Appendix III

Incident Disease Variables Included in Dataset

Variable	Variable Description	Grouping	Corresponding days-to-event variable	Corresponding definite/possible variable	Corresponding event date variable	Corresponding PrevDz variable
CANANYi	Incident cancer, any type (except non-melanoma skin), by self-report/meds	Cancer	CANANYds	CANANYad	CANANYdt	Y1PCANANY
CANBRSTi	Incident breast cancer by self-report/meds	Cancer	CANBRSTds	CANBRSTad	CANBRSTdt	Y1PCANBRST
CANCOLNi	Incident colon cancer by self-report/meds	Cancer	CANCOLNds	CANCOLNad	CANCOLNdt	Y1PCANCOLN
CANLUNGi	Incident lung cancer by self-report/meds	Cancer	CANLUNGds	CANLUNGad	CANLUNGdt	Y1PCANLUNG
CANPRSi	Incident prostate cancer by self-report/meds	Cancer	CANPRSds	CANPRSad	CANPRSdt	Y1PCANPRS
CHDDTH	CHD death during follow-up	Cardiovascular Disease	CHDDTHds	CHDDTHad	CHDdtHdt	Y1PCHD3
CHDi	Incident coronary heart disease	Cardiovascular Disease	CHDds	CHDad	CHDdt	Y1PCHD3
CHDMI	Incident myocardial infarction	Cardiovascular Disease	CHDMIds	CHDMIad	CHDMIdt	Y1PCHD3
CVDi	Incident cardiovascular disease by self report/meds	Cardiovascular Disease	CVDds	CVDad	CVDdt	Y1PCBVD, Y1PCHD3
STROKEi	Incident cerebrovascular disease	Cardiovascular Disease	STROKEds	STROKEad	STROKEdt	Y1PCBVD
YxDEPR1 (Y2,3,5,6)	Incident depression (treated)	Depression	N/A	N/A	N/A	Y1PDEPR1
YxDEPR4 (Y3,4,5,6,8, 10, 11)	At risk for depression (CES-D10)	Depression	N/A	N/A	N/A	Y1PDEPR4
YxADAEPI (Y2 through Y17Q3)	Incident glucose intolerance (vs baseline by ADA criteria)	Diabetes	N/A	N/A	N/A	Y1ADAEPI

YxADA2H (Y2 through Y17Q3)	Incident glucose intolerance (vs baseline by ADA criteria plus OGTT results)	Diabetes	N/A	N/A	N/A	Y1ADA2H
YxHBP1 (Y2 through Y17Q3)	Incident hypertension reported/meds	Hypertension	N/A	N/A	N/A	Y1PHBP1
YxHBP2 (Y2,3,4,5,6,8,10,11,16)	Incident physiological hypertension	Hypertension	N/A	N/A	N/A	Y1PHBP2
YxSHBP (Y2,3,4,5,6,8,10,11,16)	Incident Isolated systolic hypertension	Hypertension	N/A	N/A	N/A	Y1PSHBP
Y6METSAB	Met abdominal circumference criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSAB
Y6METSBP	Met blood pressure criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSBP
Y6METSGL	Met glucose criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSGL
Y6METS8GL	Met fasting glucose criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METS8GL
Y6METSHD	Met HDL criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSHD
Y6METSTG	Met triglyceride criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSTG
Y6METS8TG	Met fasting triglyceride criterion Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METS8TG
Y6METSYN	Metabolic syndrome, Year 6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSYN
Y6METS8YN	Fasting metabolic syndrome, Year 6	Metabolic Syndrome	N/A	N/A	N/A	Y1METS8YN
Y6METSNO	Number of metabolic syndrome criteria met, Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METSNO
Y6METS8NO	Number of fasting metabolic syndrome criteria met, Y6	Metabolic Syndrome	N/A	N/A	N/A	Y1METS8NO

Incident Cancer

Prime Mover: Lisa Colbert

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CANANYi	Incident cancer, any type (except non-melanoma skin), as adjudicated Health ABC event	Categorical variable for any cancer (except non-melanoma skin) based on Health ABC D&D adjudication forms	=0 if no cancer event during Health ABC (no Cancer Adjudication form entered) and no baseline prevalent cancer (Y1PCANANY=0) =1 if no cancer event during Health ABC (no Cancer Adjudication form entered) and baseline prevalent cancer (Y1PCANANY=1) =2 if an adjudicated cancer event has been entered during Health ABC and no baseline prevalent cancer (Y1PCANANY=0) =3 if an adjudicated cancer event has been entered during Health ABC and baseline prevalent cancer (Y1PCANANY=1)	If Y1PCANANY is missing, assume no cancer at baseline (investigator may use Y1PCANANY in combination with CANANYi to determine cleanest control group)	0=No cancer 1=Cancer survivor, no recurrence 2=Incident cancer 3=Recurrent cancer
CANANYad	Adjudication indicator for any cancer	Adjudication indicator for definite/possible cancer (any type)	=1 if cancer confirmed (WACONF=1) =2 if cancer not confirmed (WACONF=8)	If first cancer event is not confirmed and a later event of the same cancer type is confirmed, set CANANYad=1	1=Definite 2=Possible
CANANYds	Days to cancer event (any type)	Number of days from Health ABC enrollment to first cancer event	Date of first cancer event (WADIAGDT)-CV1DATE	If first cancer event is unconfirmed, followed by a later confirmed event of the same type of cancer, CANANYds is based on date of the <u>first</u> event	days

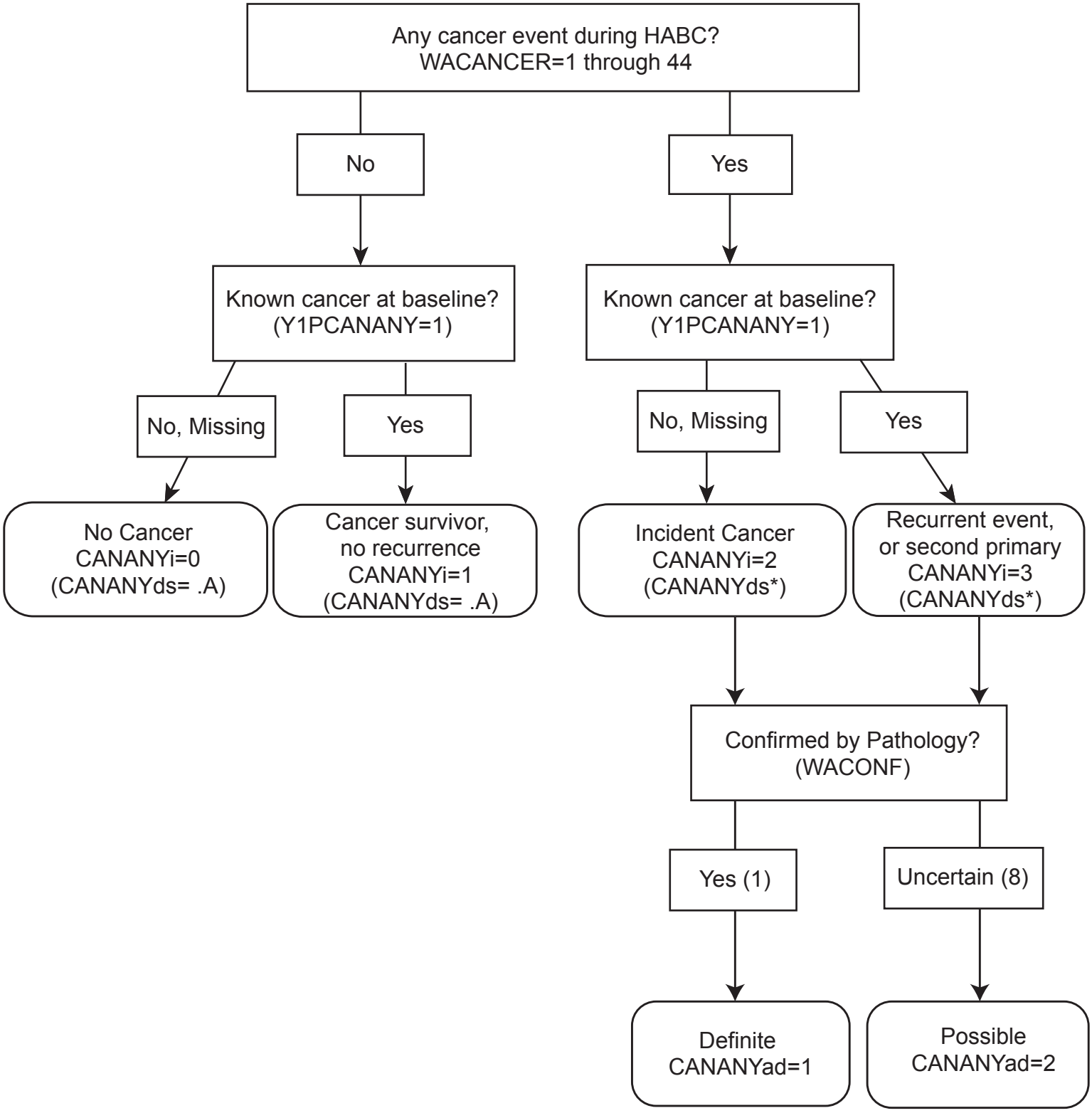
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CANBRSTi	Incident breast cancer, as adjudicated Health ABC event	Categorical variable for incident breast cancer based on Health ABC D&D adjudication forms	=0 if no breast cancer event during Health ABC and no baseline prevalent breast cancer (Y1PCANBRST=0) =1 if no breast cancer event during Health ABC and baseline prevalent breast cancer (Y1PCANBRST=1) =2 if an adjudicated breast cancer event has been entered (WACANCER=7) during Health ABC and no baseline prevalent breast cancer (Y1PCANBRST=0) =3 if an adjudicated breast cancer event has been entered (WACANCER=7) during Health ABC and baseline prevalent breast cancer (Y1PCANBRST=1)	If Y1PCANBRST is missing, assume no breast cancer at baseline (investigator may use Y1PCANBRST in combination with CANBRSTi to determine cleanest control group)	0=No cancer 1=Cancer survivor, no recurrence 2=Incident cancer 3=Recurrent cancer
CANBRSTad	Adjudication indicator for breast cancer	Adjudication indicator for definite/possible breast cancer	=1 if cancer confirmed (WACONF=1) =2 if cancer not confirmed (WACONF=8)	If first breast cancer event is not confirmed and a later breast cancer is confirmed, set CANBRSTad=1	1=Definite 2=Possible
CANBRSTds	Days to breast cancer event	Number of days from Health ABC enrollment to first cancer event	Date of first breast cancer event (WADIAGDT)-CV1DATE	If first breast cancer event is unconfirmed, followed by a later confirmed breast cancer, CANBRSTds is based on date of the first breast cancer event	days

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CANCOLNi	Incident colon cancer, as adjudicated Health ABC event	Categorical variable for incident colon cancer based on Health ABC D&D adjudication forms	=0 if no colon cancer event during Health ABC and no baseline prevalent colon cancer (Y1PCANCOLN=0) =1 if no colon cancer event during Health ABC and baseline prevalent colon cancer (Y1PCANCOLN=1) =2 if an adjudicated colon cancer event has been entered (WACANCER=9) during Health ABC and no baseline prevalent colon cancer (Y1PCANCOLN=0) =3 if an adjudicated colon cancer event has been entered (WACANCER=9) during Health ABC and baseline prevalent colon cancer (Y1PCANCOLN=1)	If Y1PCANCOLN is missing, assume no colon cancer at baseline (investigator may use Y1PCANCOLN in combination with CANCOLNi to determine cleanest control group)	0=No cancer 1=Cancer survivor, no recurrence 2=Incident cancer 3=Recurrent cancer
CANCOLNad	Adjudication indicator for colon cancer	Adjudication indicator for definite/possible colon cancer	=1 if cancer confirmed (WACONF=1) =2 if cancer not confirmed (WACONF=8)	If first colon cancer event is not confirmed and a later colon cancer is confirmed, set CANCOLNad=1	1=Definite 2=Possible
CANCOLNds	Days to colon cancer event	Number of days from Health ABC enrollment to first cancer event	Date of first colon cancer event (WADIAGDT)-CV1DATE	If first colon cancer event is unconfirmed, followed by a later confirmed colon cancer, CANCOLNds is based on date of the first colon cancer event	days

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CANLUNGi	Incident lung cancer, as adjudicated Health ABC event	Categorical variable for incident lung cancer based on Health ABC D&D adjudication forms	=0 if no lung cancer event during Health ABC and no baseline prevalent lung cancer (Y1PCANLUNG=0) =1 if no lung cancer event during Health ABC and baseline prevalent lung cancer (Y1PCANLUNG=1) =2 if an adjudicated lung cancer event has been entered (WACANCER=20) during Health ABC and no baseline prevalent lung cancer (Y1PCANLUNG=0) =3 if an adjudicated lung cancer event has been entered (WACANCER=20) during Health ABC and baseline prevalent lung cancer (Y1PCANLUNG=1)	If Y1PCANLUNG is missing, assume no lung cancer at baseline (investigator may use Y1PCANLUNG in combination with CANLUNGi to determine cleanest control group)	0=No cancer 1=Cancer survivor, no recurrence 2=Incident cancer 3=Recurrent cancer
CANLUNGad	Adjudication indicator for lung cancer	Adjudication indicator for definite/possible lung cancer	=1 if cancer confirmed (WACONF=1) =2 if cancer not confirmed (WACONF=8)	If first lung cancer event is not confirmed and a later lung cancer is confirmed, set CANLUNGad=1	1=Definite 2=Possible
CANLUNGds	Days to lung cancer event	Number of days from Health ABC enrollment to first cancer event	Date of first lung cancer event (WADIAGDT)-CV1DATE	If first lung cancer event is unconfirmed, followed by a later confirmed lung cancer, CANLUNGds is based on date of the first lung cancer event	days

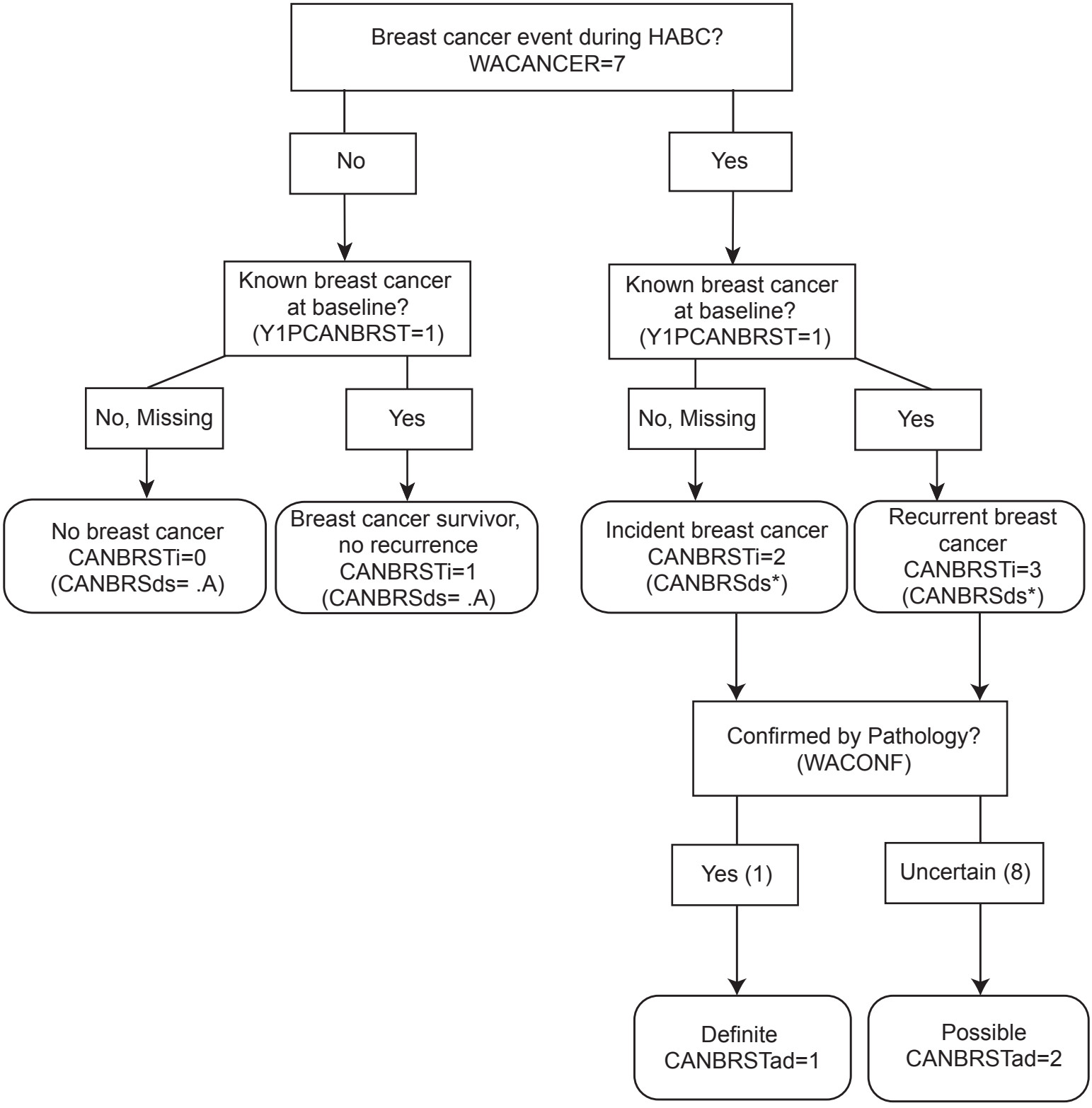
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CANPRSi	Incident prostate cancer, as adjudicated Health ABC event	Categorical variable for incident prostate cancer based on Health ABC D&D adjudication forms	=0 if no prostate cancer event during Health ABC and no baseline prevalent prostate cancer (Y1PCANPRS=0) =1 if no prostate cancer event during Health ABC and baseline prevalent prostate cancer (Y1PCANPRS=1) =2 if an adjudicated prostate cancer event has been entered (WACANCER=32) during Health ABC and no baseline prevalent prostate cancer (Y1PCANPRS=0) =3 if an adjudicated prostate cancer event has been entered (WACANCER=32) during Health ABC and baseline prevalent prostate cancer (Y1PCANPRS=1)	If Y1PCANPRS is missing, assume no prostate cancer at baseline (investigator may use Y1PCANPRS in combination with CANPRSi to determine cleanest control group)	0=No cancer 1=Cancer survivor, no recurrence 2=Incident cancer 3=Recurrent cancer
CANPRSad	Adjudication indicator for prostate cancer	Adjudication indicator for definite/possible prostate cancer	=1 if cancer confirmed (WACONF=1) =2 if cancer not confirmed (WACONF=8)	If first prostate cancer event is not confirmed and a later prostate cancer is confirmed, set CANPRSad=1	1=Definite 2=Possible
CANPRSds	Days to prostate cancer event	Number of days from Health ABC enrollment to first cancer event	Date of first prostate cancer event (WADIAGDT)-CV1DATE	If first prostate cancer event is unconfirmed, followed by a later confirmed prostate cancer, CANPRSds is based on date of the first prostate cancer event	days

