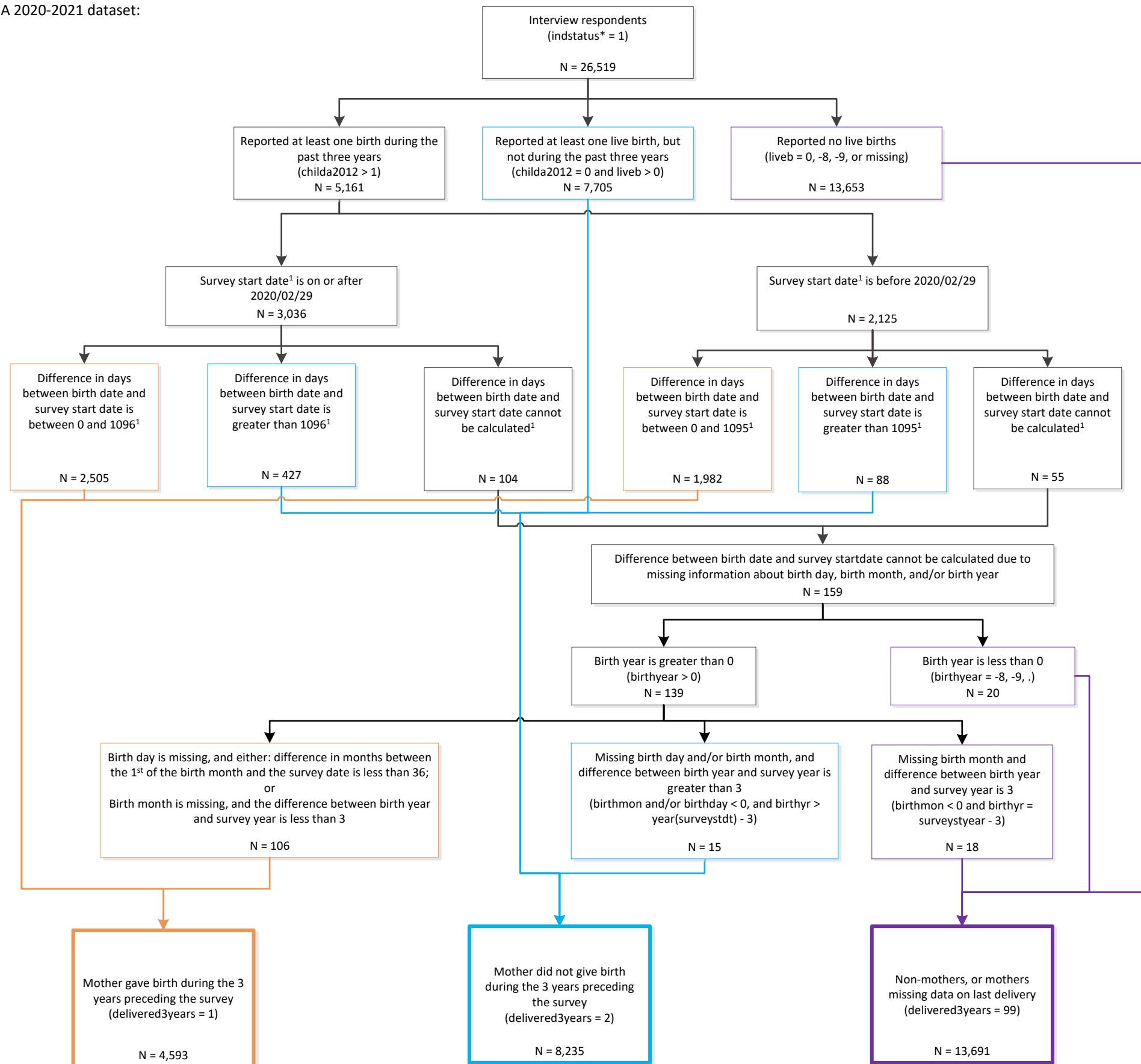
birthday†

† Variable redacted from final dataset due to small counts and disclosure risk.

## Variable: delivered3years

Found in MPHIA 2020-2021 dataset:

Interview



Birth date, the date of the mother's most recent birth, is computed using birth month (birthmon), birth day (birthday), and birth year (birthyr). Invalid dates, such as dates after the survey start date, or invalid days (eg. 31<sup>st</sup> of September) are cleaned before calculating date differences.

**Variable: delivered3years**

Uses the following MPHIA 2020-2021 variables:

Interview

indstatus

childa2012

liveb

surveystday†

surveystmonth

surveystyear

birthyr

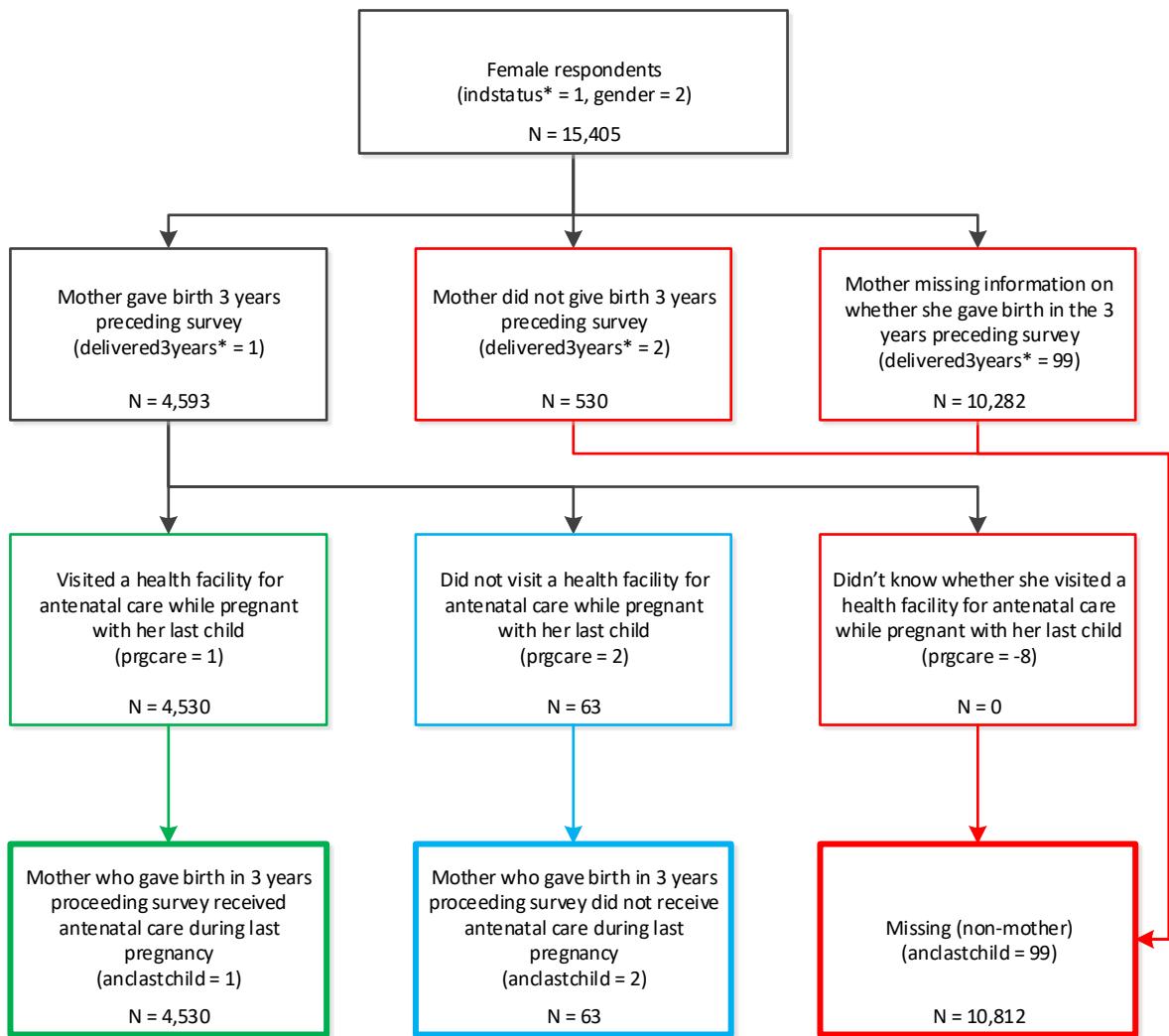
birthmont†

birthday†

† Variable redacted from final dataset due to small counts and disclosure risk.