Incident Cancer, Any



*Days to event determined from CV1DATE to earliest event

Incident Breast Cancer

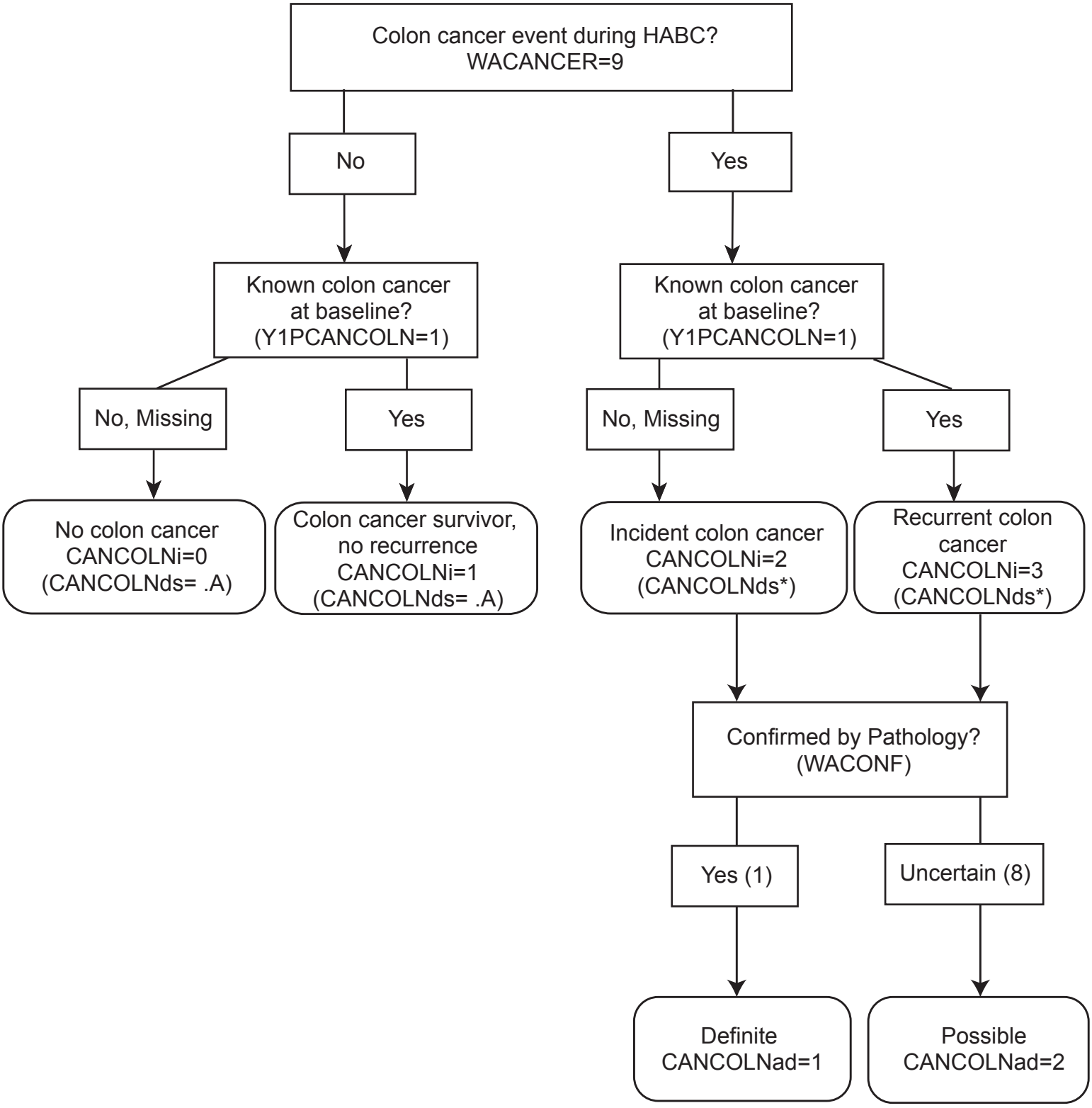


*Days to event determined from CV1DATE to earliest event

12/20/2004 els

Health ABC

Incident Colon Cancer

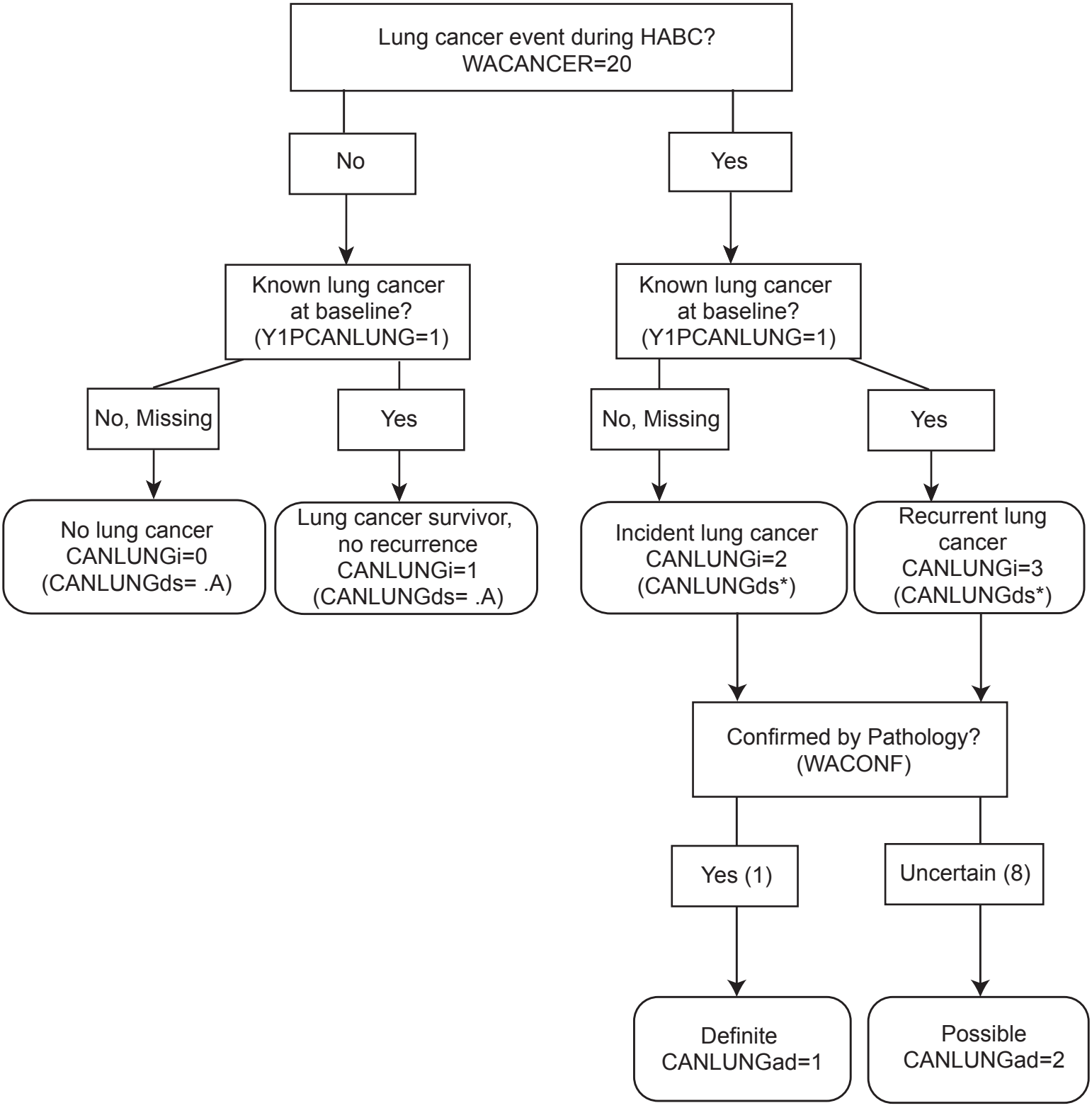


12/20/2004 els

*Days to event determined from CV1DATE to earliest event

Documentation date: 2012-09-01

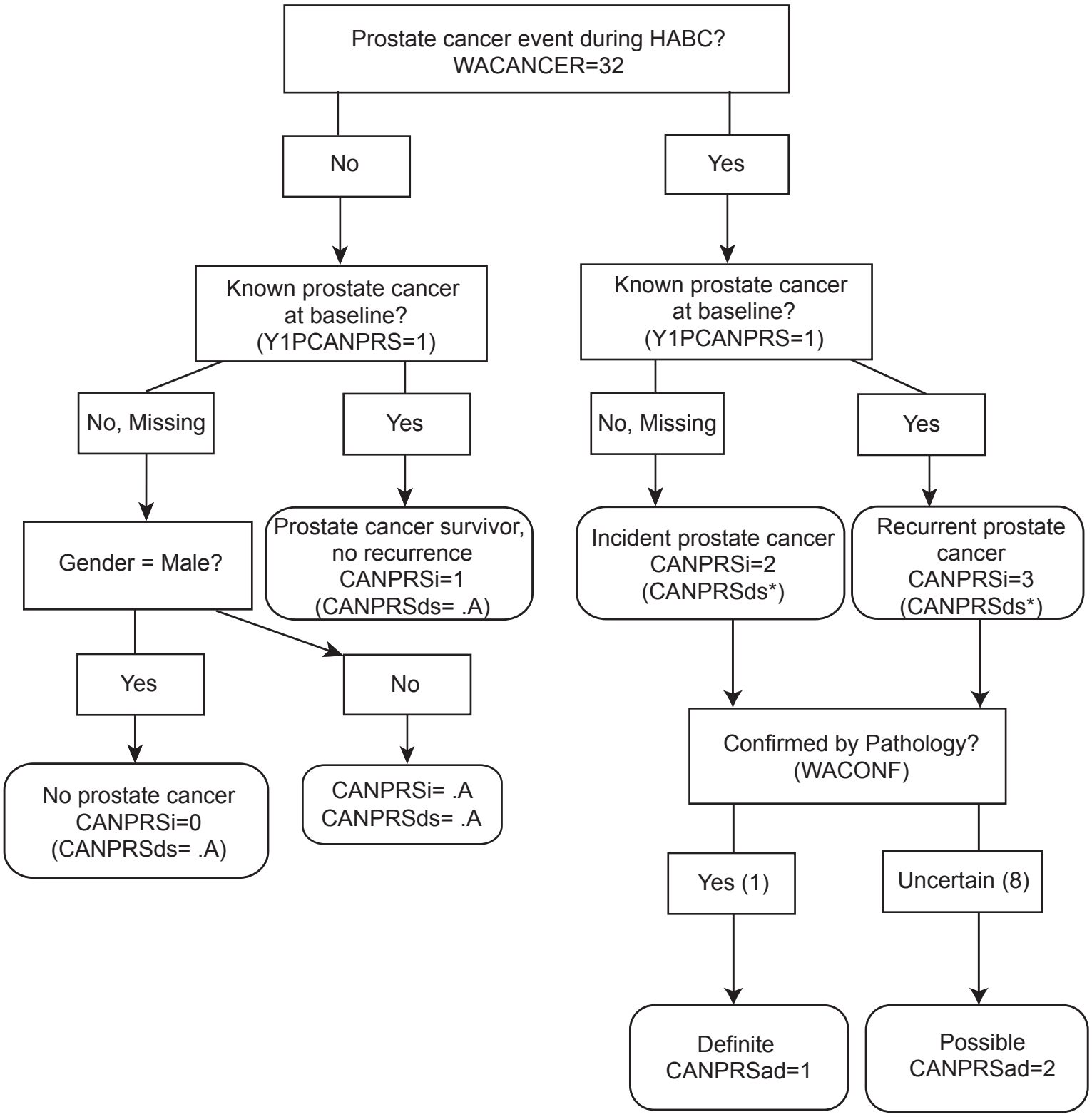
Incident Lung Cancer



*Days to event determined from CV1DATE to earliest event

12/20/2004 els

Incident Prostate Cancer



*Days to event determined from CV1DATE to earliest event

12/20/2004 els

Incident Cardiovascular Disease

Prime Mover: Steve Kritchevsky

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CHDDTH	CHD death during Health ABC	CHD death during Health ABC	=0 if no CHD death during Health ABC =1 if Health ABC Final Death Adjudication Report entered with atherosclerotic CVD is underlying cause of death (WGCAUSE2=1) and baseline CHD (Y1PCHD3>0) =2 if atherosclerotic CVD is underlying cause of death and no baseline CHD (Y1PCHD3=0)	If Y1PCHD3 is missing, assume no CHD at baseline (investigator may use Y1PCHD3 in combination with CHDDTH to determine cleanest control group)	0=No CHD death 1=CHD death, prev CHD 2=CHD death, no baseline CHD
CHDDTHad	Adjudication indicator for CHDDTH	Adjudication indicator for definite/possible CHD death	=1 if underlying cause of death is definite fatal MI or definite fatal CHD (WGACD2 in (1,3) =2 if underlying cause of death is possible fatal CHD (WGACD2=3)	Set to .A if CHDDTH<1	1=Definite 2=Possible
CHDDTHds	Days to CHD death	Number of days from Health ABC enrollment to CHD death	Date of death (DOD)-CV1DATE	Set to .A if CHDDTH<1	days

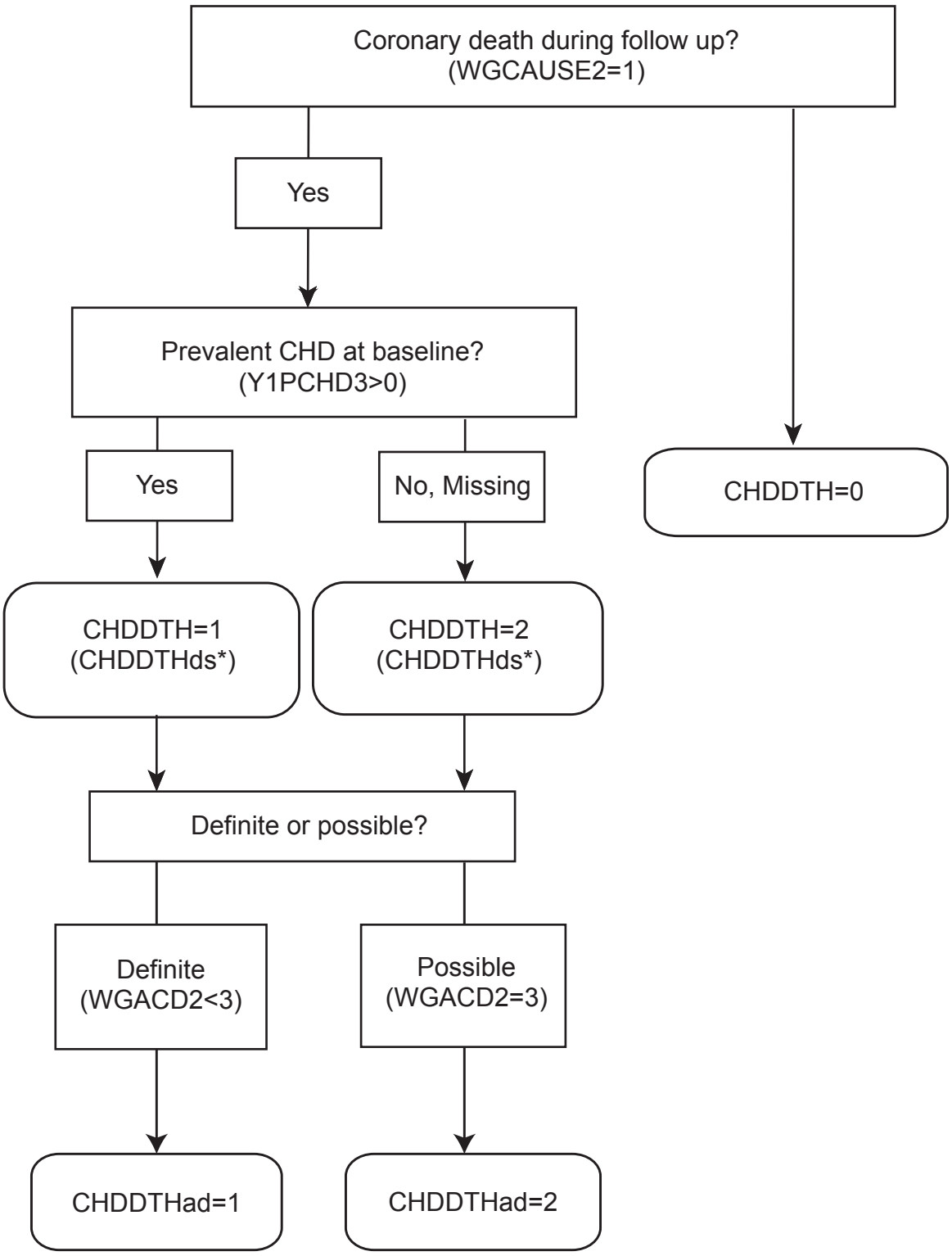
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CHDi	CHD during Health ABC	Coronary heart disease event during Health ABC	=0 if no CHD event during Health ABC and no prevalent CHD (Y1PCHD3=0) =1 if no CHD event during Health ABC and prevalent CHD (Y1PCHD3>0) =2 if CHD event (definite or probable MI (WFDX01>0 or WGACD1=1) or hospitalization for angina (WFDX02>0) or CHD death (CHDDTH=1)) and no prevalent CHD =3 if CHD event and prevalent CHD	If Y1PCHD3 is missing, assume no CHD at baseline (investigator may use Y1PCHD3 in combination with CHDi to determine cleanest control group)	0=No disease 1=Prevalent CHD, no recurrence 2=Incident CHD 3=Ongoing/ recurrent CHD
CHDad	Adjudication indicator for CHD event	Adjudication indicator for definite/possible CHD event	=1 if definite MI (WFDX01=1) or angina, coronary insufficiency or ischemic heart disease (WFDX02=1) or underlying cause of death is definite CHD (CHDDTHad=1) =2 if possible MI (WFDX01≠1) or angina, coronary insufficiency or ischemic heart disease (WFDX02≠1) or underlying cause of death is possible CHD (CHDDTHad≠1)	If a possible event is followed by a definite event, use definite event If only a possible event has occurred, use possible event Set to .A if CHDi<1	1=Definite 2=Possible
CHDds	Days to CHD event	Number of days from Health ABC enrollment to CHD event	Date of event (WFADMDT or DOD)-CV1DATE	If a possible event is followed by a definite event, use date of definite event If only a possible event has occurred, use date of possible event Set to .A if CHDi<1	days

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CHDMI	MI during Health ABC	Myocardial infarction event during Health ABC	=0 if no MI event during Health ABC and no prevalent CHD (Y1PCHD3=0) =1 if no MI event during Health ABC and prevalent CHD (Y1PCHD3>0) =2 if MI event (WFDX01>0 or WGCAUSE2=1) and no prevalent CHD =3 if MI event and prevalent CHD	If Y1PCHD3 is missing, assume no CHD at baseline (investigator may use Y1PCHD3 in combination with CHDMI to determine cleanest control group)	0=No disease 1=Prevalent CHD, no recurrence 2=Incident MI, no prevalent CHD 3=MI as recurrent CHD
CHDMIad	Adjudication indicator for MI event	Adjudication indicator for definite/possible MI event	=1 if definite MI (WFDX01=1 or WGACD2=1) =2 if possible MI (WFDX01=2))	If a possible MI is followed by a definite MI, use definite event If only a possible MI has occurred, use possible event Set to .A if CHDMI<1	1=Definite 2=Possible
CHDMIds	Days to CHDMI event	Number of days from Health ABC enrollment to CHDMI event	Date of event (WFADMDT or DOD)-CV1DATE	If a possible MI is followed by a definite MI, use date of definite event If only a possible MI has occurred, use date of possible event Set to .A if CHDMI<1	days

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
CVDi	CVD during Health ABC	Cardiovascular disease event during Health ABC	=0 if no CVD event during Health ABC and no prevalent CVD (Y1PCVD=0) =1 if no CVD event during Health ABC and prevalent CVD (Y1PCVD>0) =2 if CVD event (STROKEi>1 or CHDi>1) and no prevalent CVD =3 if CVD event and prevalent CVD	If Y1PCVD is missing, assume no CVD at baseline (investigator may use Y1PCVD in combination with CVDi to determine cleanest control group)	0=No disease 1=Prevalent CVD, no recurrence 2=Incident CVD, no prevalent CVD 3=Ongoing/ recurrent CVD
CVDad	Adjudication indicator for CVD event	Adjudication indicator for definite/possible CVD event	=1 if definite CVD (STROKEad=1 or CHDad=1) =2 if possible CVD (STROKEad≠1 and CHDad≠1)	If a possible CVD event is followed by a definite CVD event, use definite event If only a possible CVD has occurred, use possible event Set to .A if CVDi<1	1=Definite 2=Possible
CVDds	Days to CVD event	Number of days from Health ABC enrollment to CVD event	Date of event (WFADMDT or DOD)-CV1DATE	If a possible CVD event is followed by a definite CVDevent, use date of definite event If only a possible event CVD has occurred, use date of possible event Set to .A if CVDi<1	Days