## Variable: anlastchild

Found in MPHIA 2020-2021 dataset:  
Interview



**Variable: anclastchild**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

gender

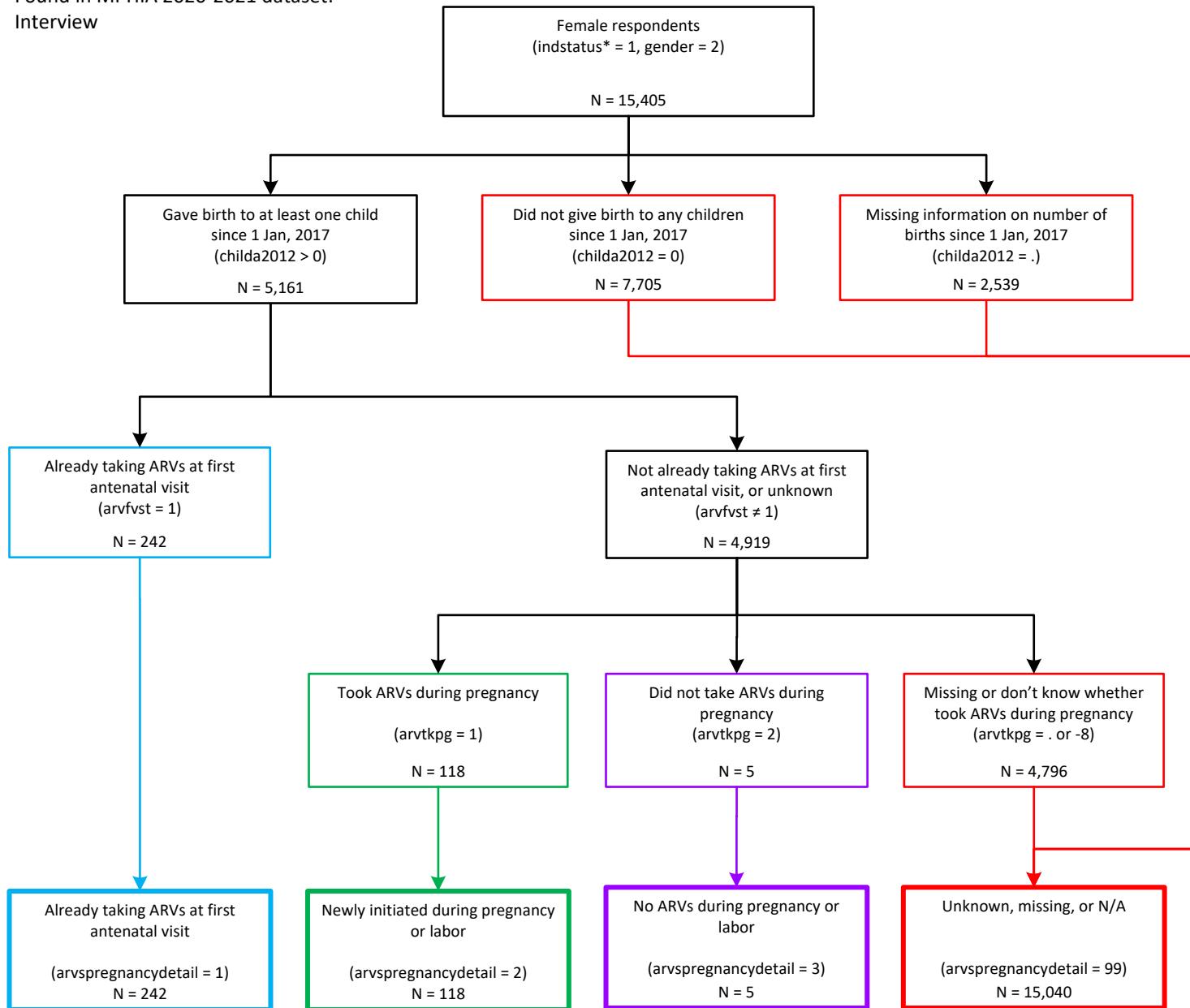
delivered3years

prgcare

## Variable: arvspregnancydetail

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: arvspregnancydetail**

Uses the following MPHIA 2020-2021 variables:

Interview

indstatus

gender

childa2012

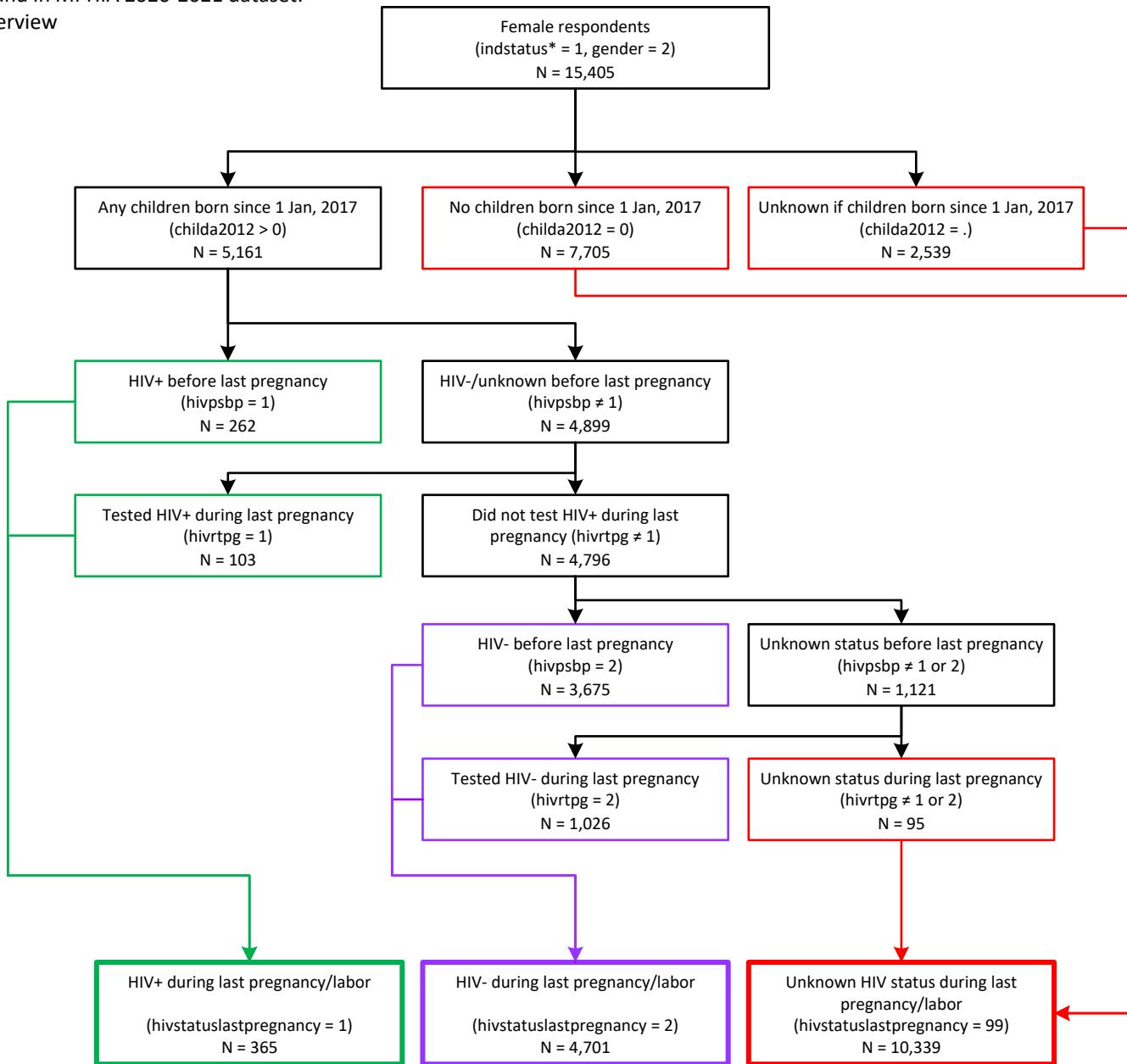
arfvst

arvtkpg

## Variable: hivstatuslastpregnancy

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: hivstatuslastpregnancy**

Uses the following MPHIA 2020-2021 variables:

Interview

indstatus

gender

childa2012

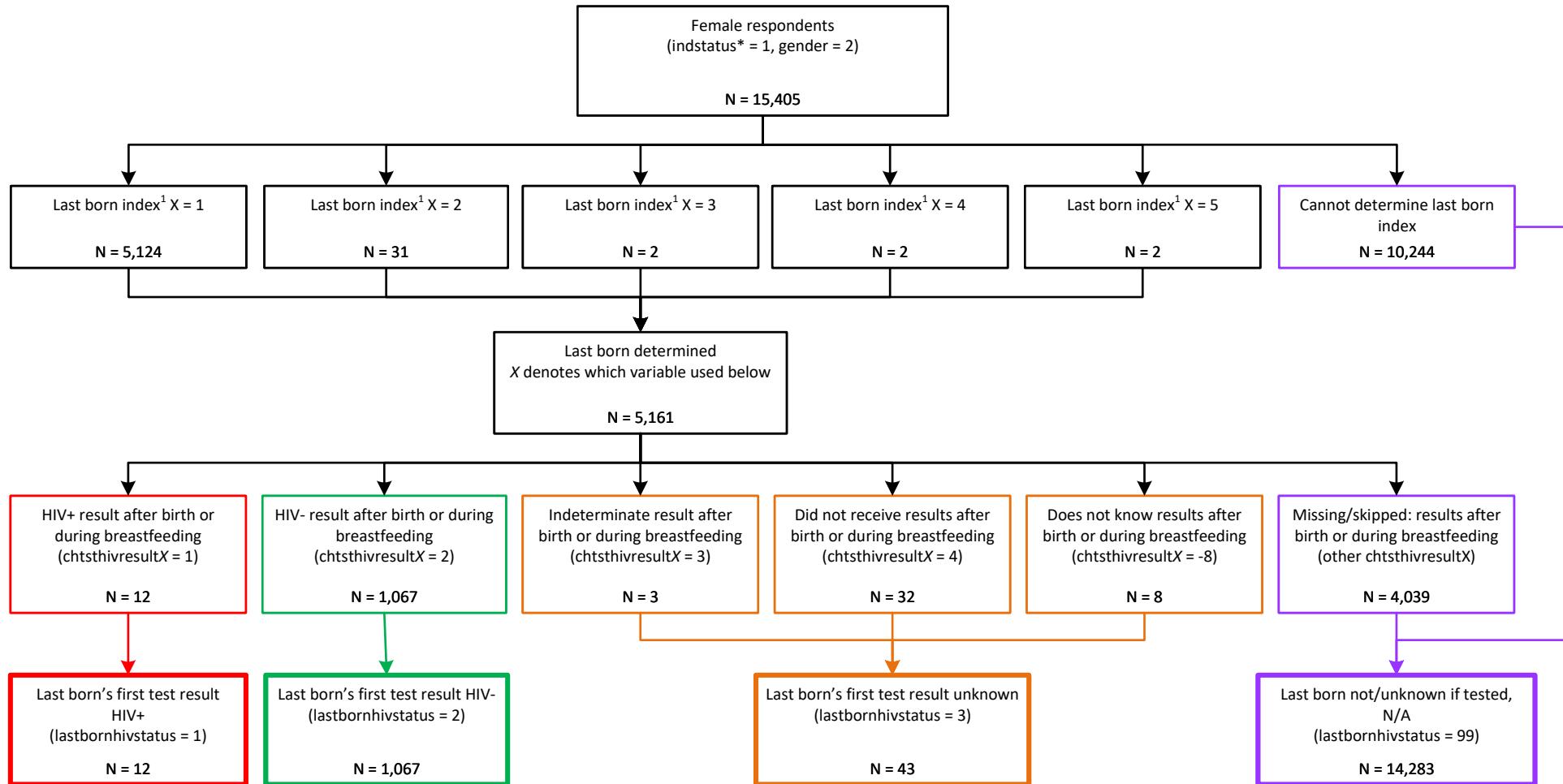
hivpsbp

hivrtpg

## Variable: lastbornhivstatus

Found in MPHIA 2020-2021 dataset:

Interview



<sup>1</sup> Last born child is defined as the highest number X for which the variable chldaliveX is not missing.