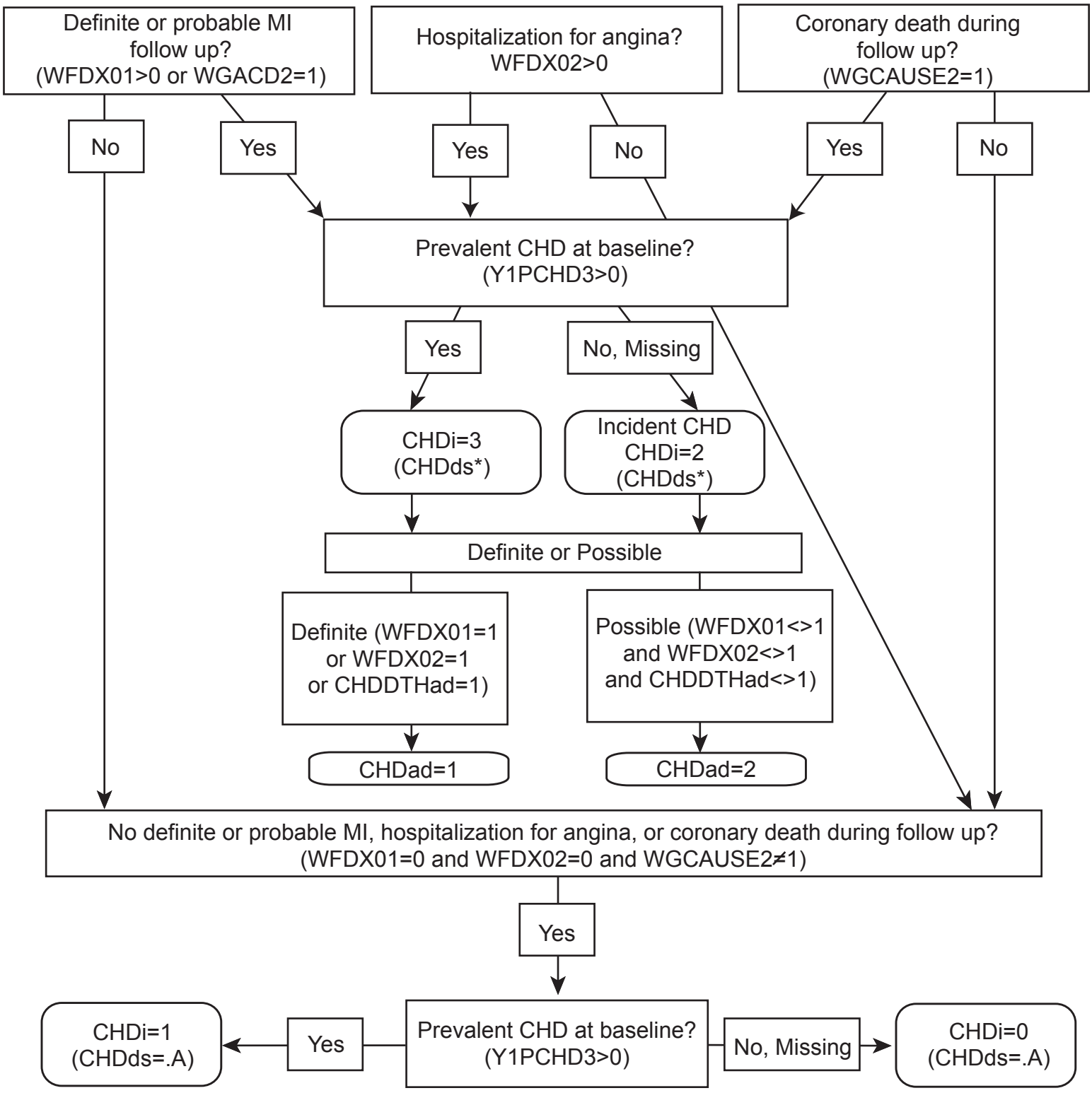
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
STROKEi	Stroke during Health ABC	Stroke event during Health ABC	=0 if no stroke event during Health ABC and no prevalent CBVD (Y1PCBVD=0 and BSTROKE=0 and PSTROKE=0) =1 if no stroke event during Health ABC and prevalent CBVD (Y1PCBVD>0 or BSTROKE=1 or PSTROKE=1) =2 if stroke event (WFDX06>0 or WGCAUSE2=2) and no prevalent CBVD =3 if stroke event and prevalent CBVD	If Y1PCBVD is missing, assume no CHD at baseline (investigator may use Y1PCBVD in combination with STROKEi to determine cleanest control group)	0=No disease 1=Prevalent CBVD, no recurrence 2=Incident stroke, no prevalent CBVD 3=Recurrent stroke
STROKEad	Adjudication indicator for stroke event	Adjudication indicator for definite/possible stroke event	=1 if definite stroke (WFDX06=1 or WGCAUSE2=2) =2 if possible stroke (WFDX06=2)	If a possible stroke is followed by a definite stroke, use definite event If only a possible stroke has occurred, use possible event Set to .A if STROKEi<1	1=Definite 2=Possible
STROKEds	Days to stroke event	Number of days from Health ABC enrollment to stroke event	Date of event (WFADMDT or DOD)-CV1DATE	If a possible stroke is followed by a definite stroke, use date of definite event If only a possible stroke has occurred, use date of possible event Set to .A if STROKEi<1	Days

CHD Death During Follow Up



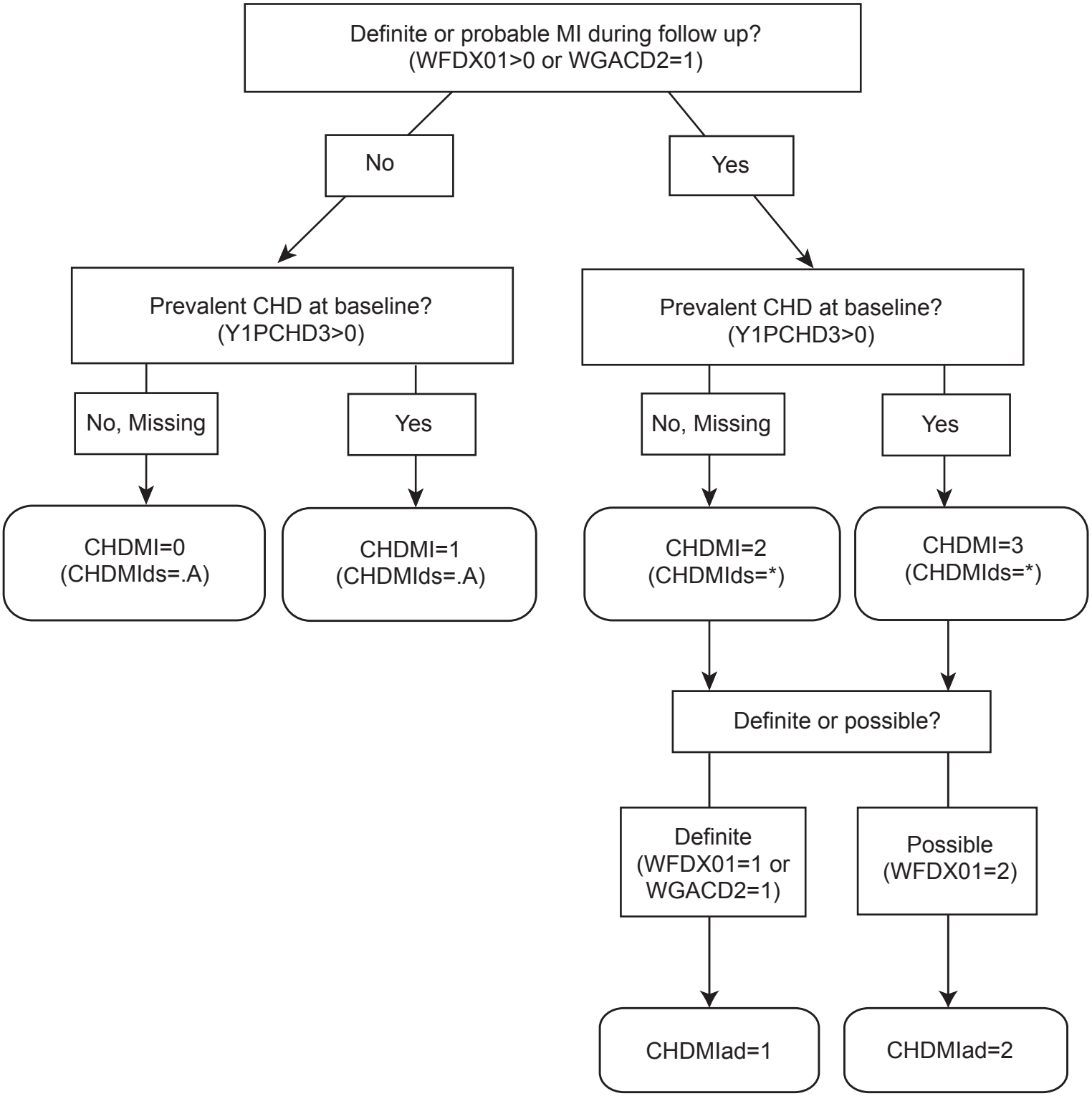
*Days to event determined from CV1DATE to DOD

Coronary Heart Disease During Follow Up



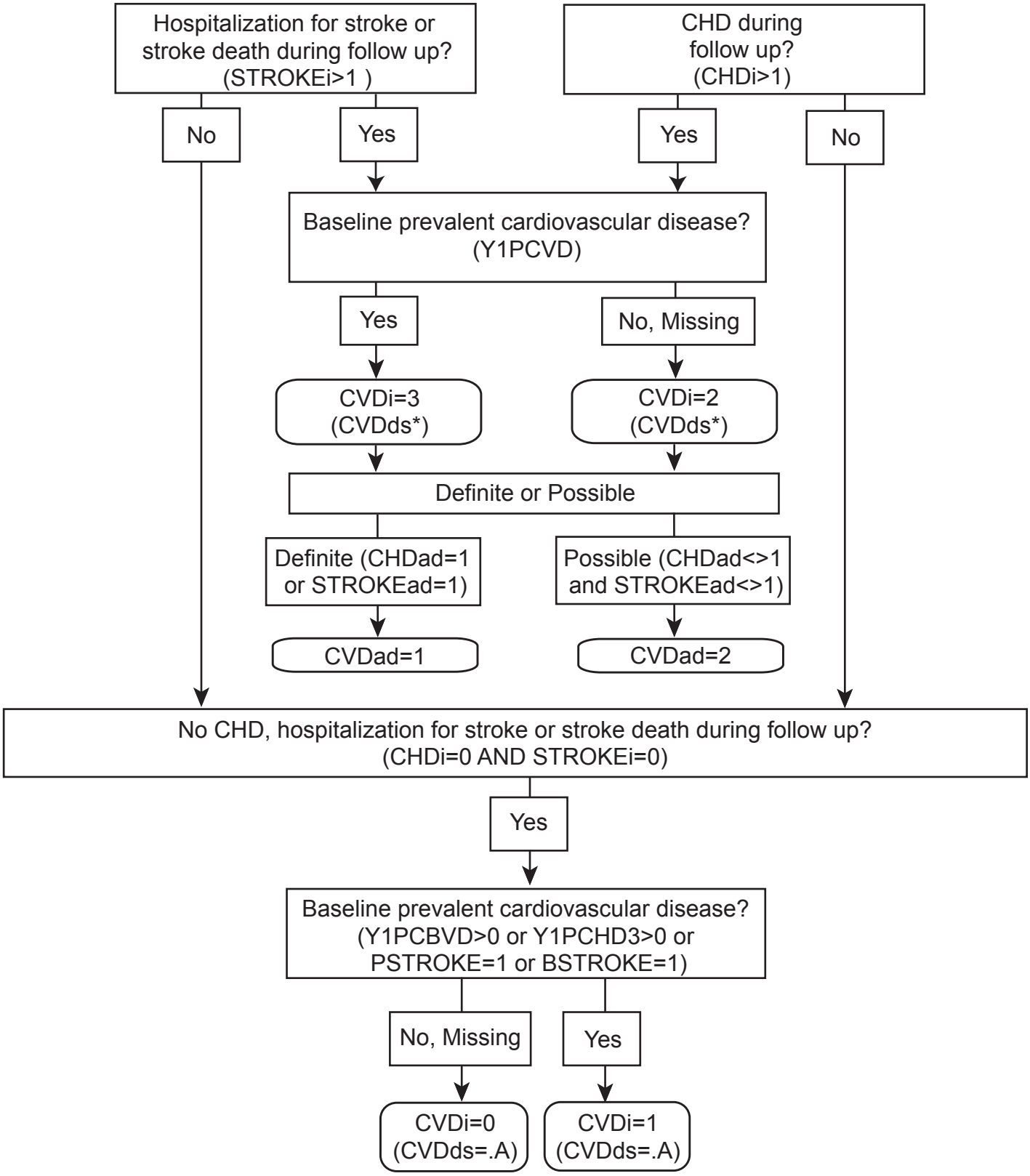
*Days to event determined from CV1DATE to earliest confirmed event, else possible event

Incident Myocardial Infarction



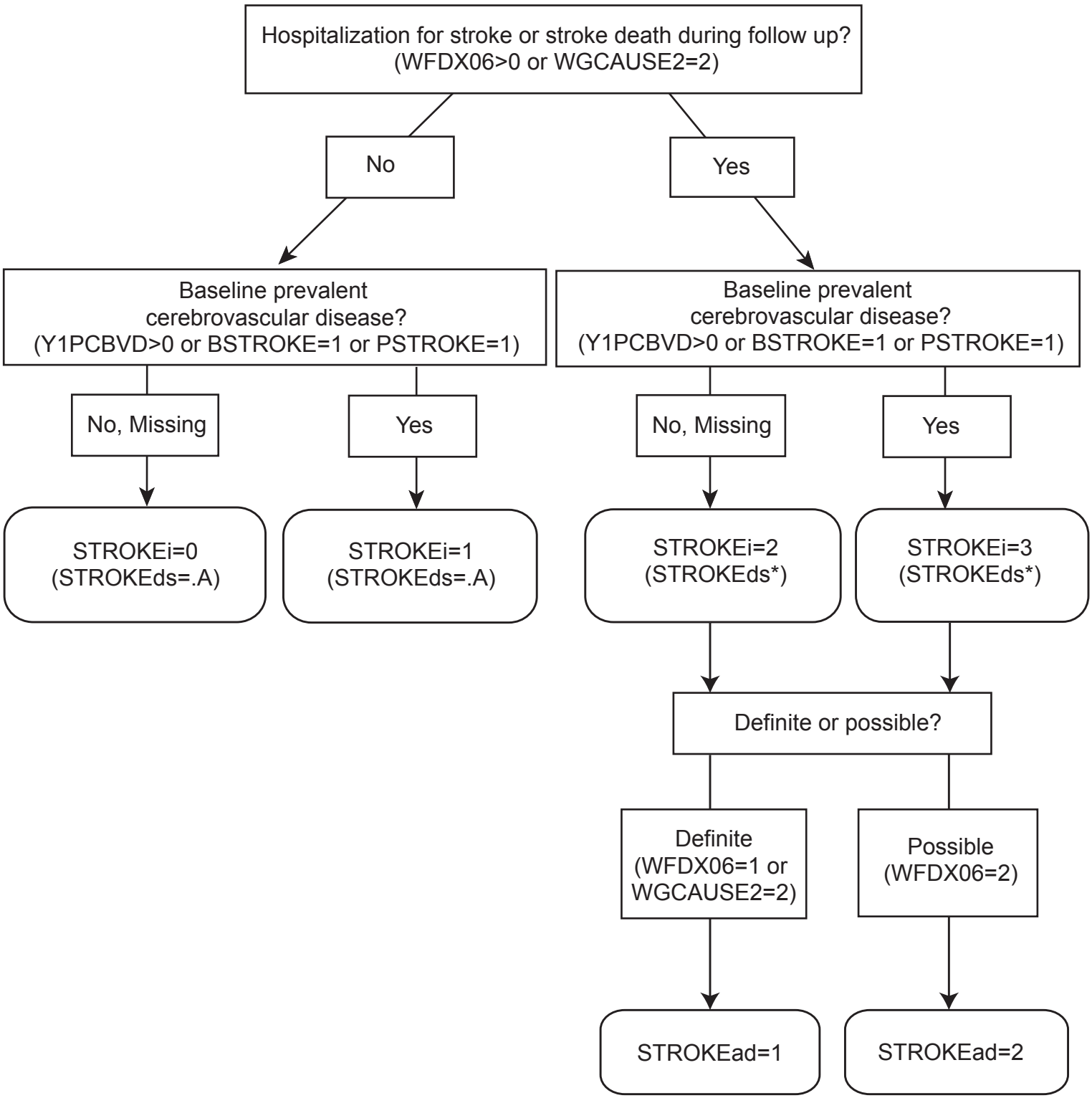
*Days to event determined from CV1DATE to earliest confirmed event, else possible event 12/20/2004 els

Incident Cardiovascular Disease



*Days to event determined from CV1DATE to earliest confirmed event, else possible event

Incident Stroke



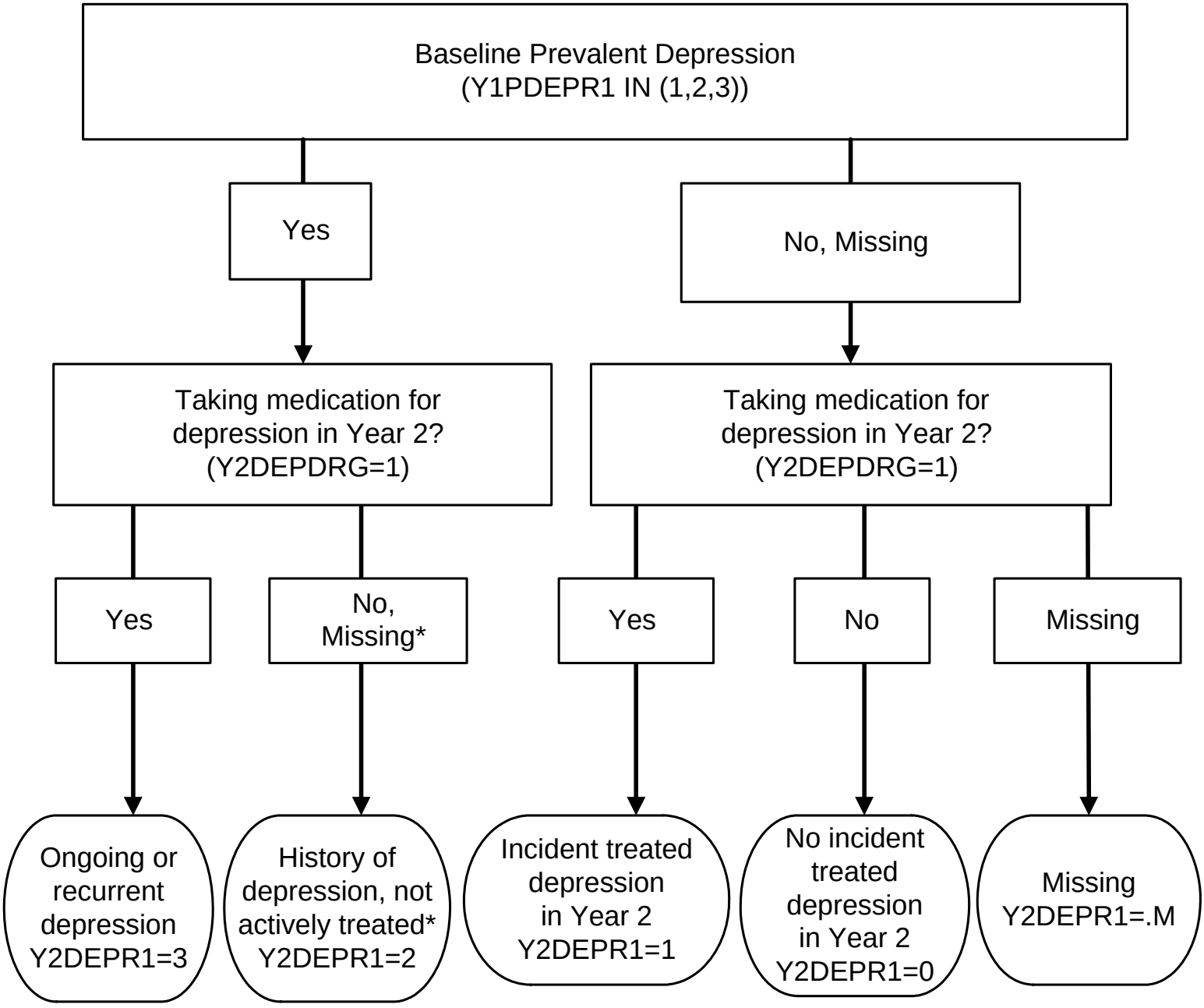
*Days to event determined from CV1DATE to earliest confirmed event, else possible event

Incident Depression

Prime mover: Suzanne Satterfield

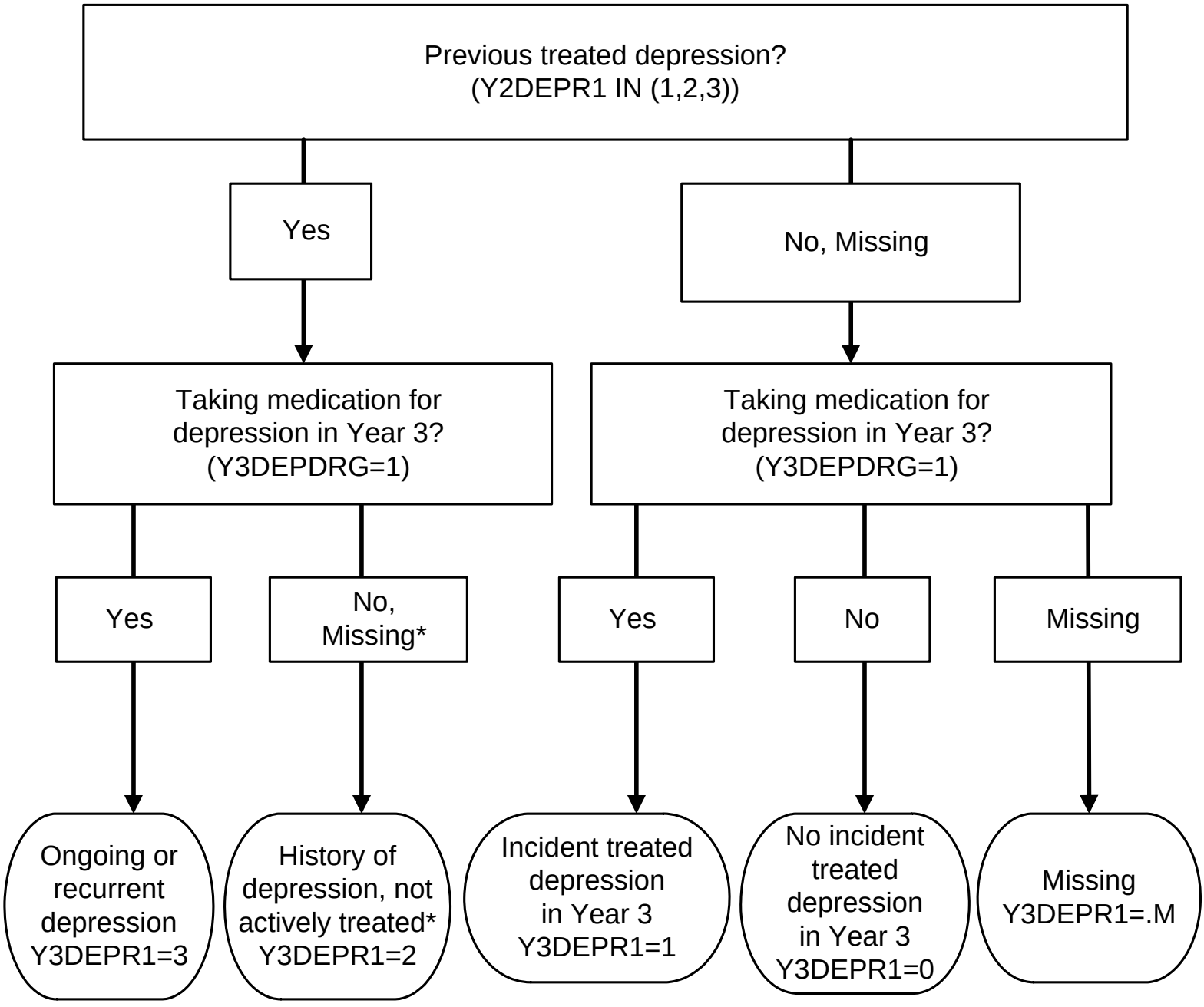
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
(YxDEPDRG)	Yrx:Any antidepressant medication used	Indicator variable for use of any antidepressant med	See medication use variables (YxRxCalc), documentation	= .A if no drug information available	0=No 1=Yes
YxDEPR1 (Y2,3,5,6 only; no meds collected in Y4,7,9 ; no reason for use collected in Y8,10,11)	Incident depression (treated)	Categorical variable for incident depression based on medications	=0 if no previous depression (YxPDEPR1<1 and no current treatment for depression (YxDEPDRG=0) =1 if no history of depression and current use of anti-depressant (YxDEPDRG=1) =2 if depression previously reported or treated and no current use of antidepressant (Yx1DEPDRG =0) =3 if depression previously reported and current use of anti-depressant (YxDEPDRG=1)	Set to missing (.M) if no previous treated depression (or missing) and YxDEPDRG is missing If previous treatment for depression and YxDEPDRG is missing, set to 2 – ***Note, this does NOT imply that non-use of anti-depressant has been confirmed for this year**	0=None 1=Incident treated depression 2=History of depression, not actively treated* 3=Ongoing/ recurrent depression
YxDEPR4 (Y3,4,5,6,8, 10,11 only; no CES-D in Y2,7,9)	At risk for depression (**CES-D10, cutoff=10**)	Categorical variable for CES-D score above threshold of 10 for risk of depression	=0 if (0 ≤ CES_D10 <10) and no previous history =1 if CES_D 10≥ 10 and no previous history =2 if CES_D10 <10 and previous history =3 if CES_D 10≥ 10 and previous history	Missing (.M) if CES_D10 is missing and no prior history of risk If there is history of risk and CES-D10 is missing, then YxDEPR4=2 ***Note this does NOT imply that risk is known to be not ongoing or recurrent**	0 = Not at risk 1 = Newly at risk 2 = History of risk* 3 = Ongoing/ recurrent risk

Year 2 Incident Depression (Treated)



*If medication-use data is missing (e.g., no visit), and participant has history of depression, current year is coded as 2 (history of depression, not actively treated). However, non-use of anti-depressant is not necessarily confirmed.

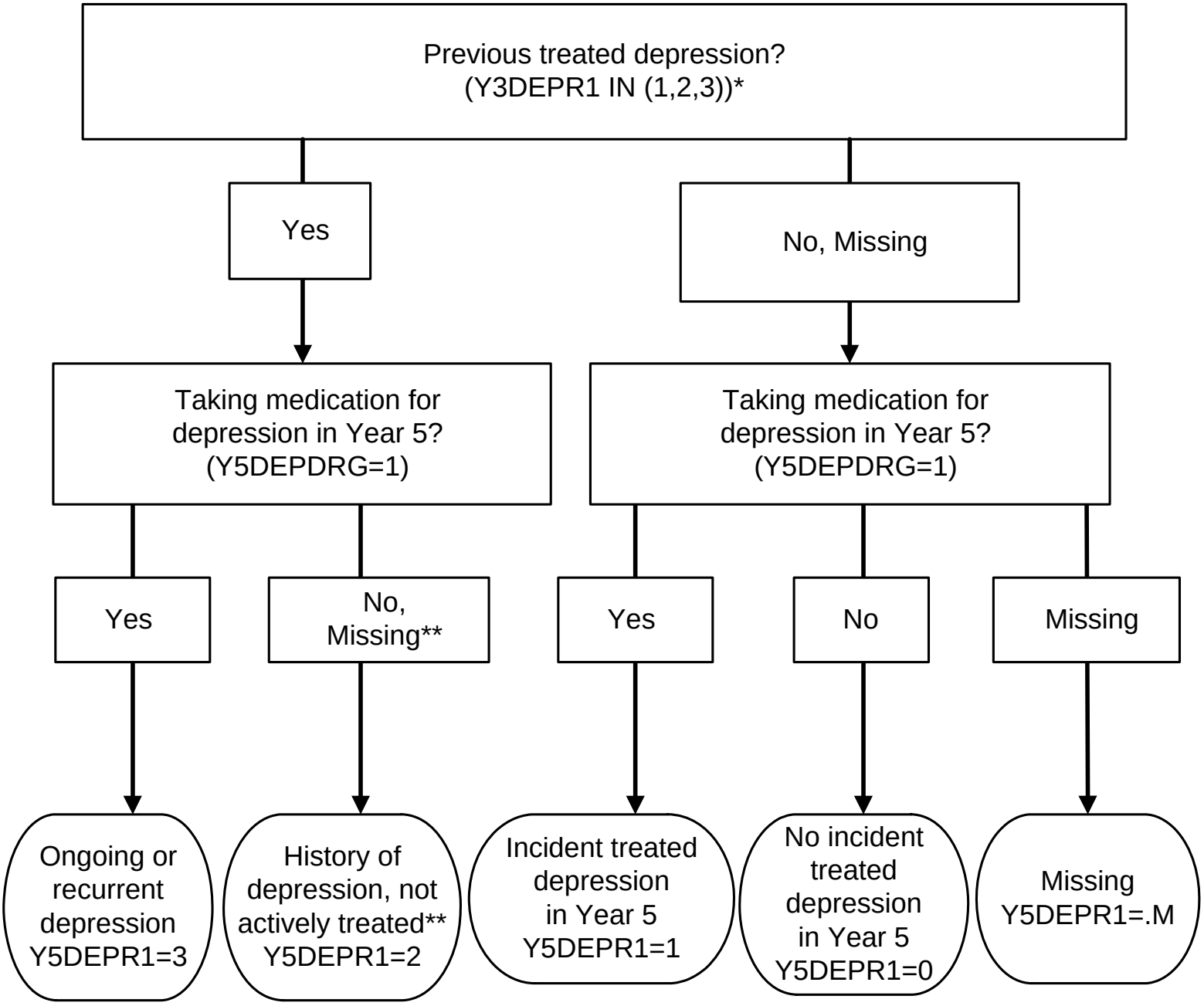
Year 3 Incident Depression (Treated)



*If medication-use data is missing (e.g., no visit), and participant has history of depression, current year is coded as 2 (history of depression, not actively treated). However, non-use of anti-depressant is not necessarily confirmed.

Health ABC

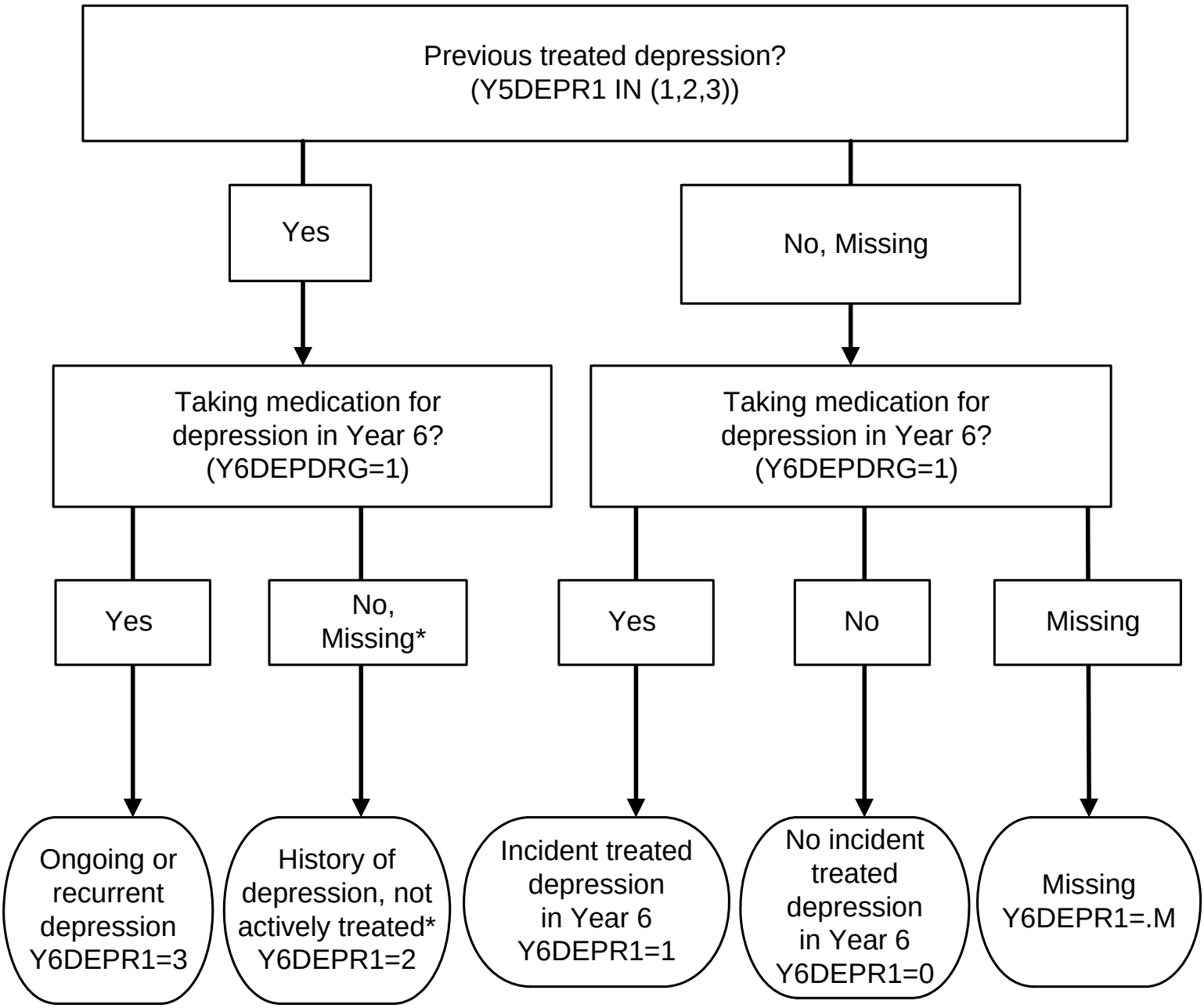
Year 5 Incident Depression (Treated)



*Medications not inventoried in Year 4.

**If medication-use data is missing (e.g., no visit), and participant has history of depression, current year is coded as 2 (history of depression, not actively treated). However, non-use of anti-depressant is not necessarily confirmed.

Year 6 Incident Depression (Treated)

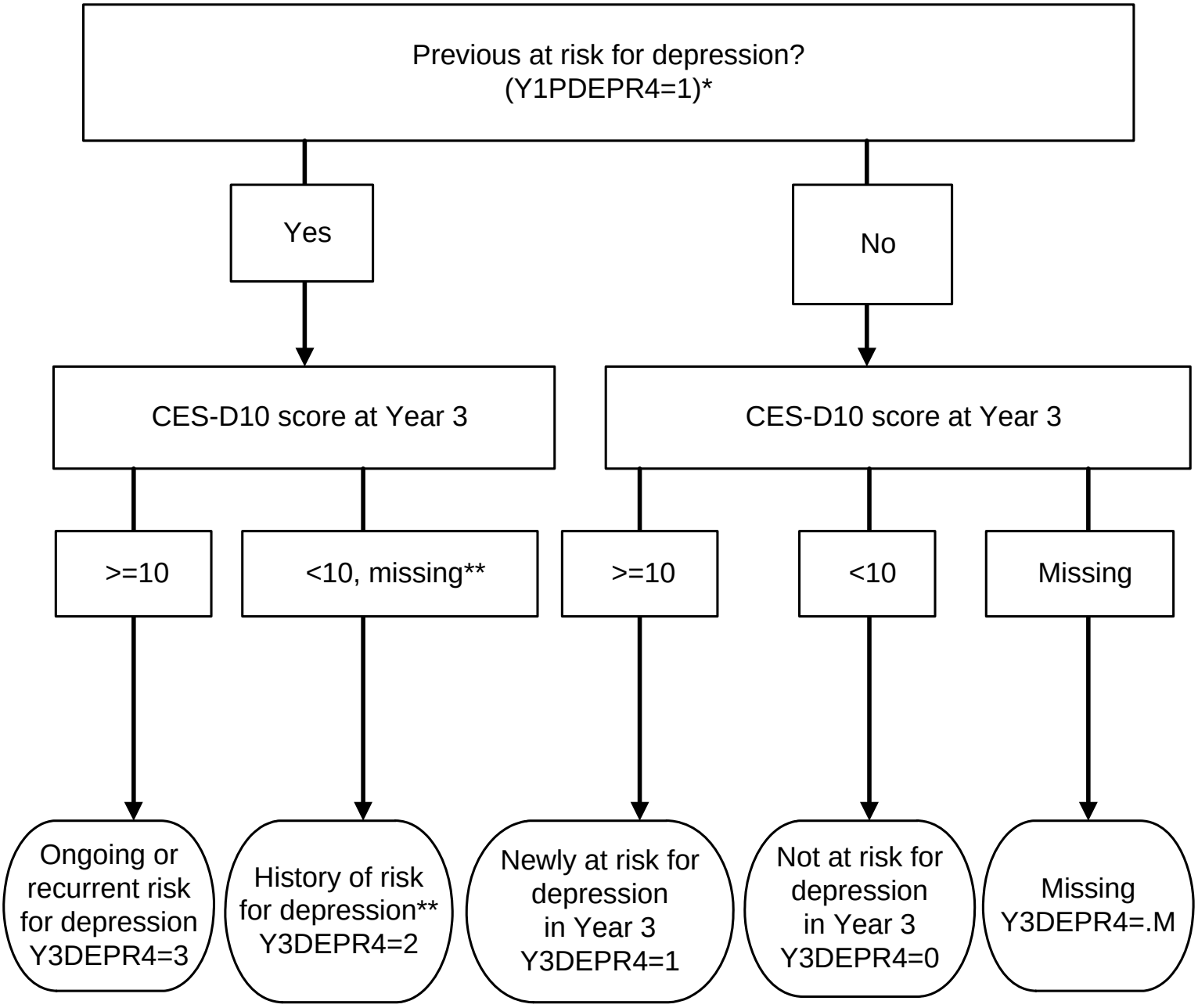


*If medication-use data is missing (e.g., no visit), and participant has history of depression, current year is coded as 2 (history of depression, not actively treated). However, non-use of anti-depressant is not necessarily confirmed.

Revised 7/6/10

Health ABC

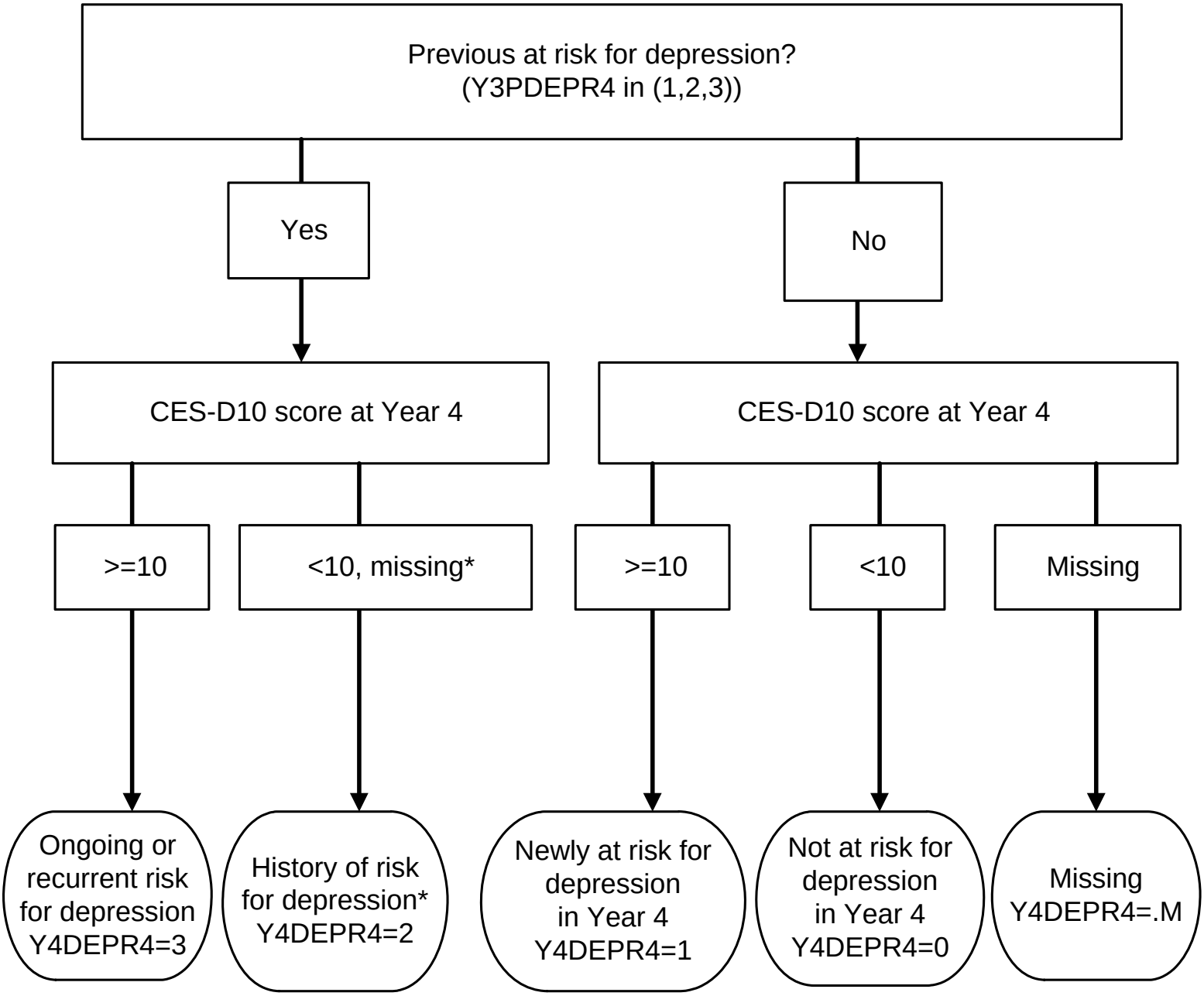
Year 3 Incident Depression (Short CES-D)



*GDS, not CES-D used in Year 2, so there is no Year 2 equivalent variable.