**Variable: lastbornhivstatus**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

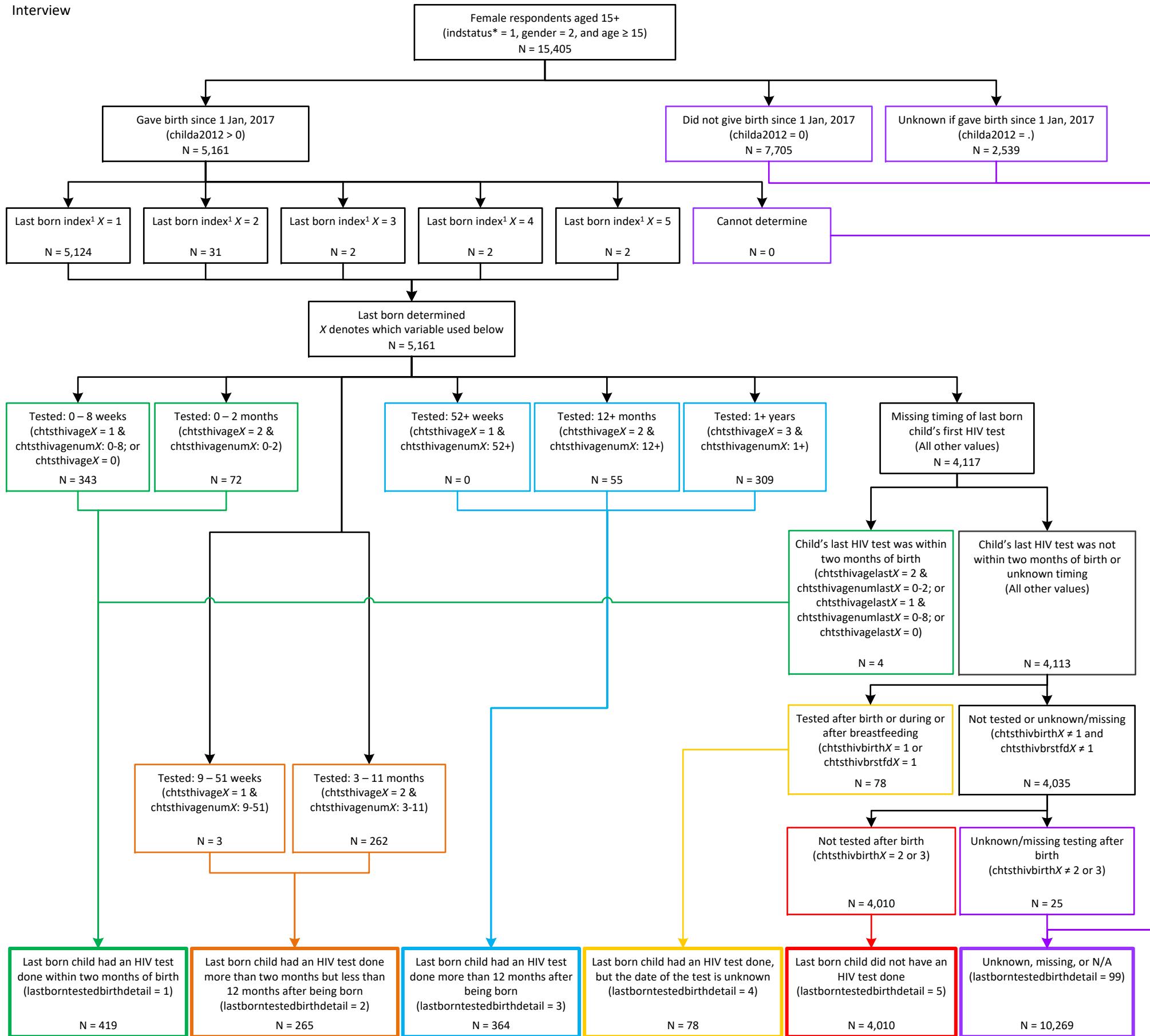
- indstatus
- gender
- childalive1
- childalive2-5†
- chtsthivresult1
- chtsthivresult2-5

† Variable redacted from final dataset due to small counts and disclosure risk

## Variable: lastborntestedbirthdetail

Found in MPHIA 2020-2021 datasets:

Interview



<sup>1</sup> Last born child is defined as the highest number X for which the variable chldaliveX is not missing.

**Variable: lastborntestedbirthdetail**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

age  
gender  
indstatus  
childa2012  
childalive1  
childalive2-5†  
chtsthivbirth1  
chtsthivbirth2-5†  
chtsthivbrstfd1  
chtsthivbrstfd2-4†  
chtsthivage1-4†  
chtsthivagenum1-4†  
chtsthivagelast1-4†  
chtsthivagelastnum1-4†

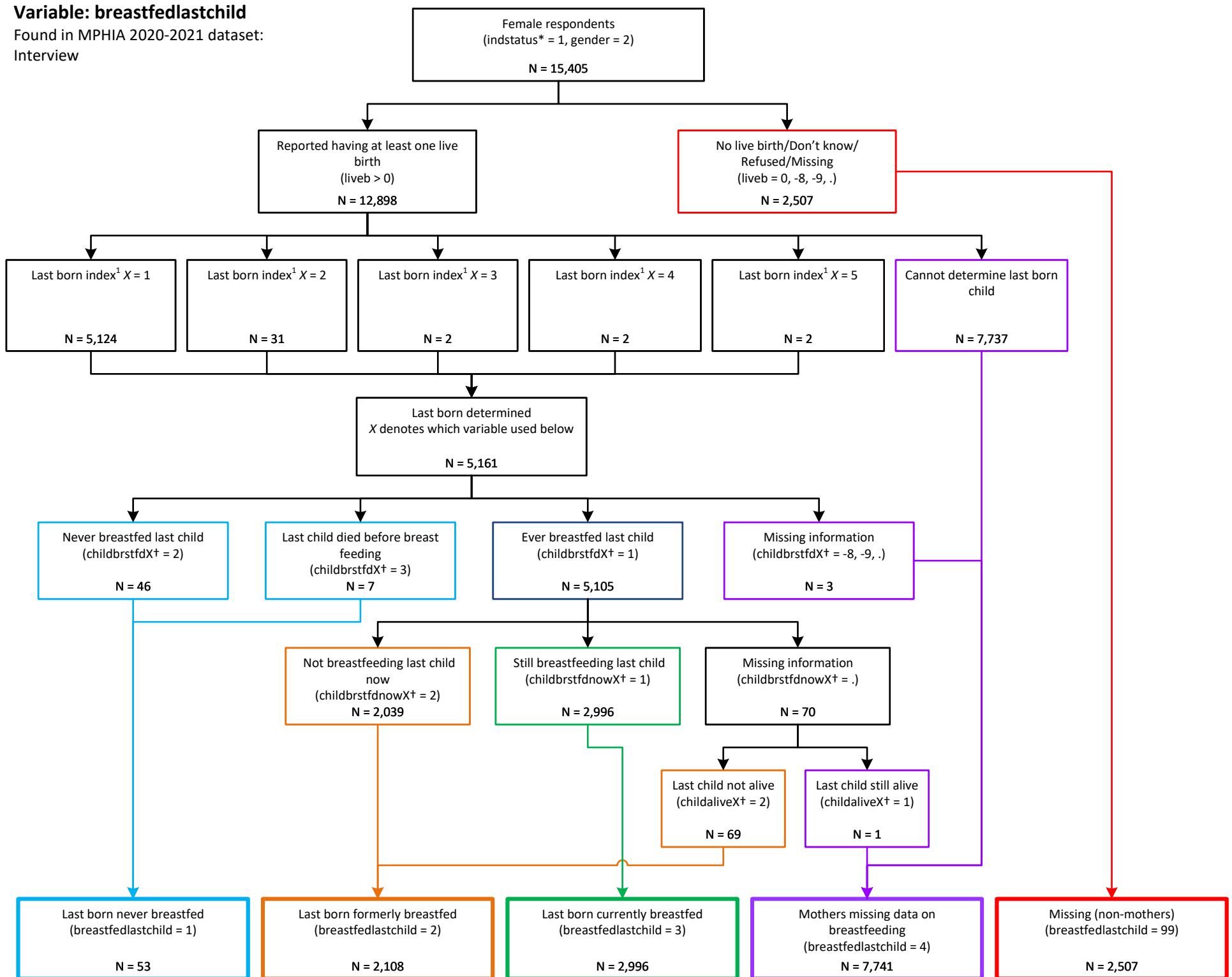
† Variable redacted from final dataset due to small counts and disclosure risk.