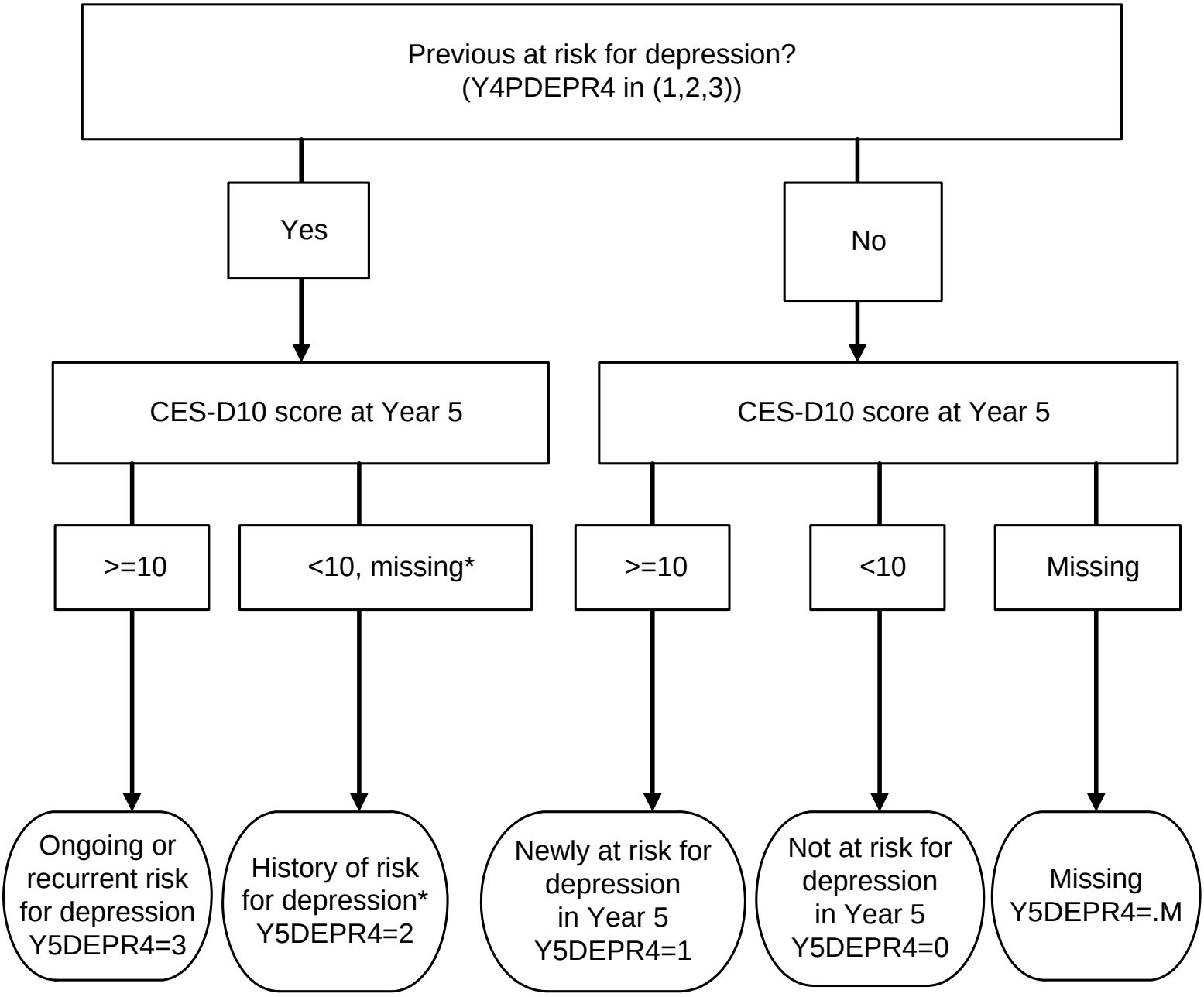
**If participant has a history of risk for depression and Y3CES-D10 is missing, Y3DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 4 Incident Depression (Short CES-D)



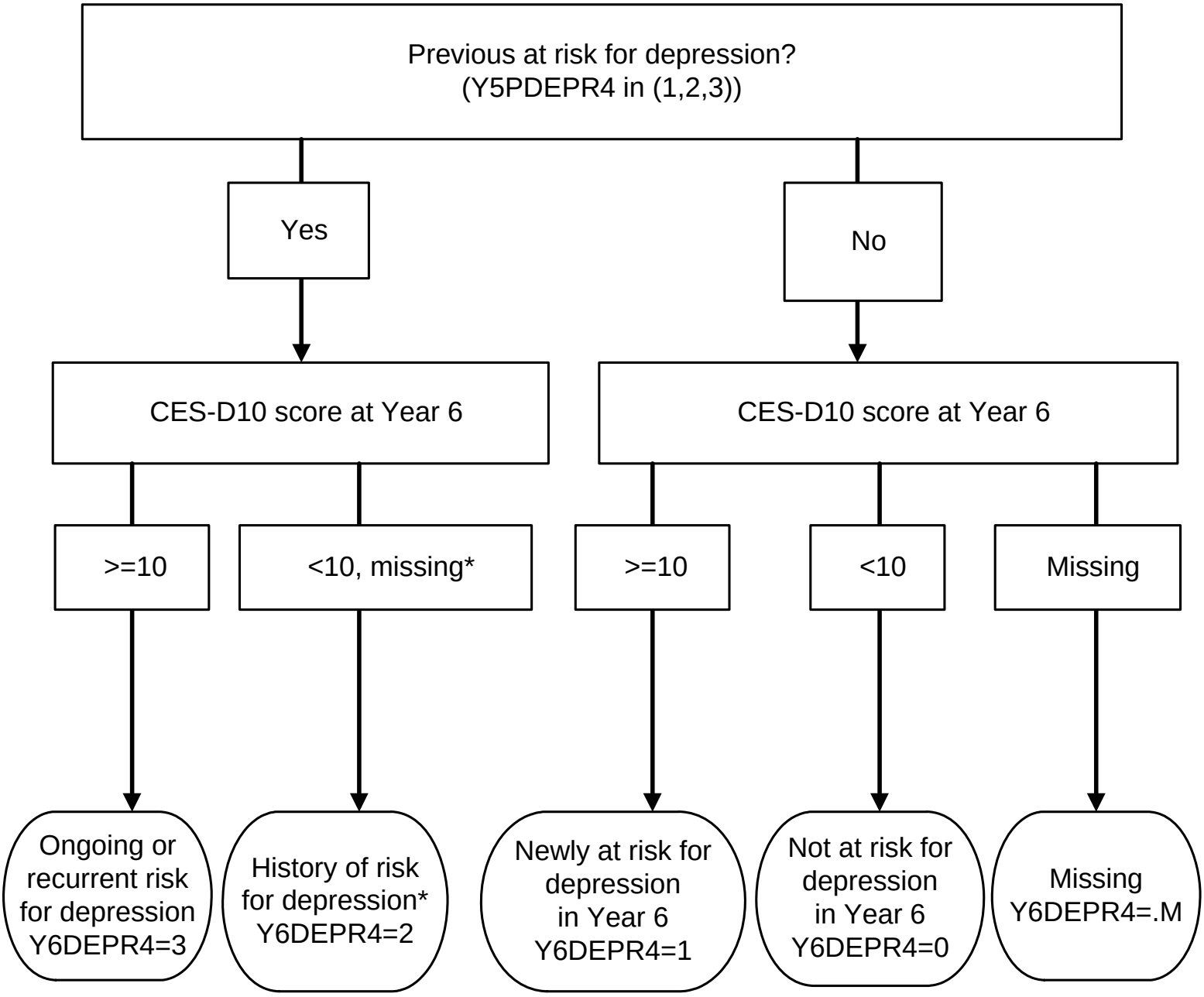
*If participant has a history of risk for depression and Y4CES-D10 is missing, Y4DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 5 Incident Depression (Short CES-D)



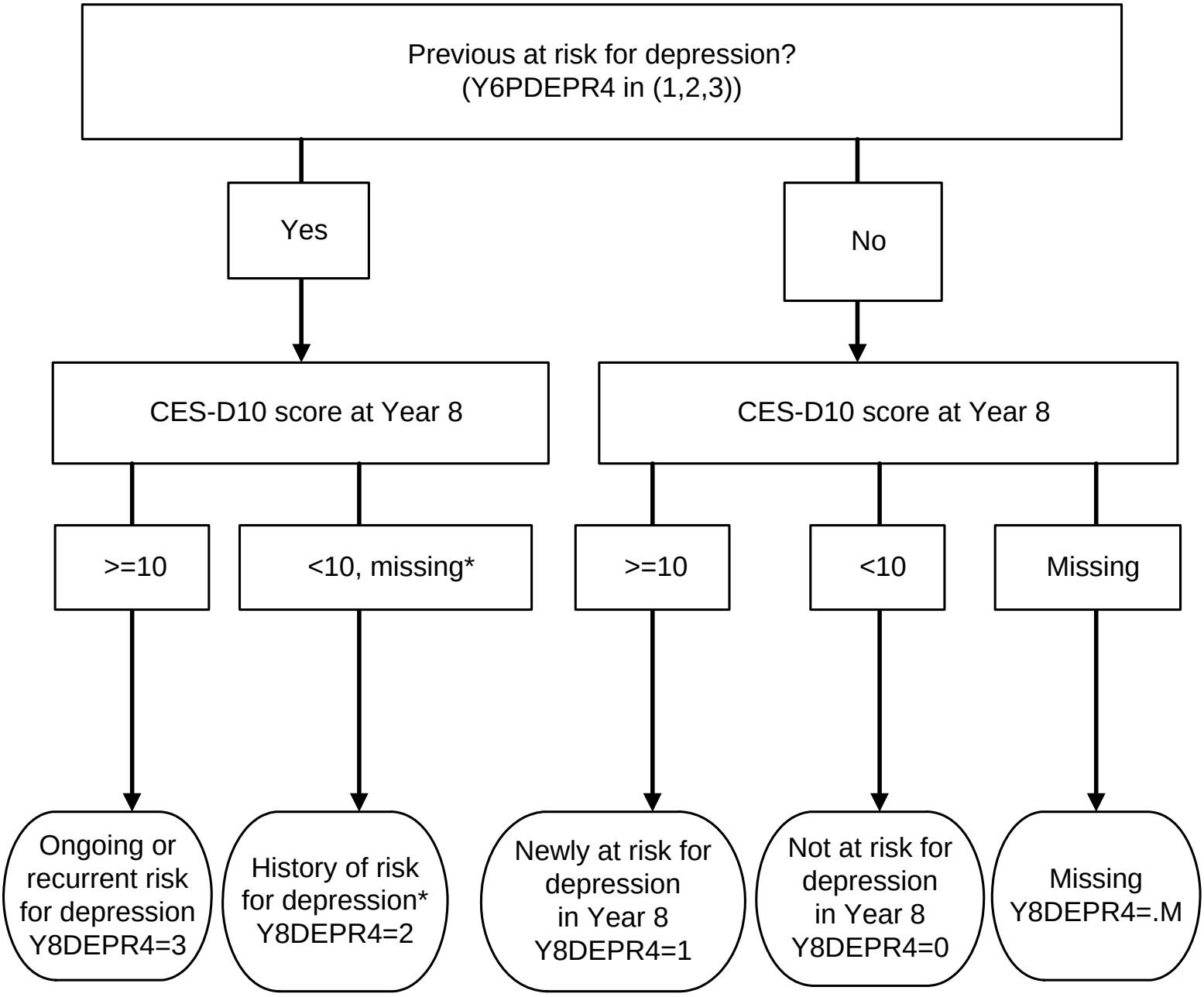
*If participant has a history of risk for depression and Y5CES-D10 is missing, Y5DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 6 Incident Depression (Short CES-D)



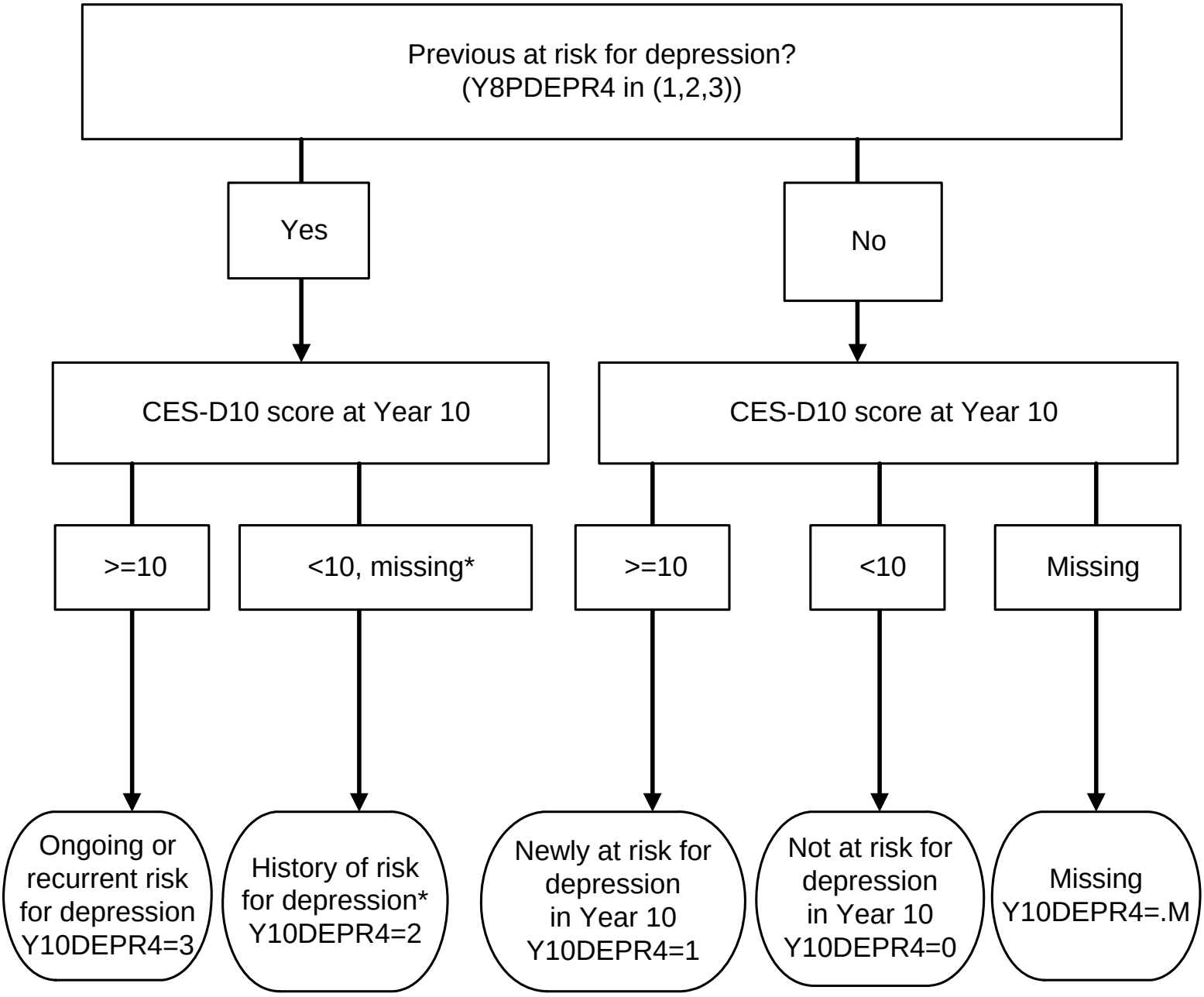
*If participant has a history of risk for depression and Y6CES-D10 is missing, Y6DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 8 Incident Depression (Short CES-D)



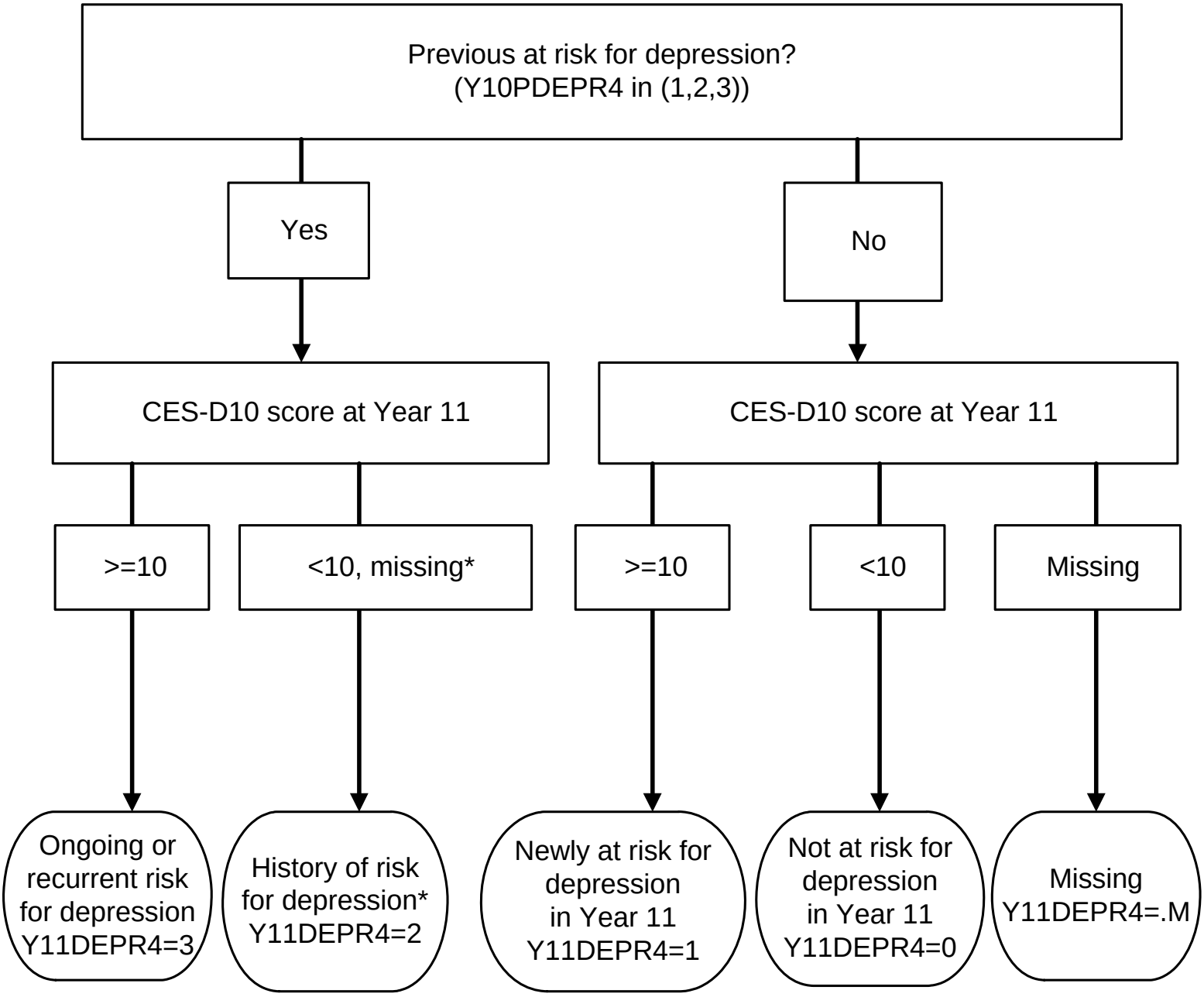
*If participant has a history of risk for depression and Y8CES-D10 is missing, Y8DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 10 Incident Depression (Short CES-D)



*If participant has a history of risk for depression and Y10CES-D10 is missing, Y10DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Year 11 Incident Depression (Short CES-D)



*If participant has a history of risk for depression and Y11CES-D10 is missing, Y11DEPR4 is set to 2 (history of risk). This does not imply that risk is known to be not ongoing or recurrent.

Incident Diabetes

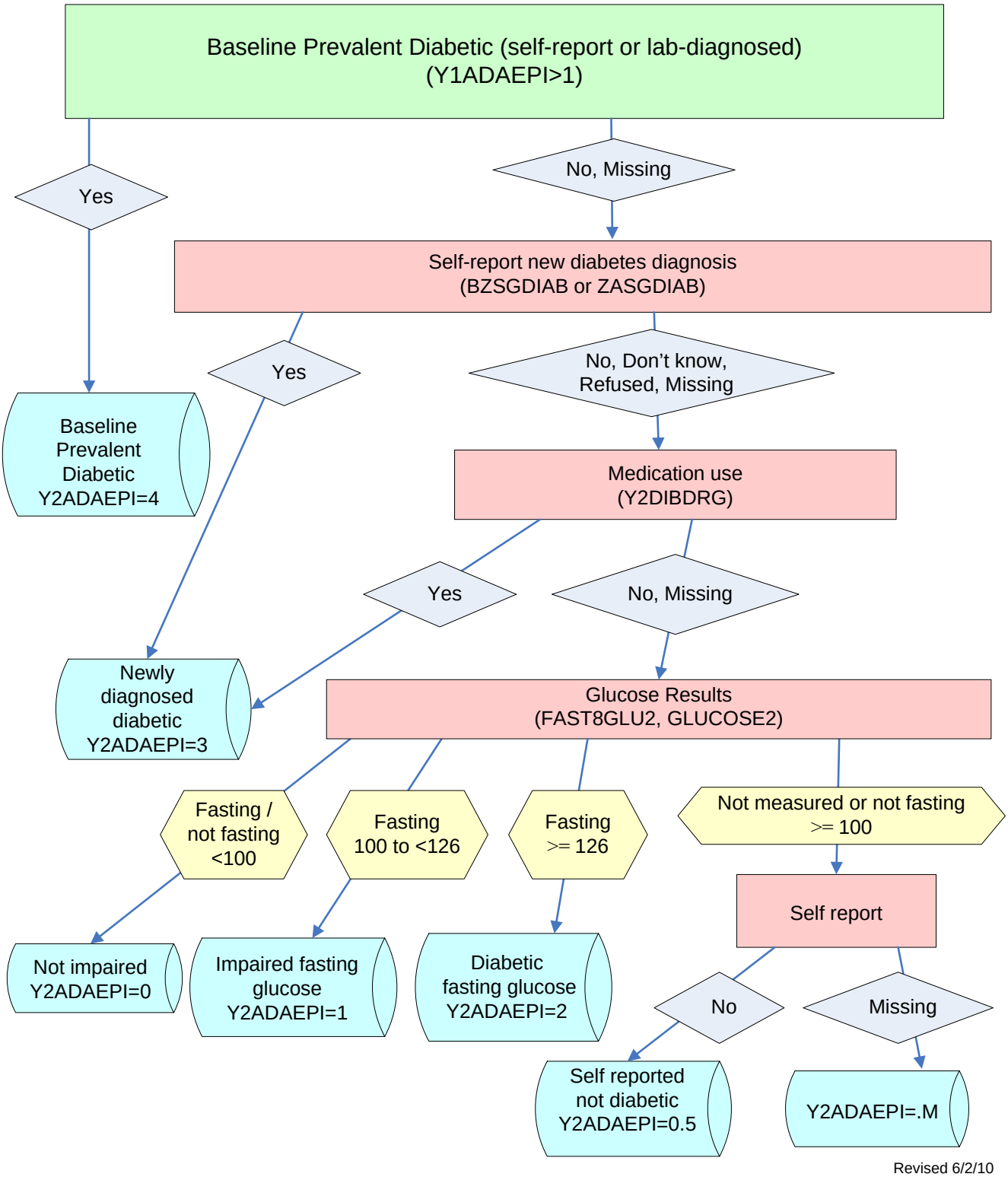
Investigator Names: Nathalie deRekeinere[1], Tammy Harris[1], Ann Schwartz[2], Kristine Yaffe[2]
E-mail Address:
Unit:1) Project Office 2) Coordinating Center
Analysis Plan Reference Number: N/A

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
YxADAEPI	Incident glucose intolerance (ADA/EPI criteria)	Categorical variable for glucose intolerance using ADA (epidemiological) criteria	=4 if baseline prevalent (Y1ADAEPI=1) or previous self-report of MD diagnosis of diabetes or use of diabetic med (Yx-1ADAEPI>1), else =0 if (FAST8GLUx or GLUCOSEx)<100 =1 if 100≤FAST8GLUx<126 =2 if FAST8GLUx≥126 =3 if new self report or YxDIBDRG=1 =0.5 if self report is No	Set to missing (.M) if none of the criteria met and any of the criteria are missing.	0=Not impaired* 0.5=Self report not diabetic, no fasting glucose 1=Impaired fasting glucose 2=Diabetic fasting glucose 3=Newly diagnosed diabetic** 4=previously diagnosed diabetic
YxADA2H	Incident glucose intolerance (ADA + OGTT criteria used for baseline prevalence)	Categorical variable for glucose intolerance using Y1ADA2H as the definition of baseline prevalent diabetes	As above, except uses Y1ADA2H as the definition of baseline prevalent diabetes	Set to missing (.M) if none of the criteria met and any of the criteria are missing.	0=Not impaired* 0.5=Self report not diabetic, no fasting glucose 1=Impaired fasting glucose 2=Diabetic fasting glucose 3=Newly diagnosed diabetic** 4=previously diagnosed diabetic

*Fasting glucose was not measured in Year 3, 5, 7, 9, and 12-16. In years 3 and 5, YxADAEPI and YxADA2H can only take on values of (0.5,3,4). In years 7, 9, and 12-14 there is also no medication data. When a participant does not self-report incident diabetes, and there is no fasting glucose or treatment information available, then YxADAEPI and YxADA2H are set to missing (.M). When a participant self-reports no incident diabetes, and there is no fasting glucose or treatment information available, then YxADAEPI and YxADA2H are set to 0.5. **In year 4, no medication inventory was done, so new diabetes diagnosis depends on self-report only.

Health ABC

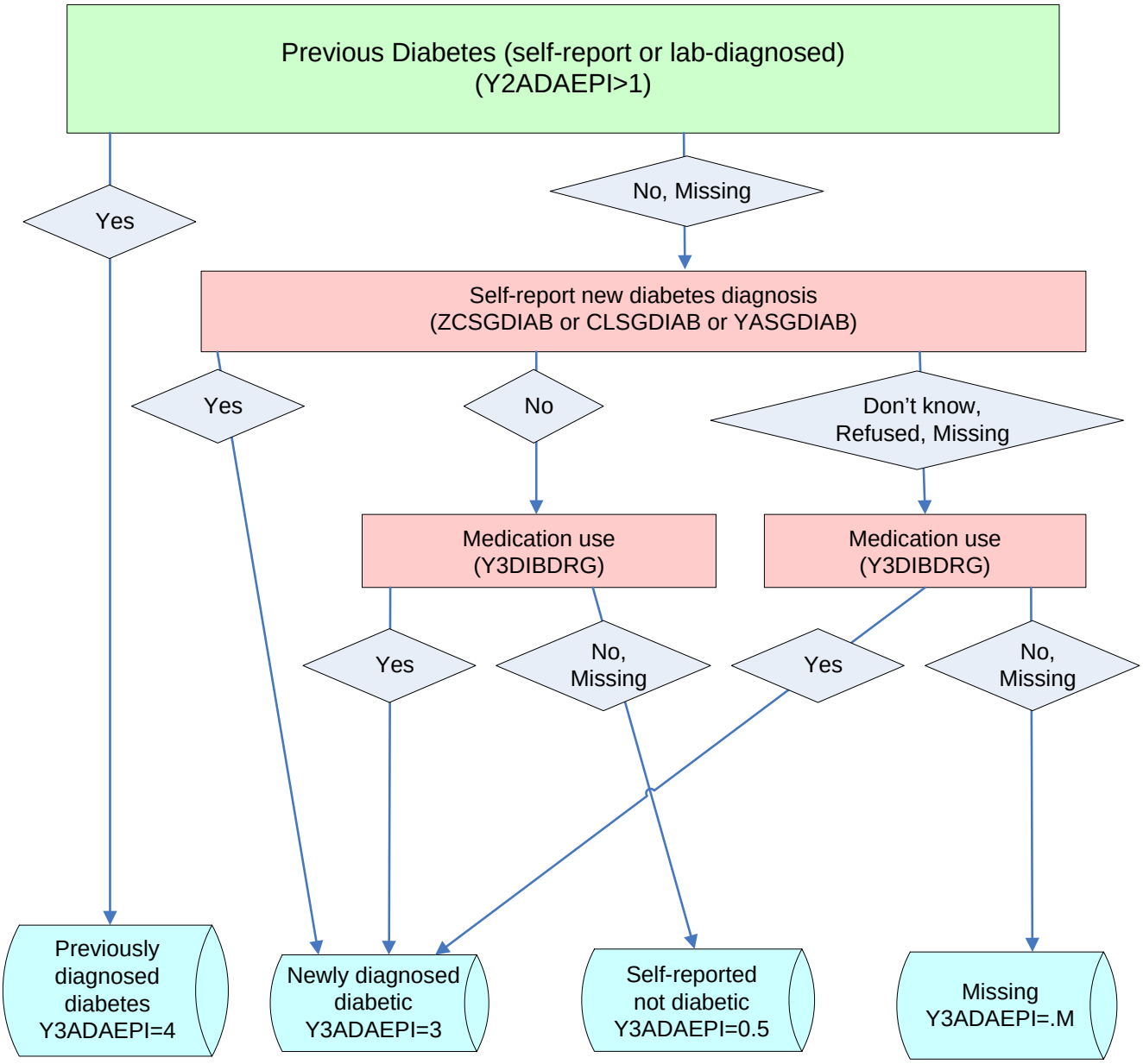
Incident Glucose Status
Year 2: ADAEPI Definition of Baseline Diabetes



Revised 6/2/10

Health ABC

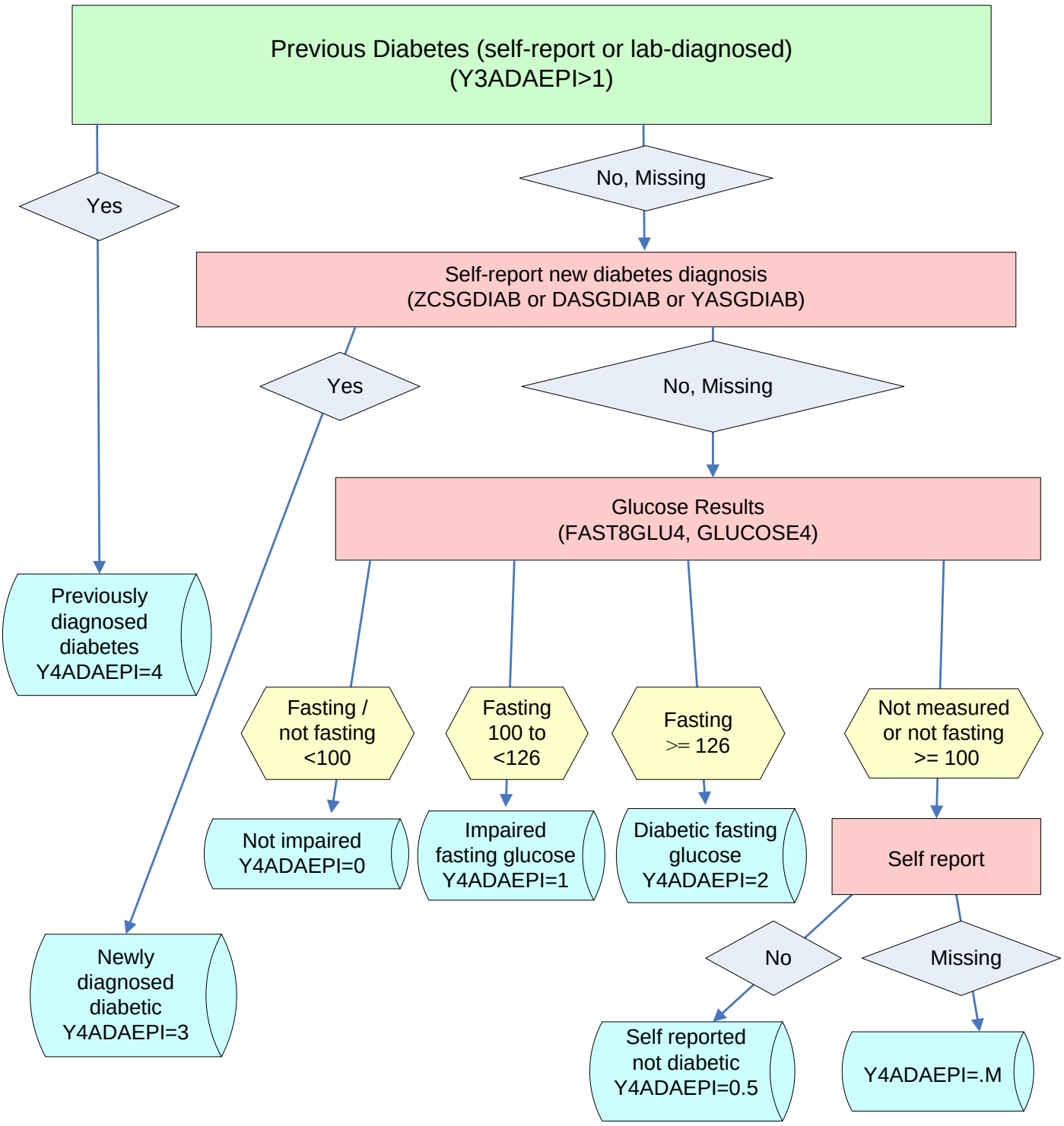
Incident Glucose Status
Year 3: ADAEPI Definition of Baseline Diabetes



Revised 5/14/10

Health ABC

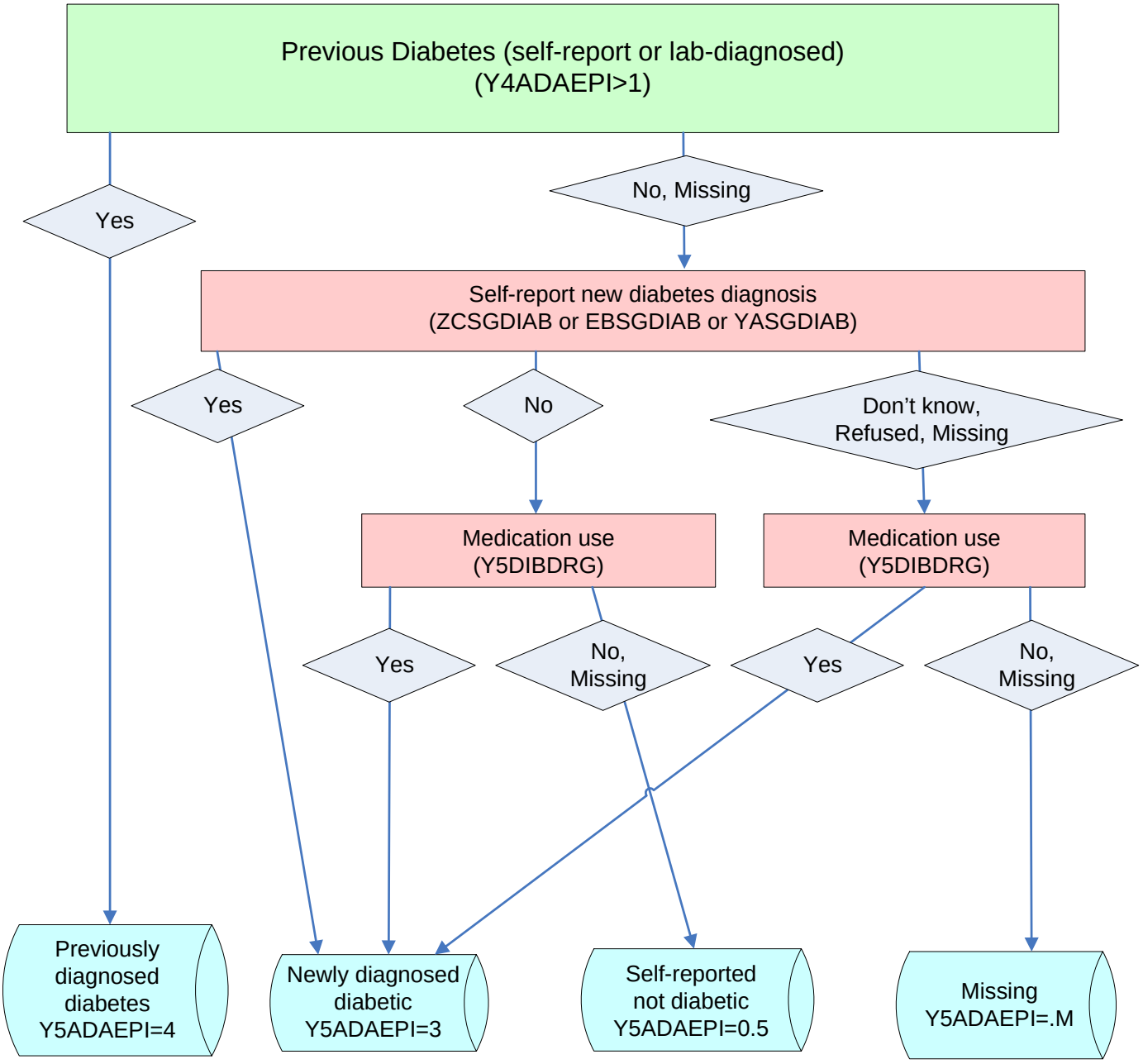
Incident Glucose Status
Year 4: ADAEPI Definition of Baseline Diabetes



Revised 6/2/10

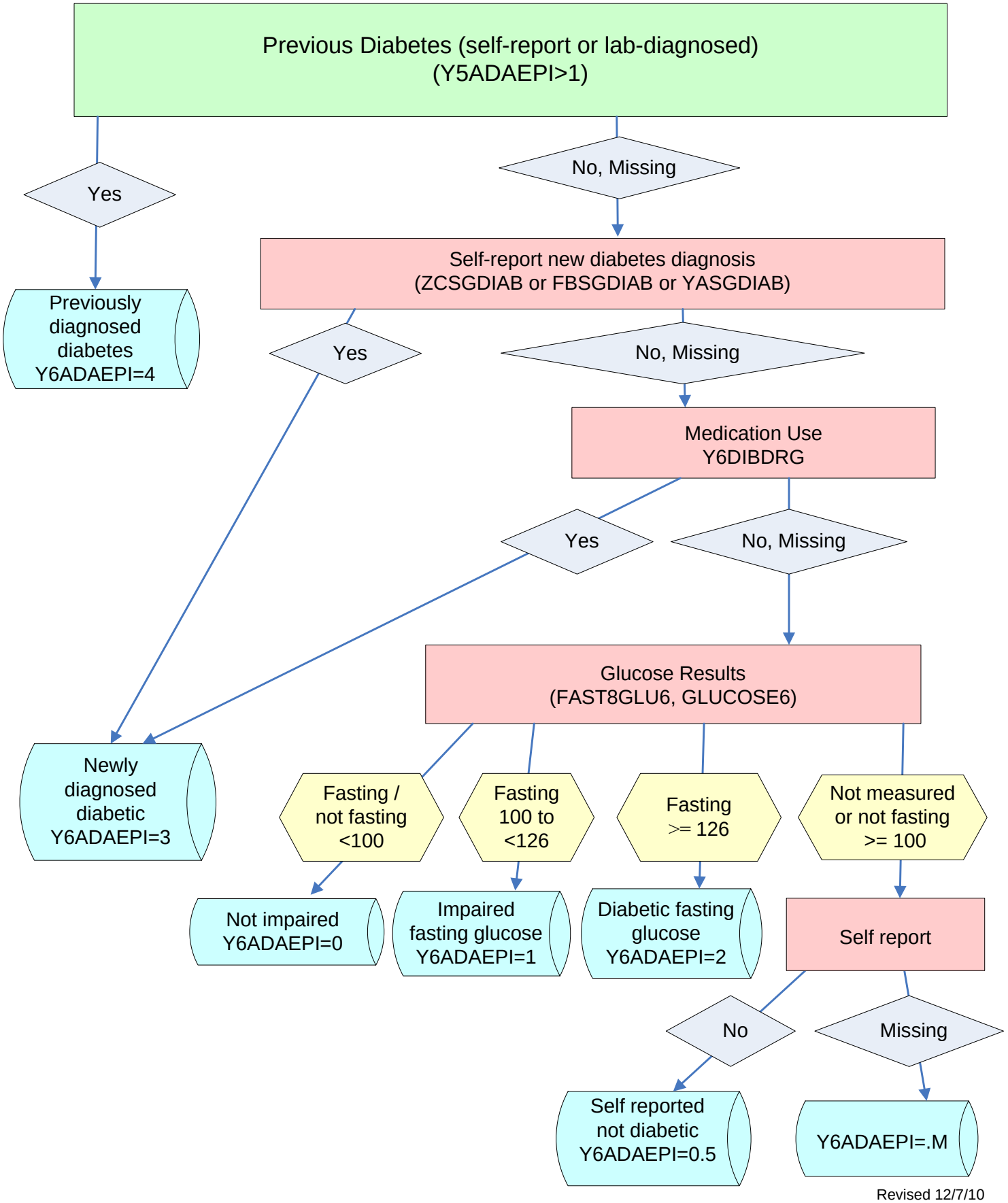
Health ABC

Incident Glucose Status
Year 5: ADAEPI Definition of Baseline Diabetes



Revised 6/2/10

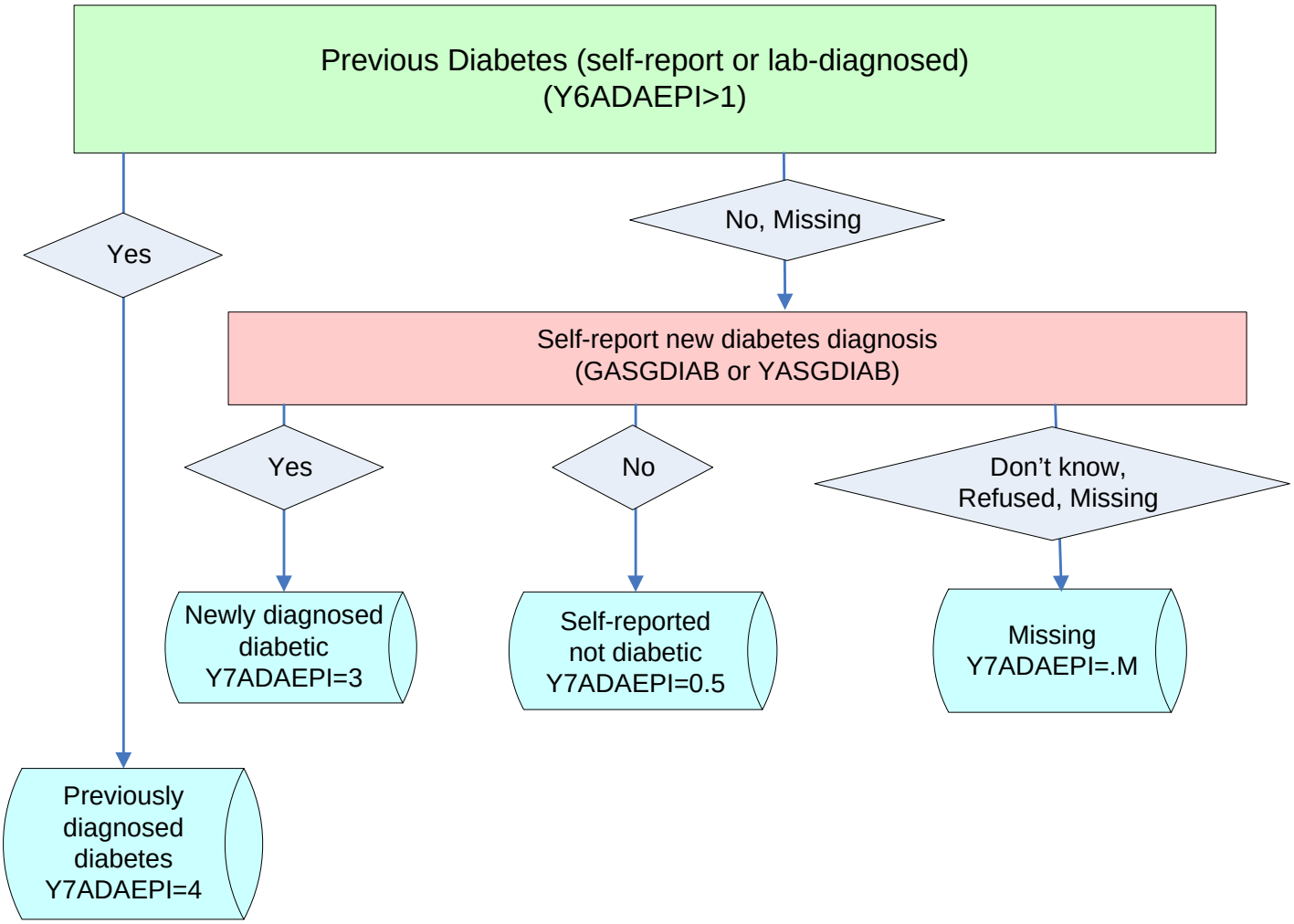
Incident Glucose Status
Year 6: ADAEPI Definition of Baseline Diabetes