Note: standardized variables chtsthivagem1 and chtsthivagelastm1, recording the age in months of first/last test, are available in the interview dataset.

## Variable: breastfedlastchild

Found in MPHIA 2020-2021 dataset:

Interview



<sup>1</sup> Last born child is defined as the highest number X for which the variable childaliveX† is not missing.

**Variable: breastfedlastchild**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

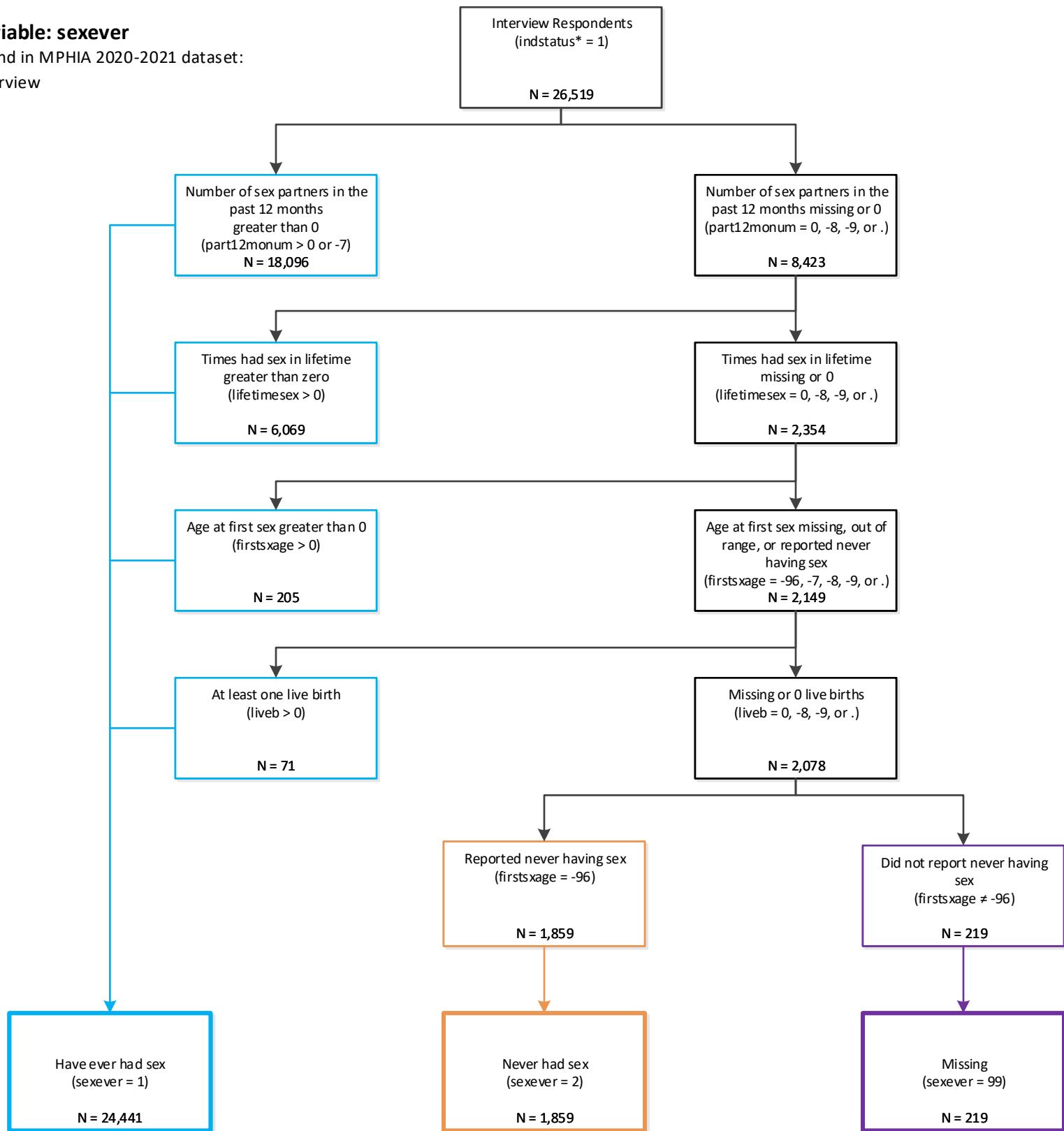
- indstatus
- gender
- liveb
- childalive1
- childalive2-5†
- childbrstfd1
- childbrstfd2-5†
- childbrstfdnow1
- childbrstfdnow2-5†

† Variable redacted from final dataset due to small counts and disclosure risk

## Variable: sexever

Found in MPHIA 2020-2021 dataset:

Interview



## **Variable: sexever**

Uses the following MPHIA 2020-2021 variables:

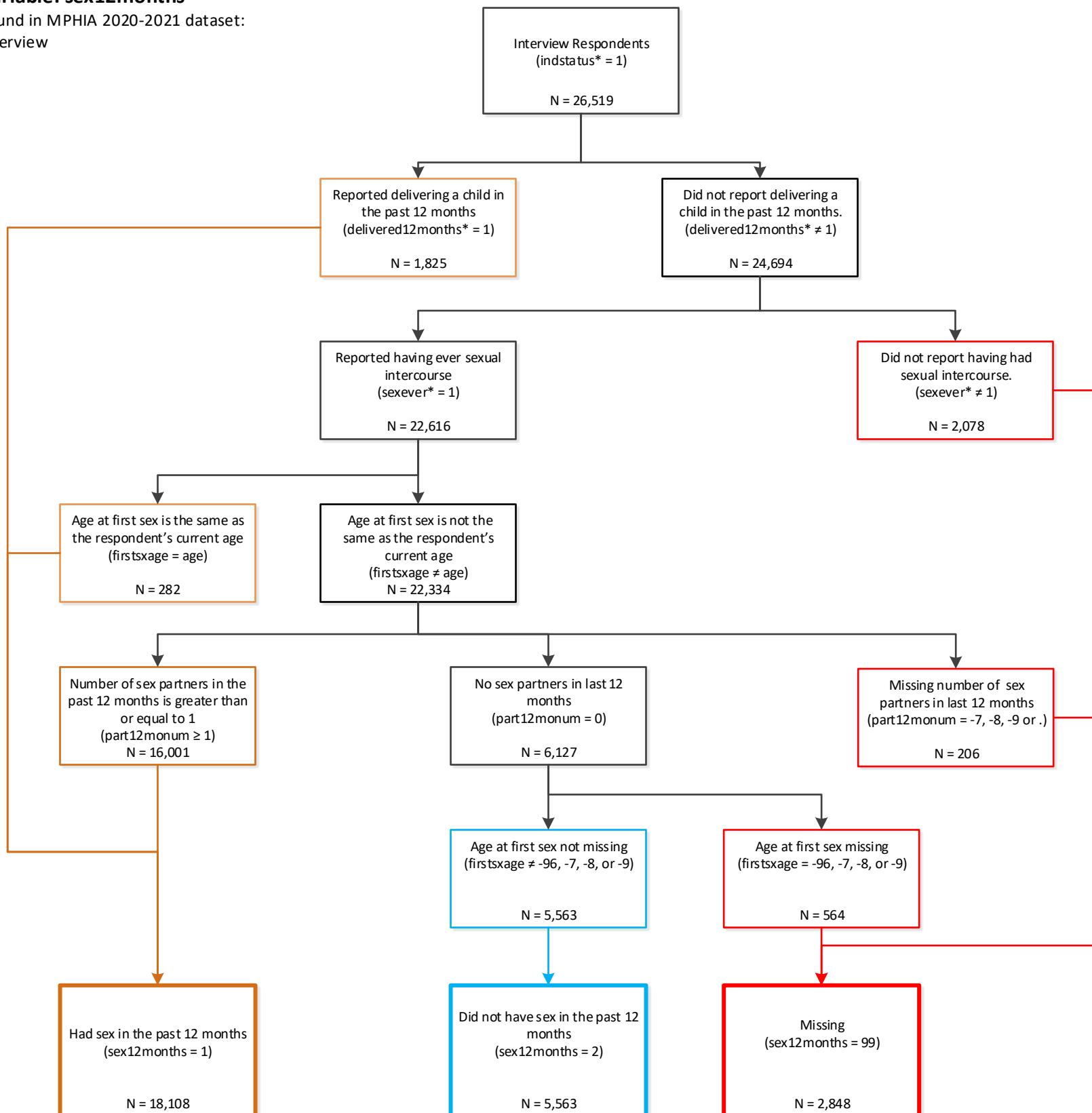
Interview dataset

- indstatus
- part12monum
- lifetimesex
- liveb
- firstrsxage

## Variable: sex12months

Found in MPHIA 2020-2021 dataset:

Interview



1. Number of sex partners in the past 12 months is out of range for women who had a child in the past 12 weeks.

**Variable: sex12months**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

delivered12months

sexever

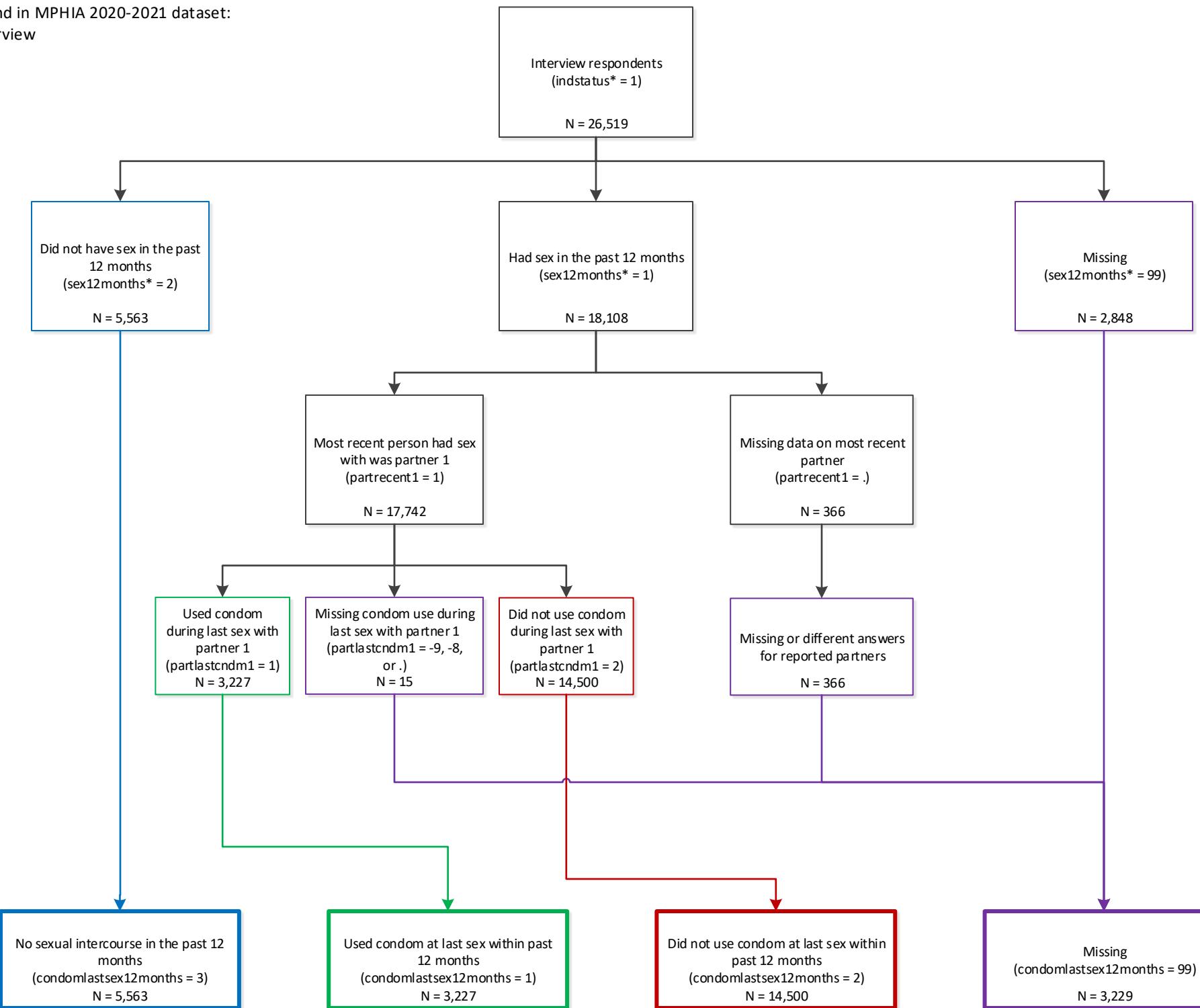
part12monum

firsxage

## Variable: condomlastsex12months

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: condomlastsex12months**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

sex12months

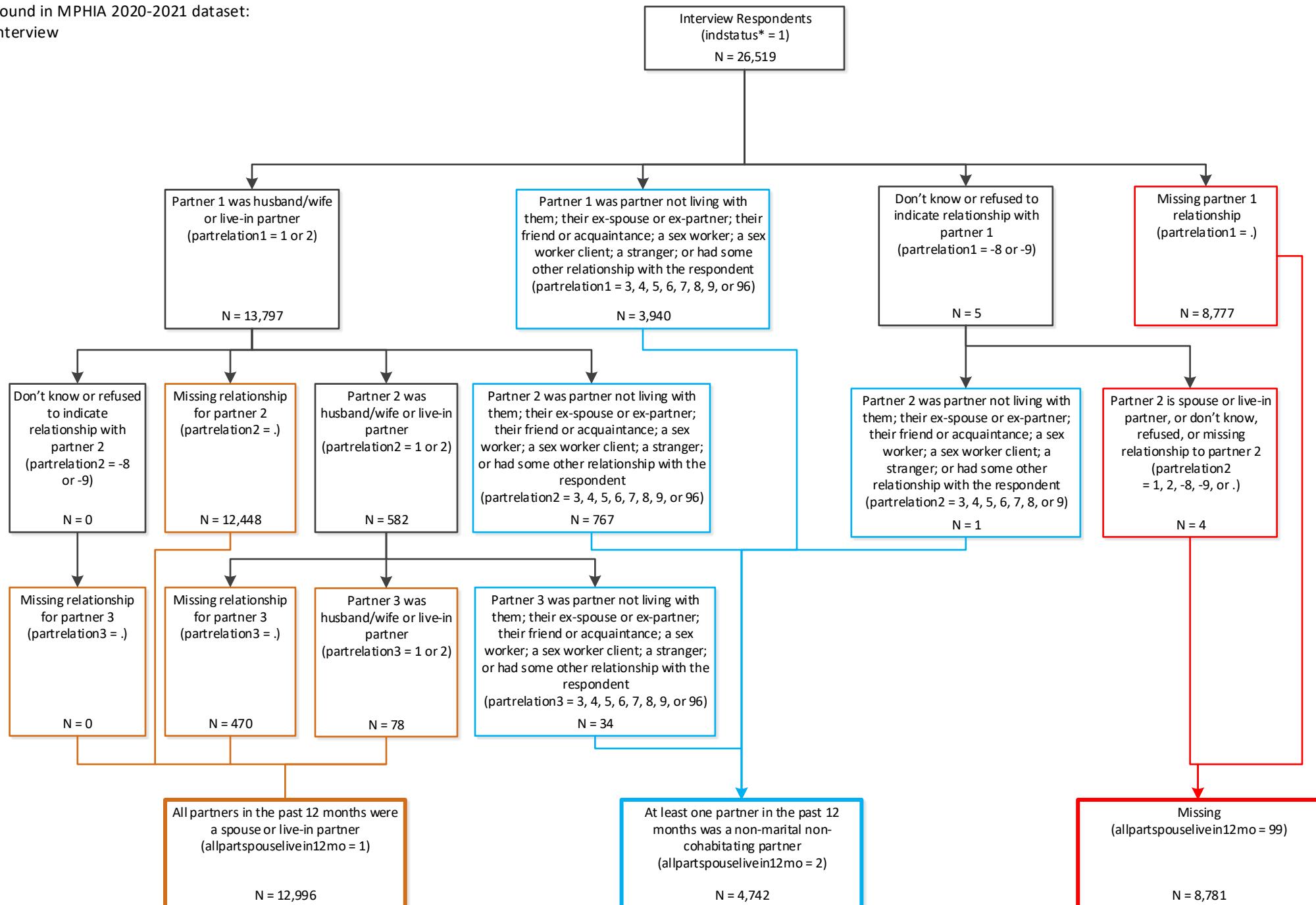
partrecent1

partlastcndm1-3

## Variable: allpartspouselivein12mo

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: allpartspouselivein12months**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

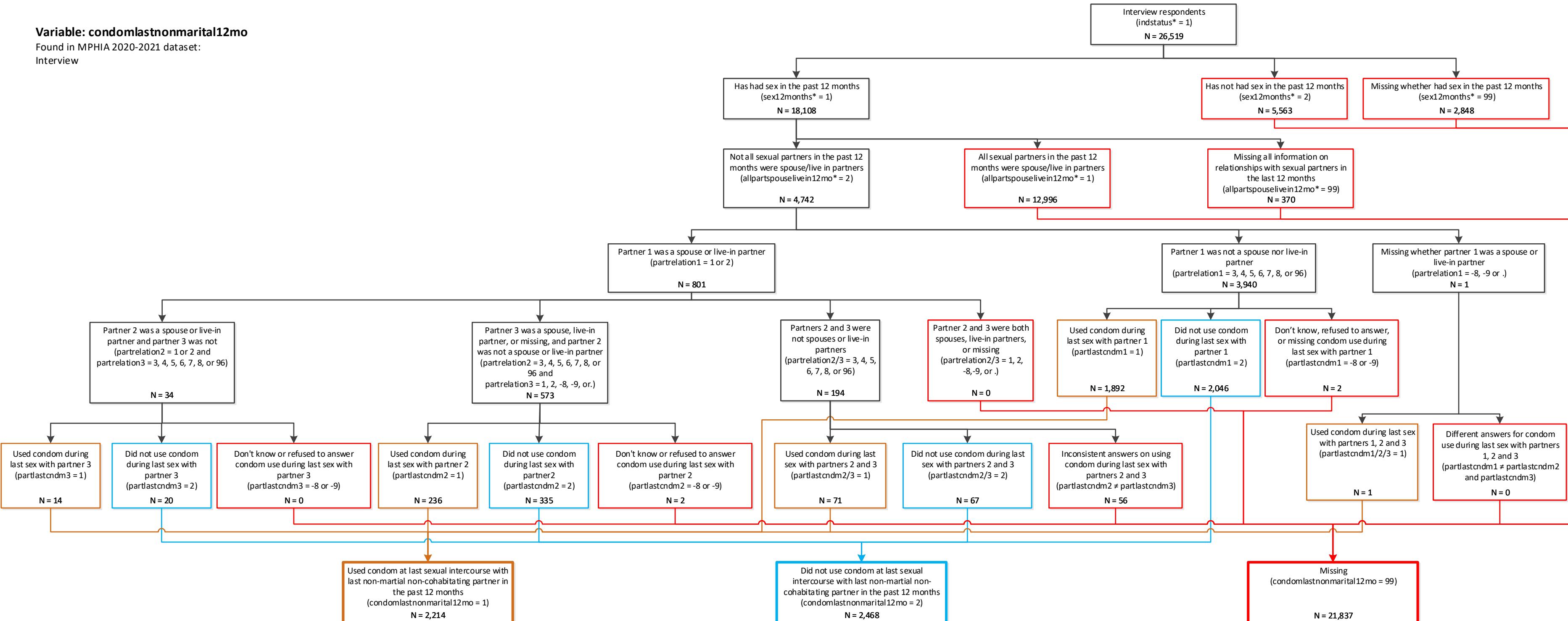
indstatus

partrelation1-3

**Variable: condomlastnonmarital12mo**

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: condomlastnonmarital12mo**