Revised 12/7/10

Health ABC

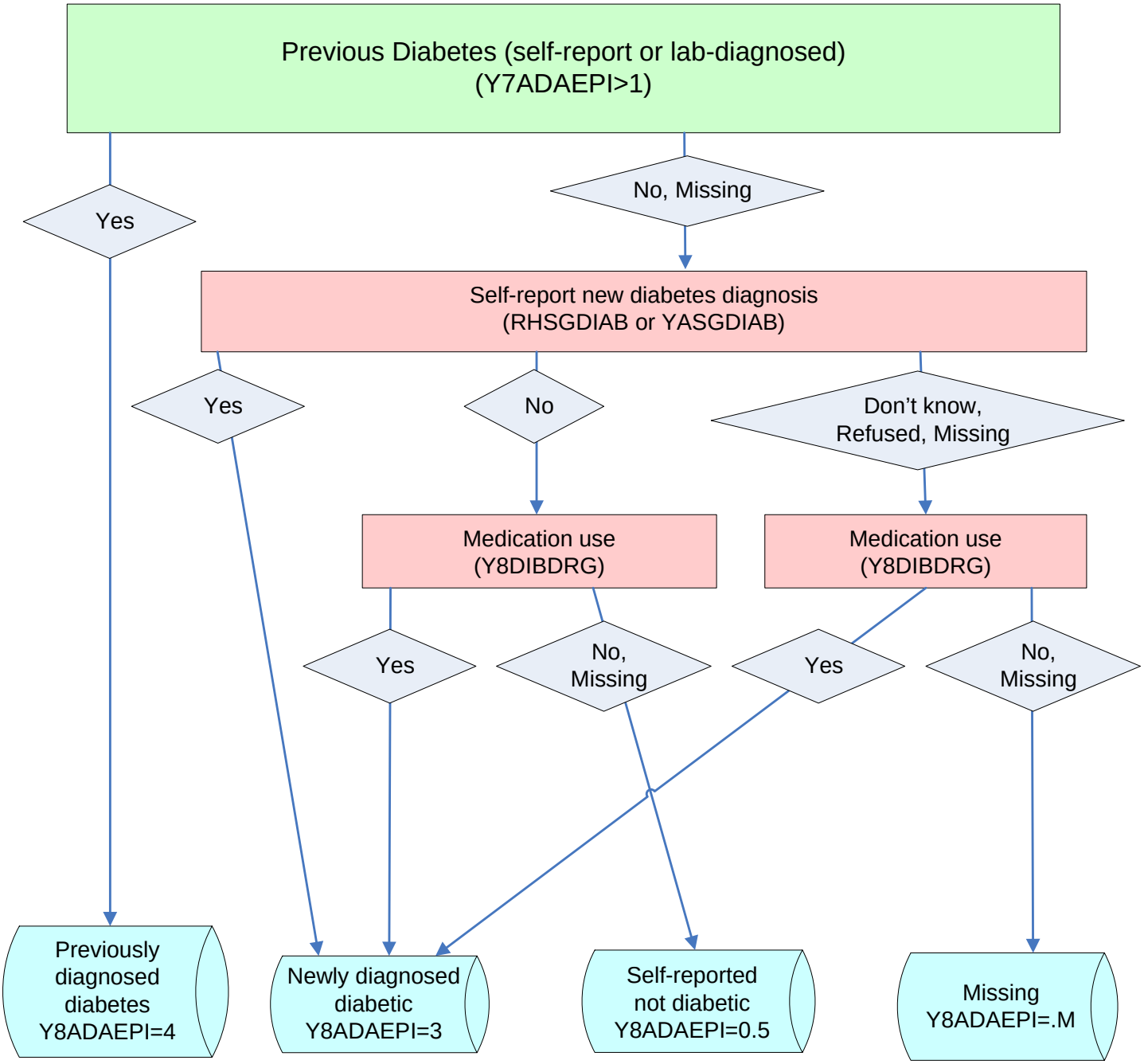
Incident Glucose Status
Year 7: ADAEPI Definition of Baseline Diabetes



Revised 6/3/10

Health ABC

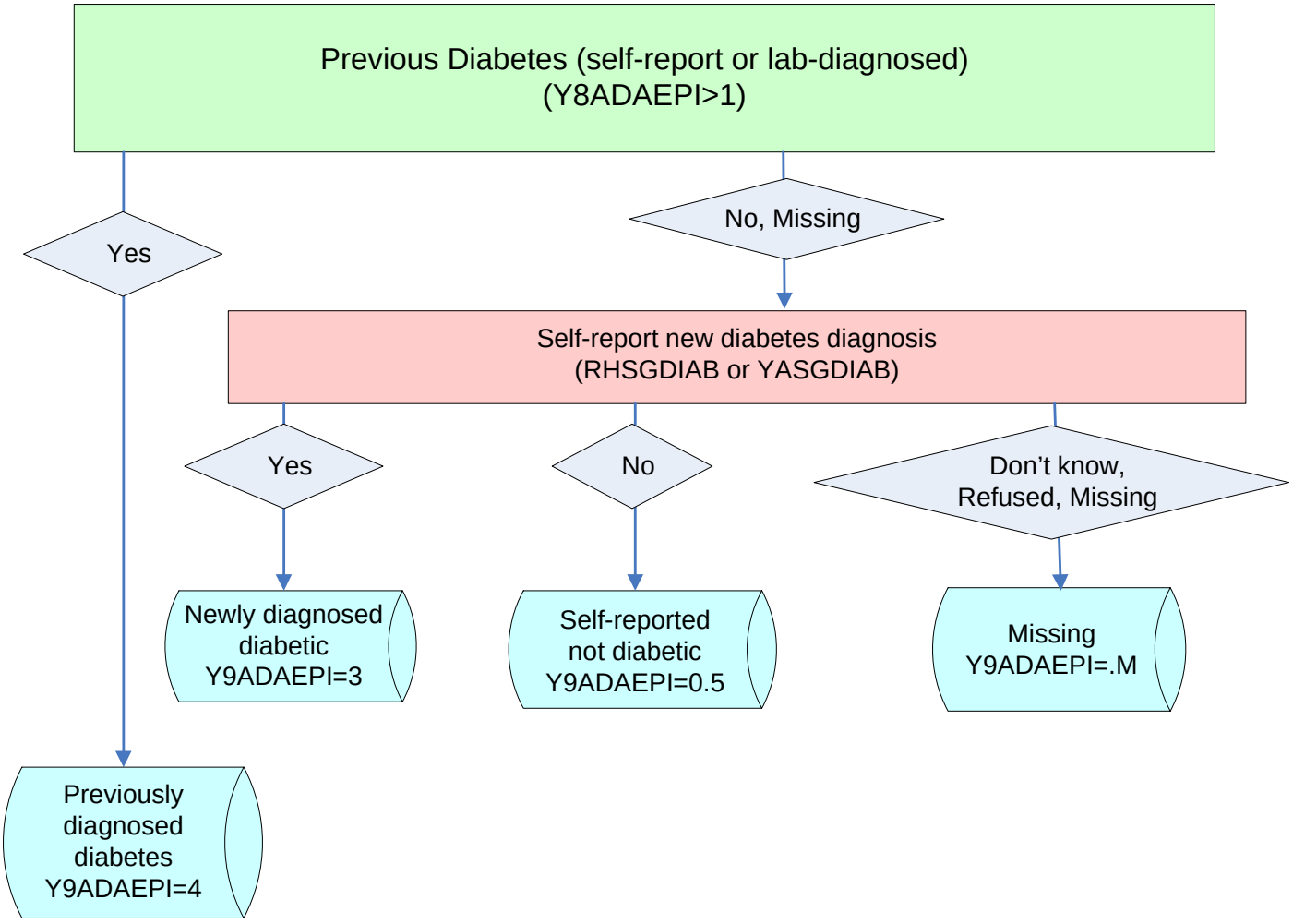
Incident Glucose Status
Year 8: ADAEPI Definition of Baseline Diabetes



Revised 6/2/10

Health ABC

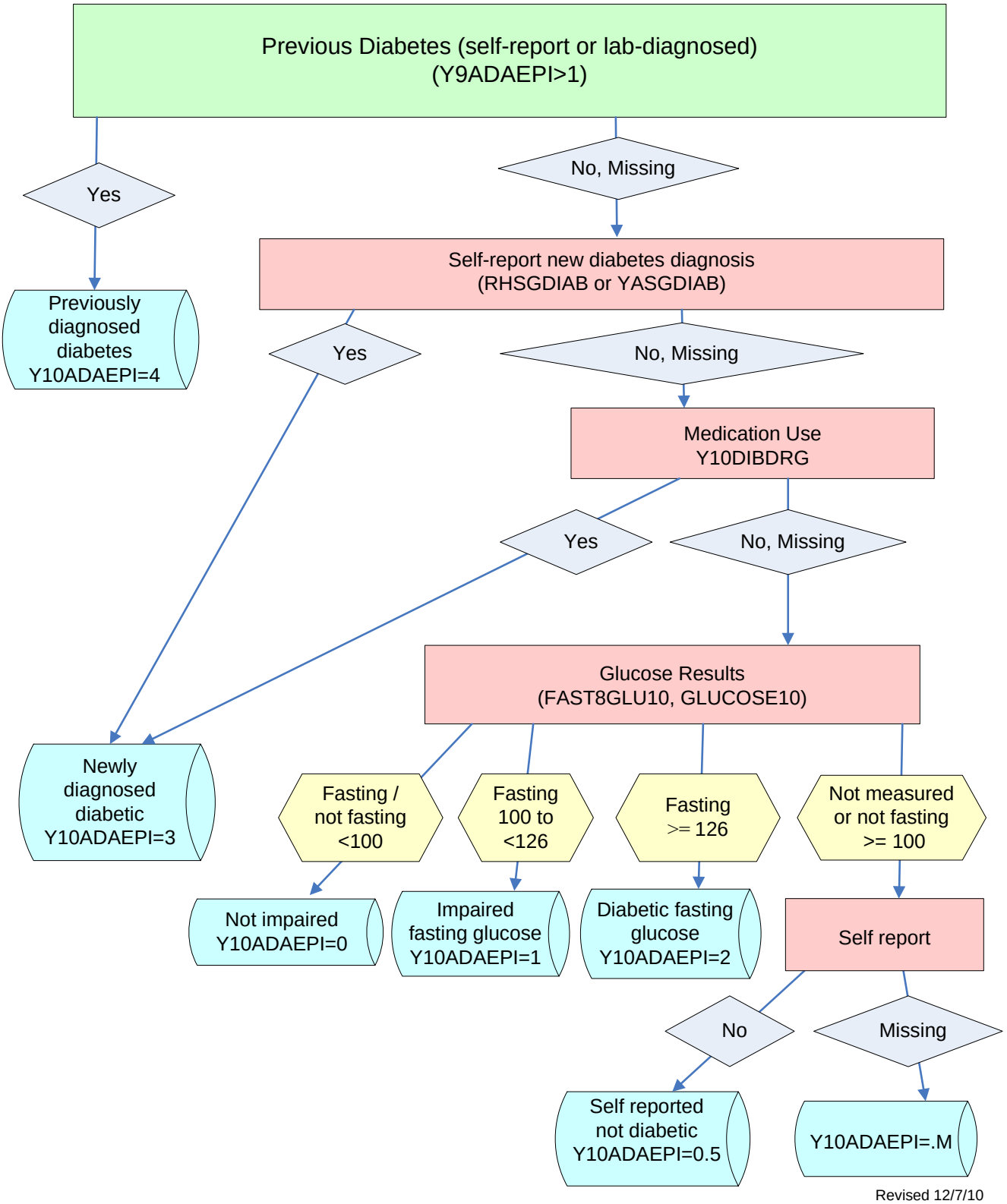
Incident Glucose Status
Year 9: ADAEPI Definition of Baseline Diabetes



Revised 6/3/10

Health ABC

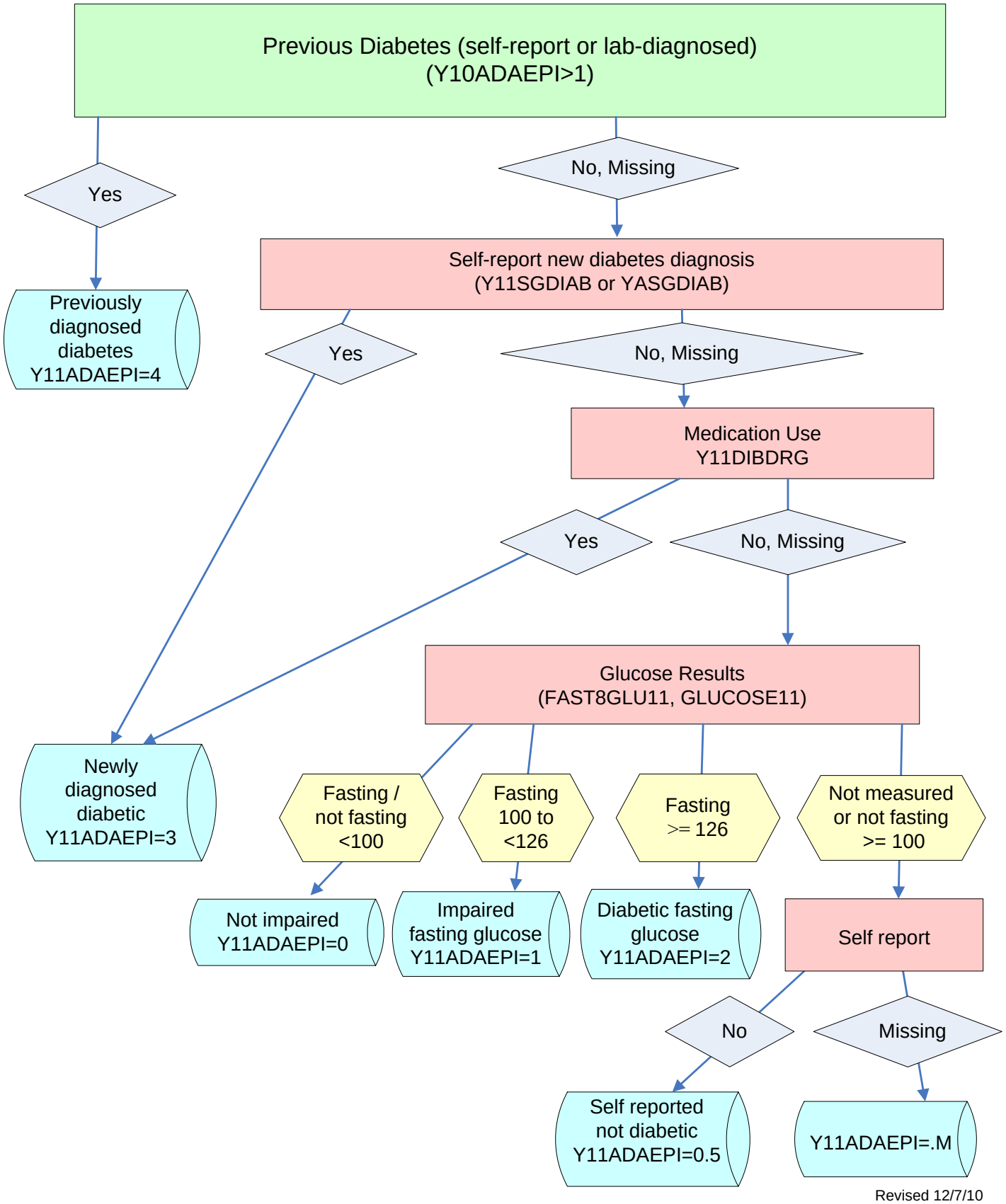
Incident Glucose Status
Year 10: ADAEPI Definition of Baseline Diabetes



Revised 12/7/10

Health ABC

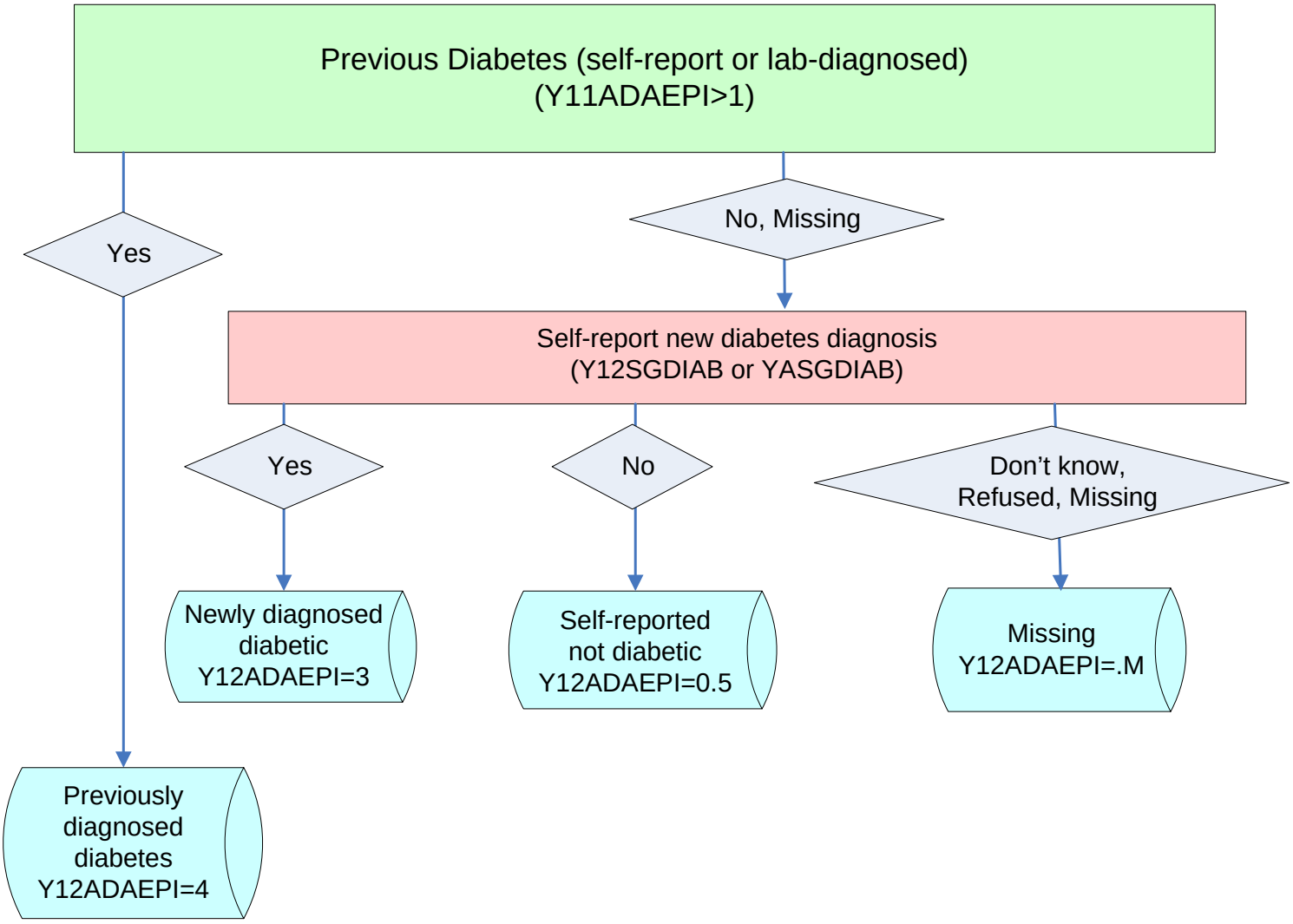
Incident Glucose Status
Year 11: ADAEPI Definition of Baseline Diabetes