Uses the following MPHIA 2020-2021 variables:

Adult Interview dataset

indstatus

sex12months

allpartspouselivein12mo

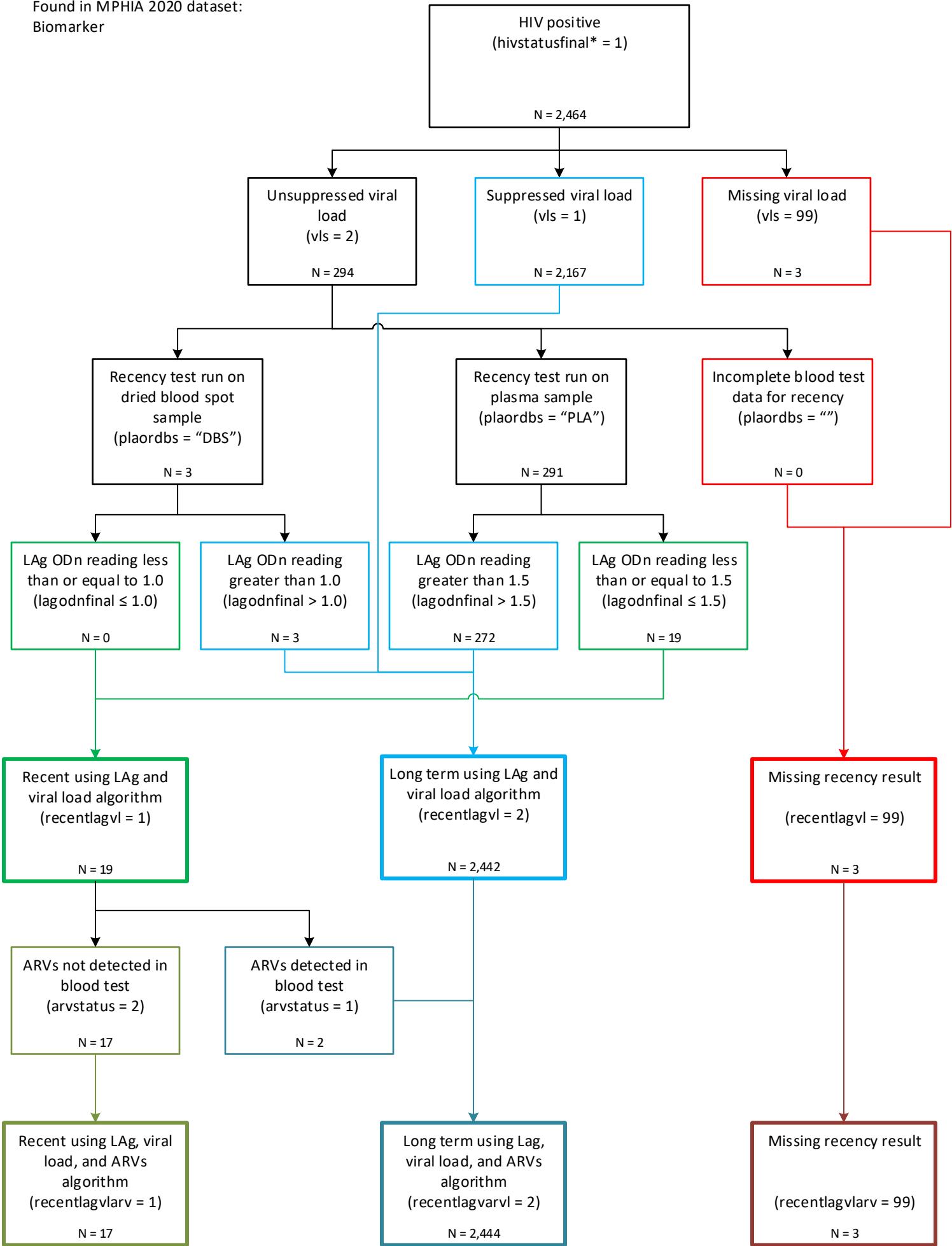
partrelation1-3

partlastcndm1-3

## Variable: recentlagvl/recentlagvlarv

Found in MPHIA 2020 dataset:

Biomarker



**Variable: recentlagvl/recentlagvlarv**

Uses the following MPHIA 2020 variables:

Biomarker dataset

hivstatusfinal

vls

plaordbs

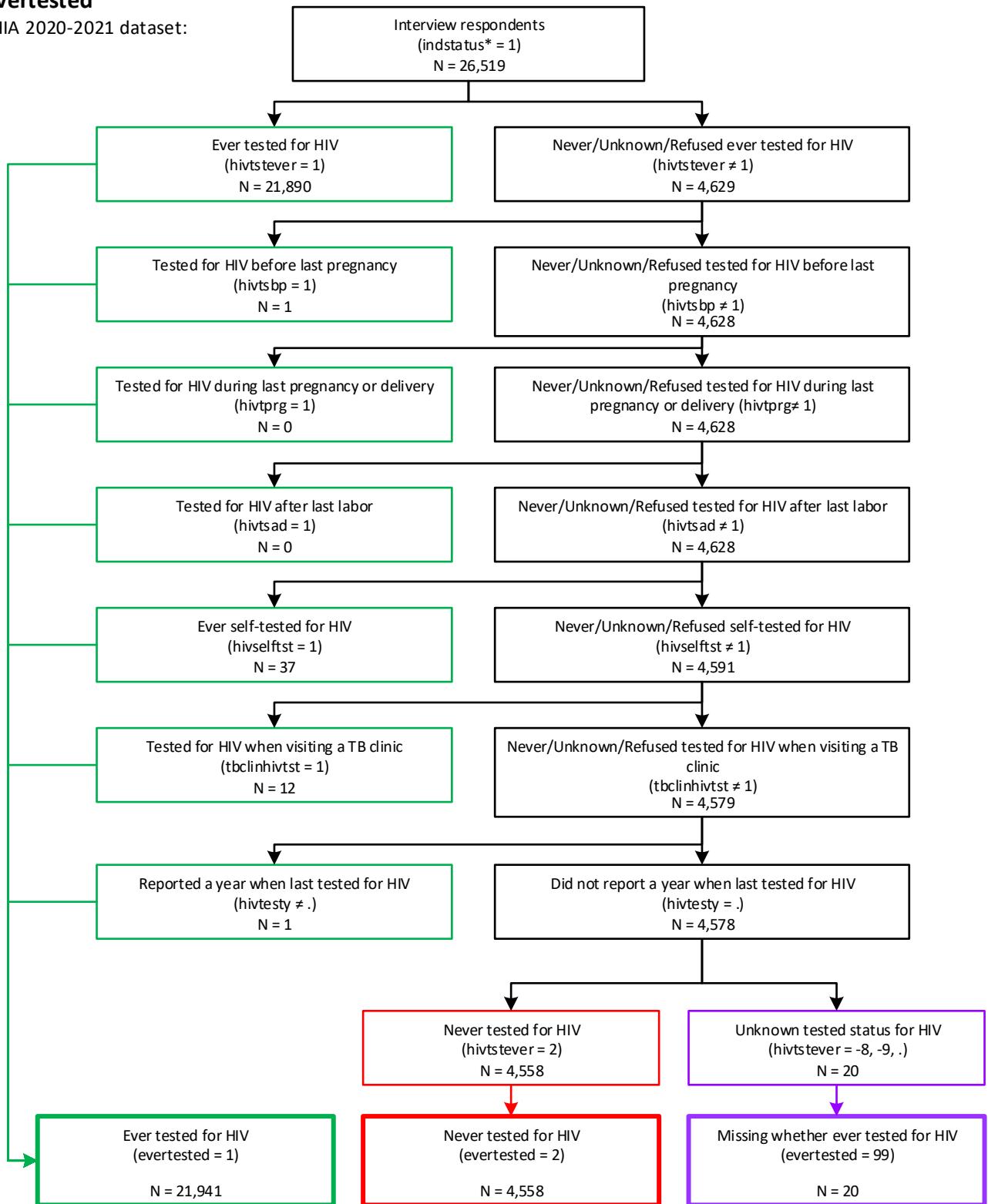
lagodnfinal

arvstatus

## Variable: evertested

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: evertested**

Uses the following MPHIA 2020-2021 variables:

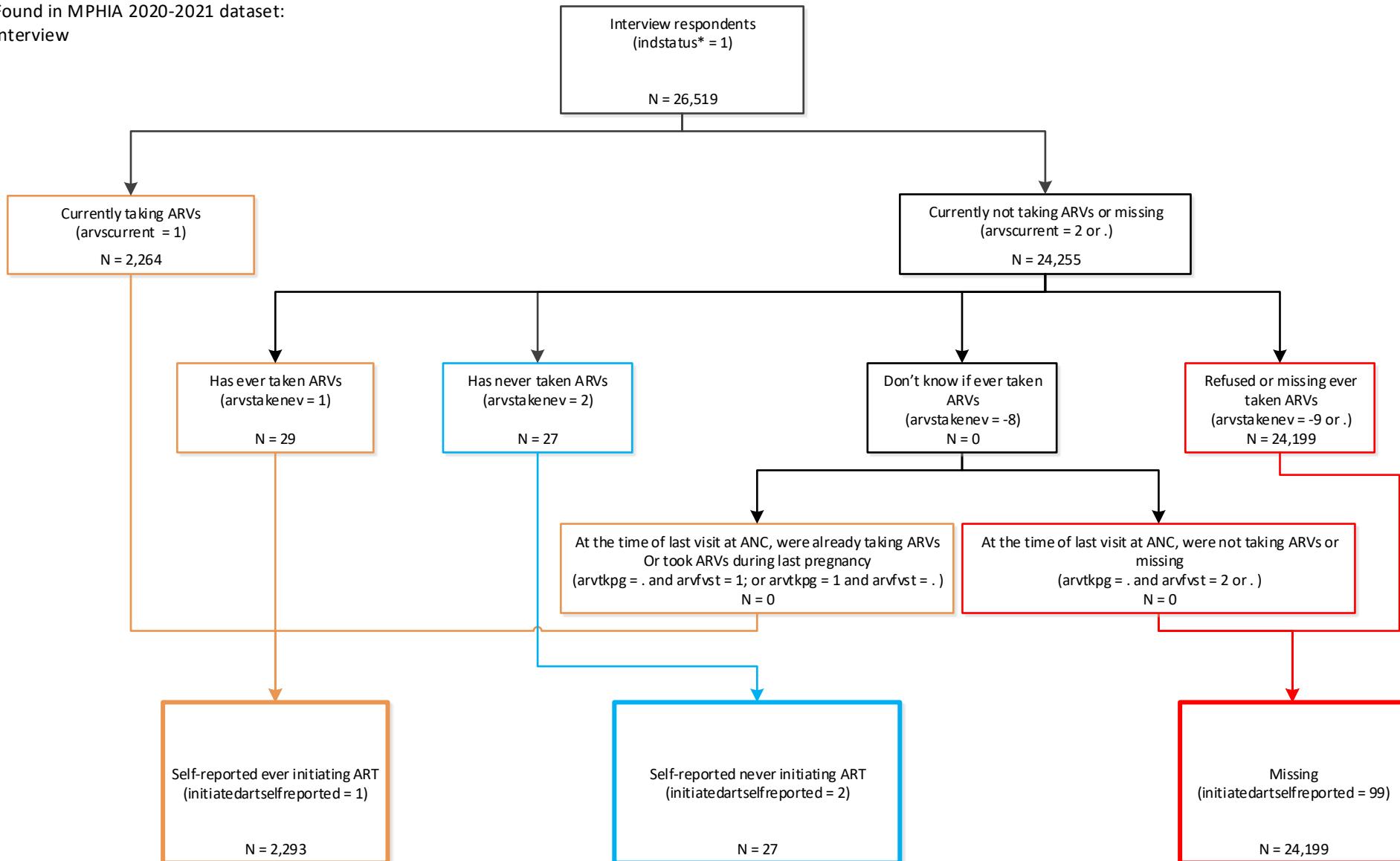
Interview

indstatus  
hivtstever  
hivtsbp  
hivtprg  
hivtsad  
hivselftst  
tbclinhivtst  
hivtesty  
evertested

## Variable: initiatedartselfreported

Found in MPHIA 2020-2021 dataset:

Interview



**Variable: initiatedartselfreported**

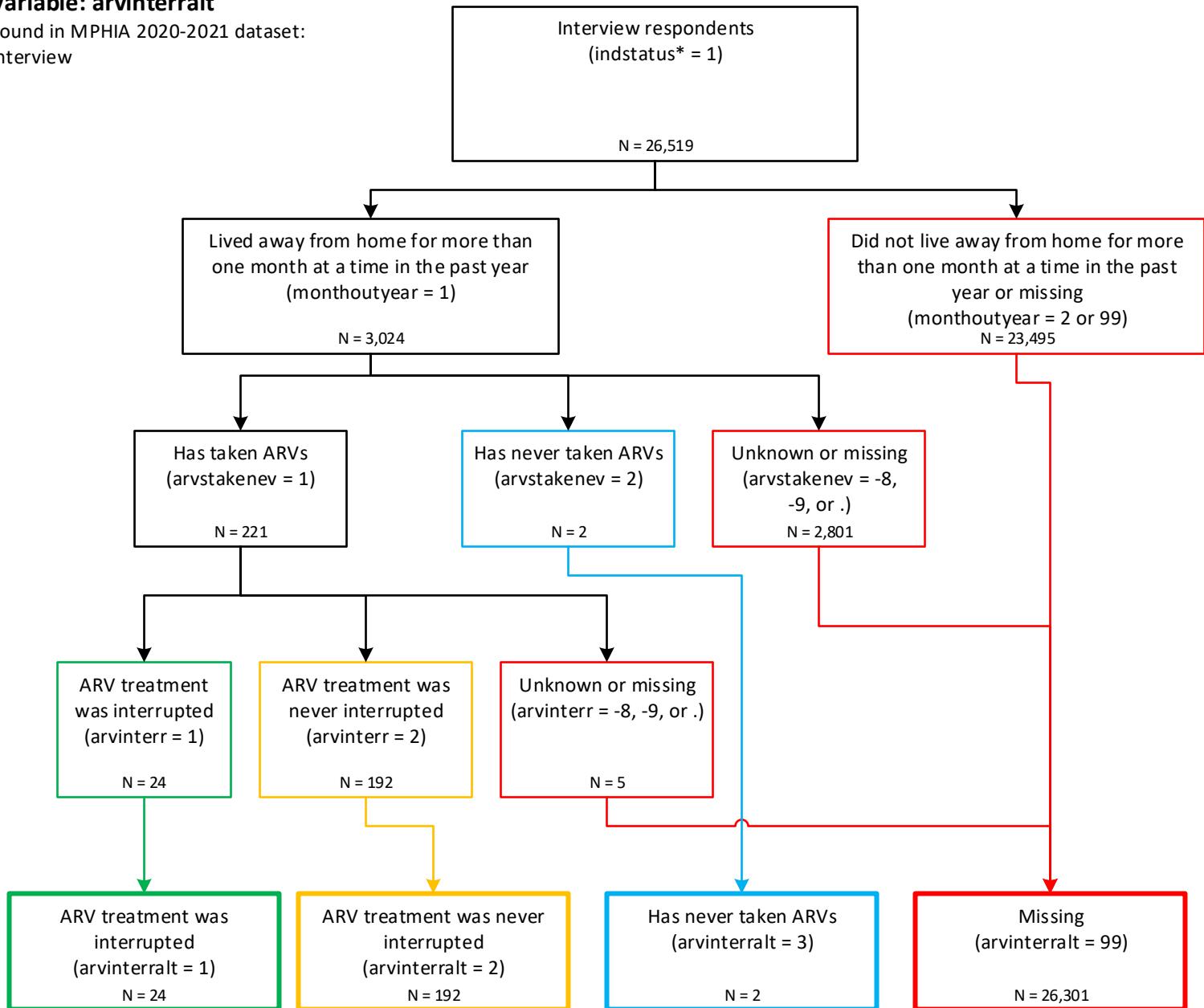
Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus  
arvscurrent  
arvstakenev  
arfvst  
arvtkpg

## Variable: arvinterralt

Found in MPHIA 2020-2021 dataset:  
Interview



## **Variable: arvinterralt**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

arvstakenev

arvinterr

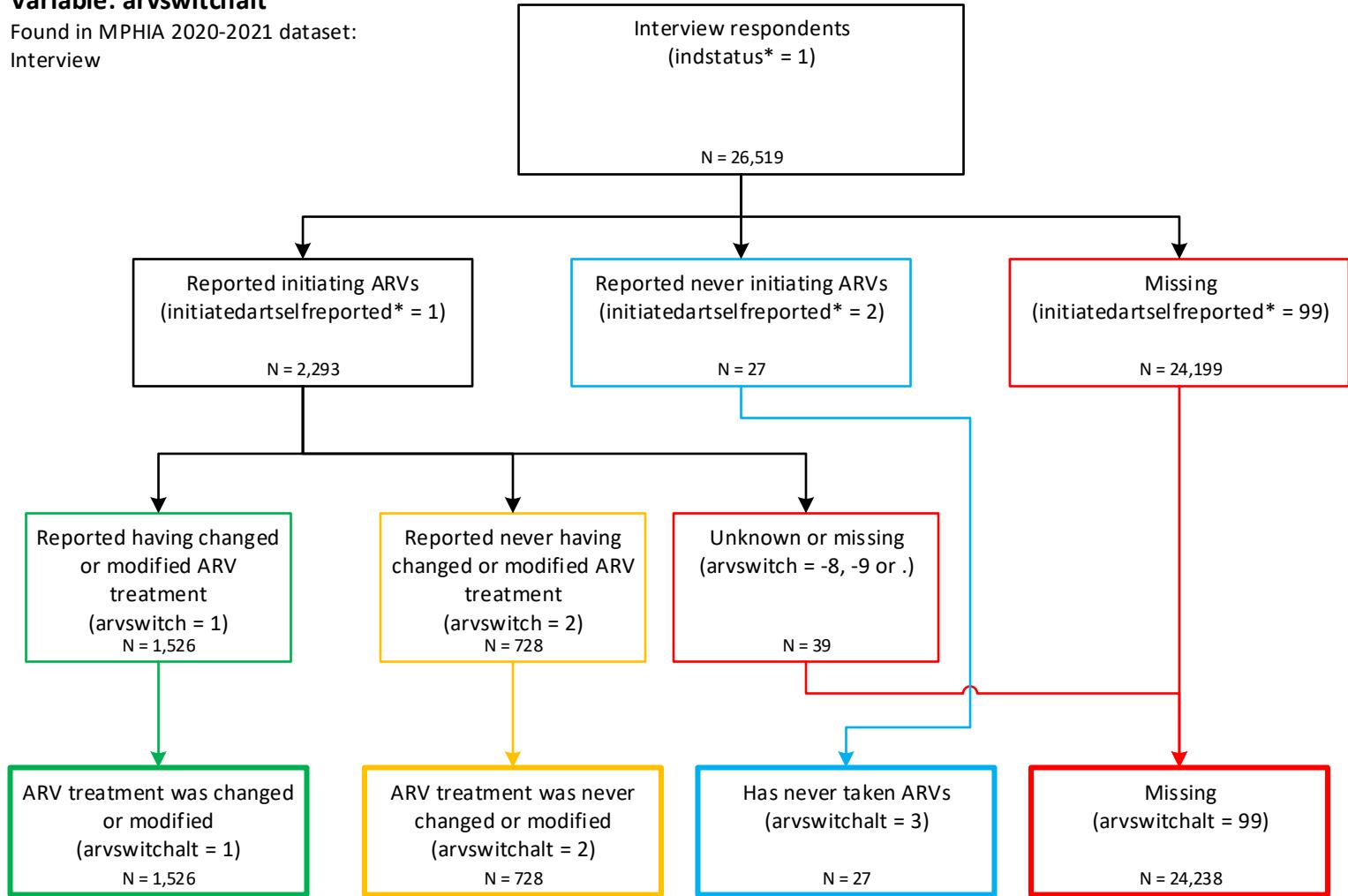
indstatus

monthoutyear

## Variable: arvswitchalt

Found in MPHIA 2020-2021 dataset:

Interview



## **Variable: arvswitchalt**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

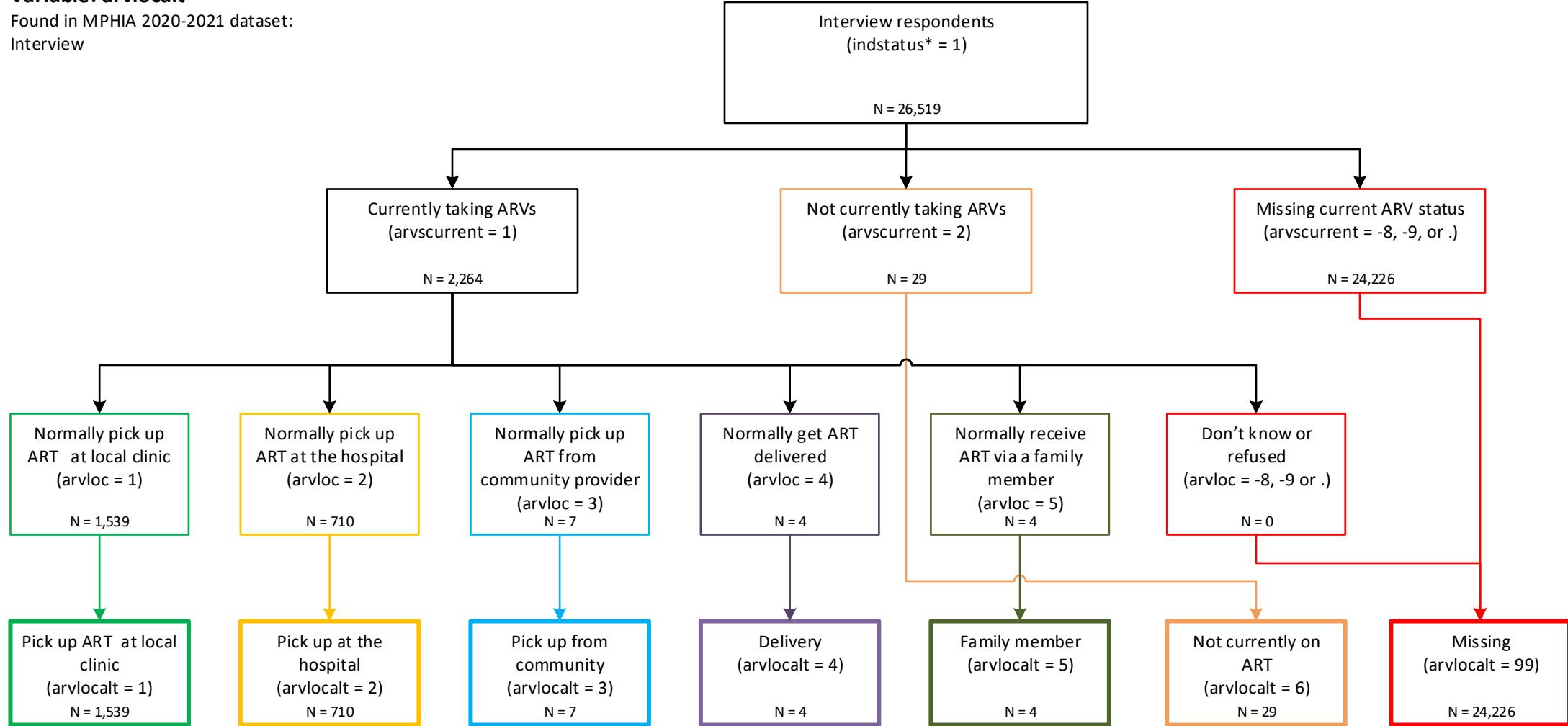
indstatus

initiatedartselfreported

arvswitch

## Variable: arvlocalt

Found in MPHIA 2020-2021 dataset:  
Interview  
Interview



## **Variable: arvlocalt**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

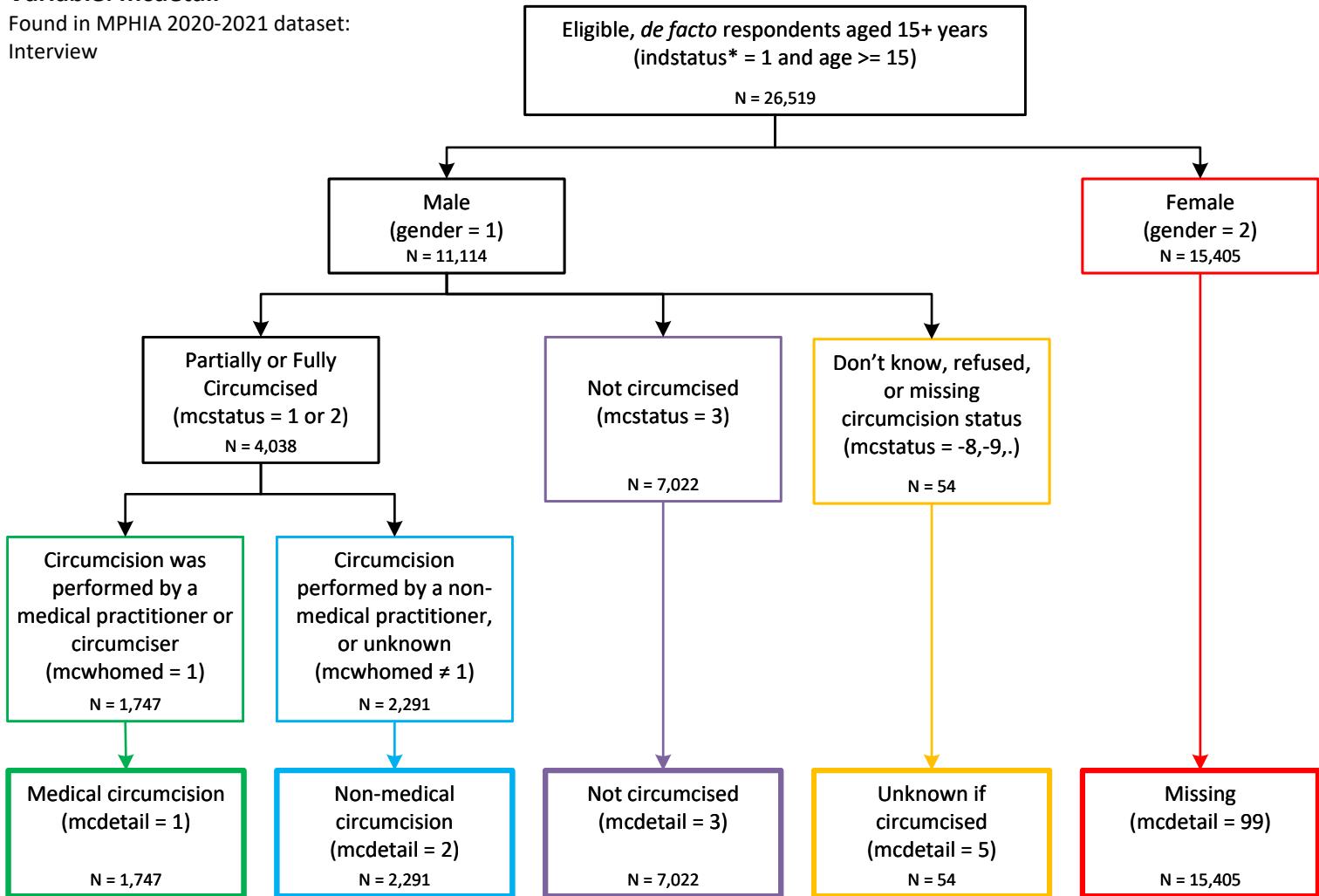
arvscurrent

arvloc

## Variable: mcdetail

Found in MPHIA 2020-2021 dataset:

Interview



## **Variable: mcdetail**

Uses the following MPHIA 2020-2021 variables:

Interview dataset

indstatus

age

gender

mcstatus

mcwhomed