Revised 12/7/10

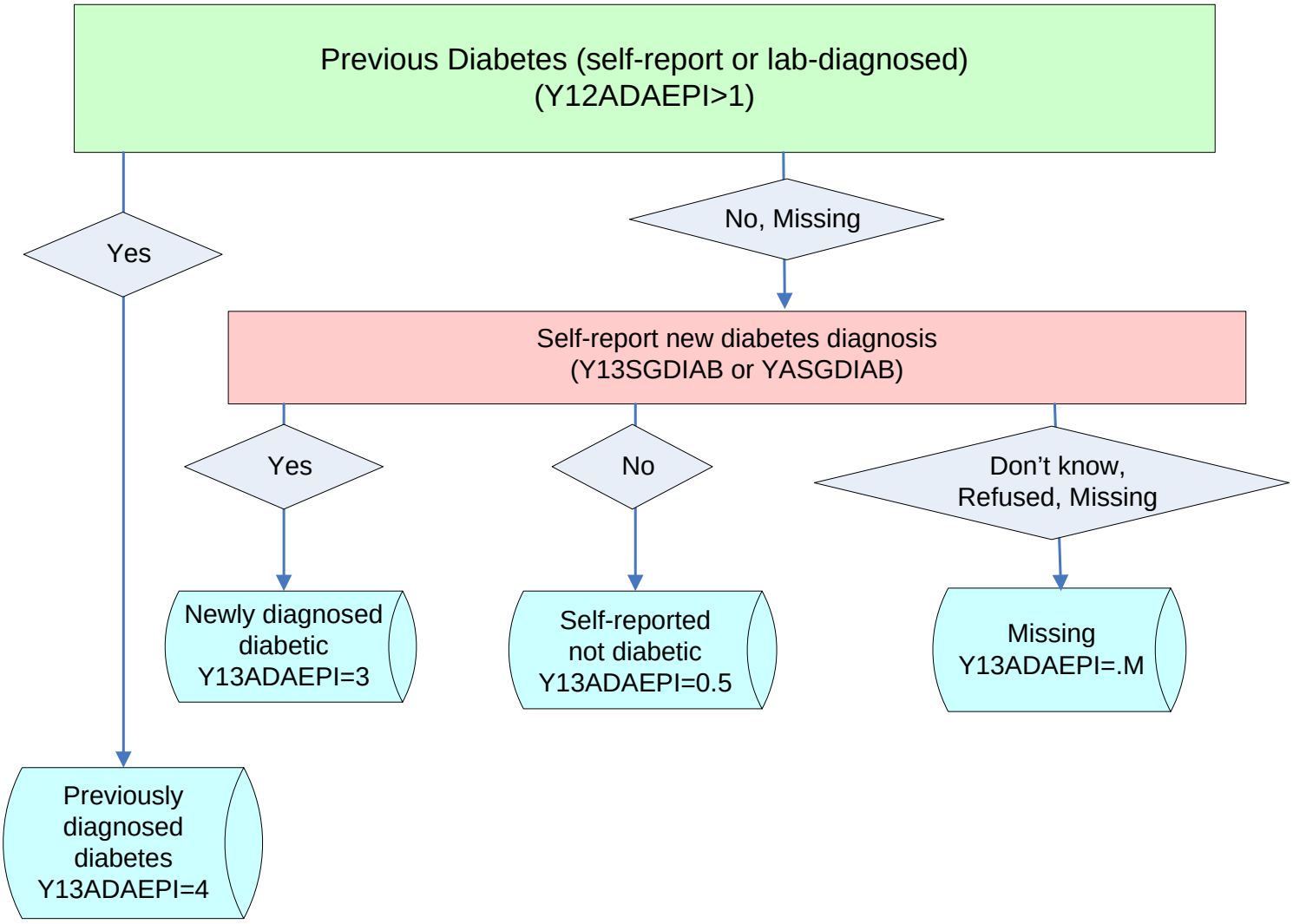
Health ABC

Incident Glucose Status
Year 12: ADAEPI Definition of Baseline Diabetes

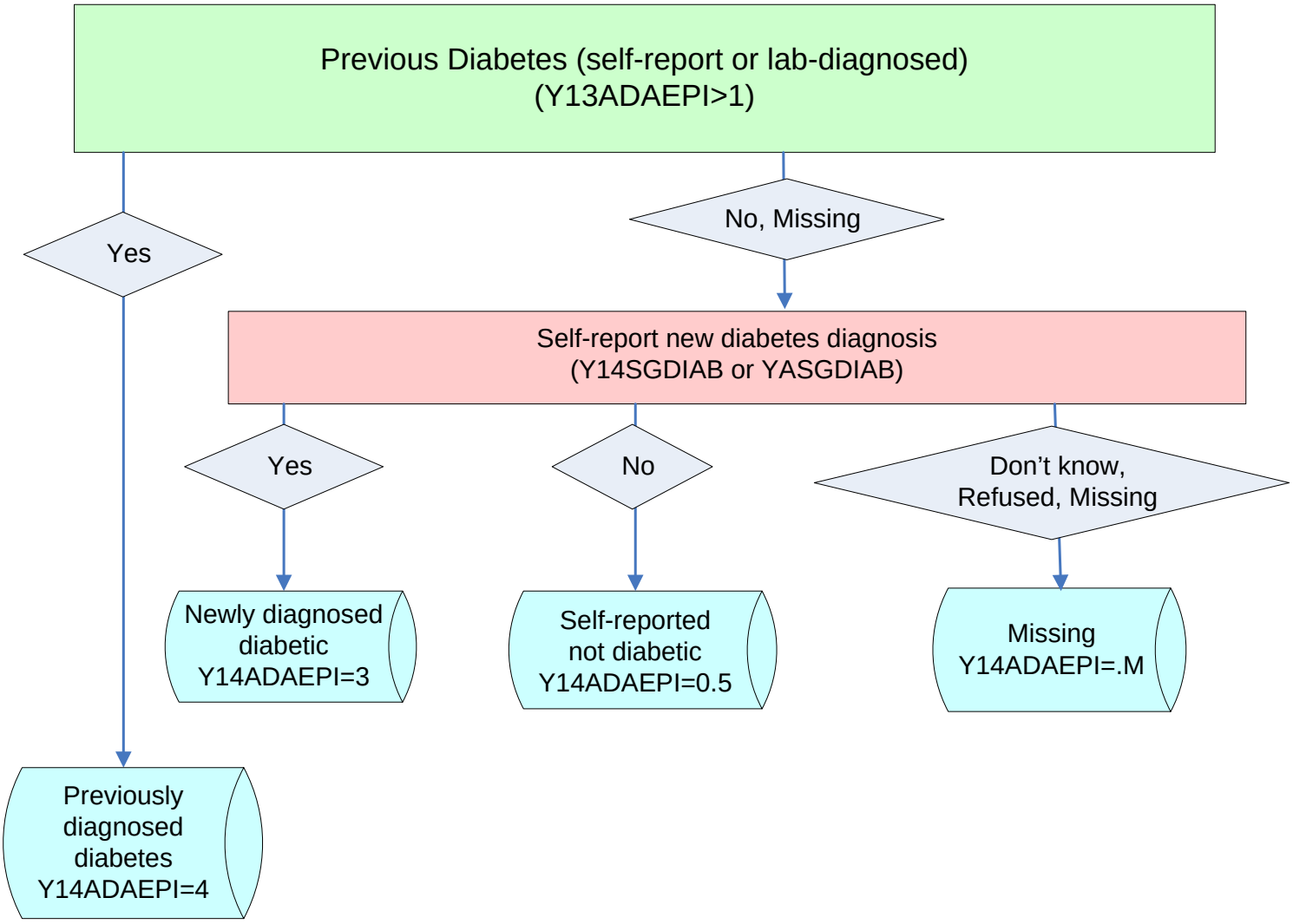


Health ABC

Incident Glucose Status
Year 13: ADAEPI Definition of Baseline Diabetes

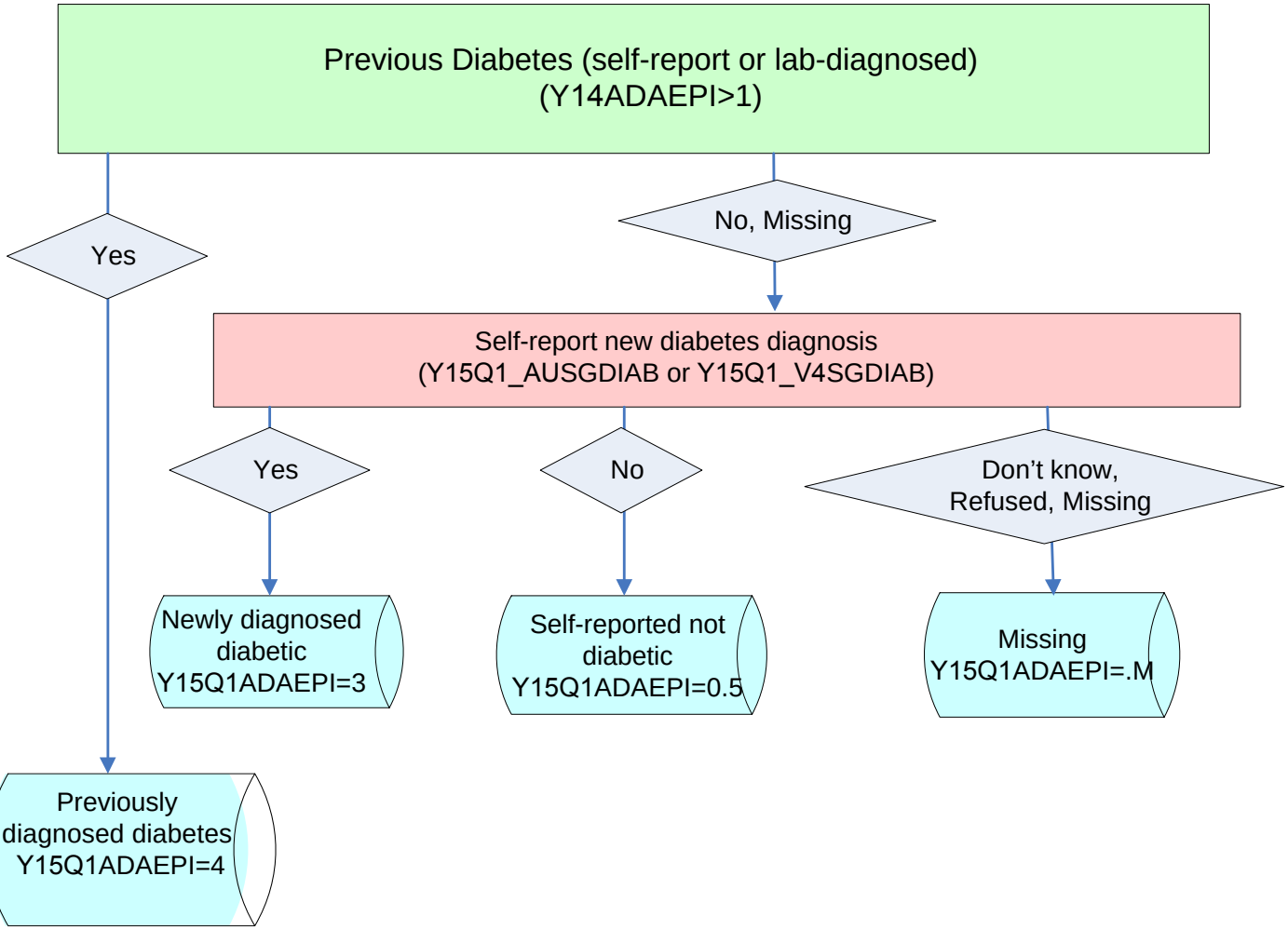


Incident Glucose Status
Year 14: ADAEPI Definition of Baseline Diabetes



Health ABC

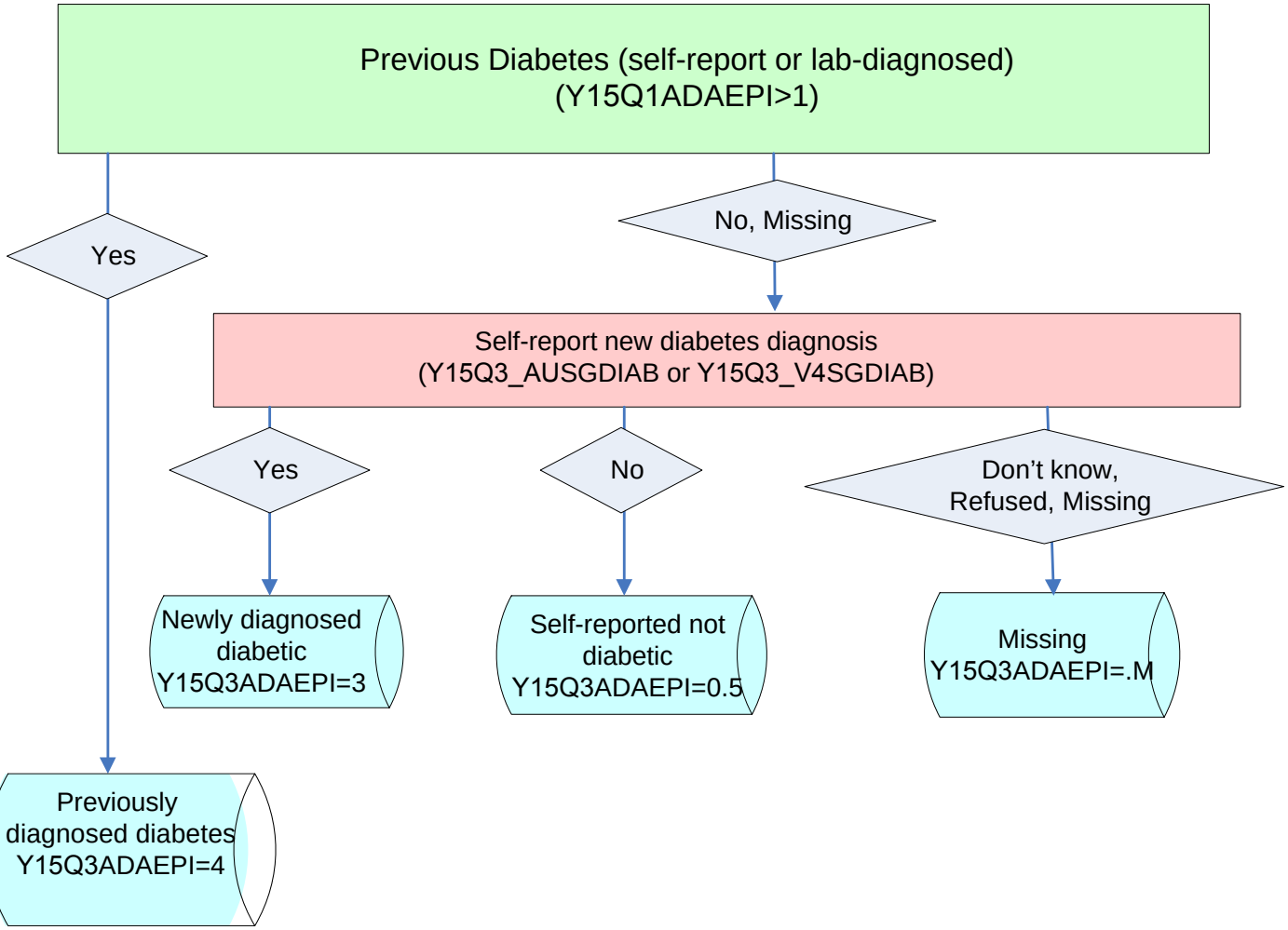
Incident Glucose Status
Year 15 Quarter 1: ADAEPI Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

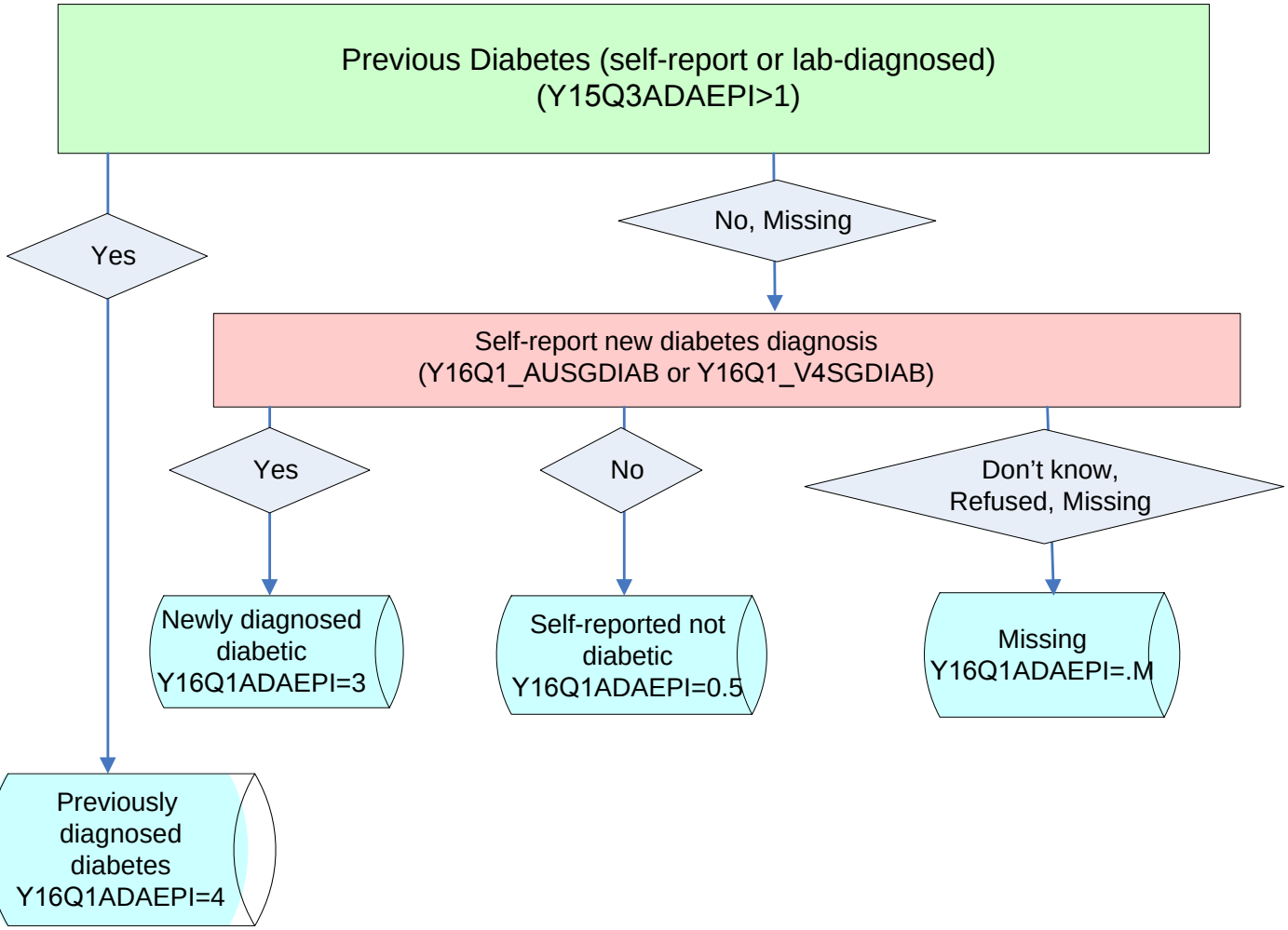
Incident Glucose Status
Year 15 Quarter 3: ADAEPI Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

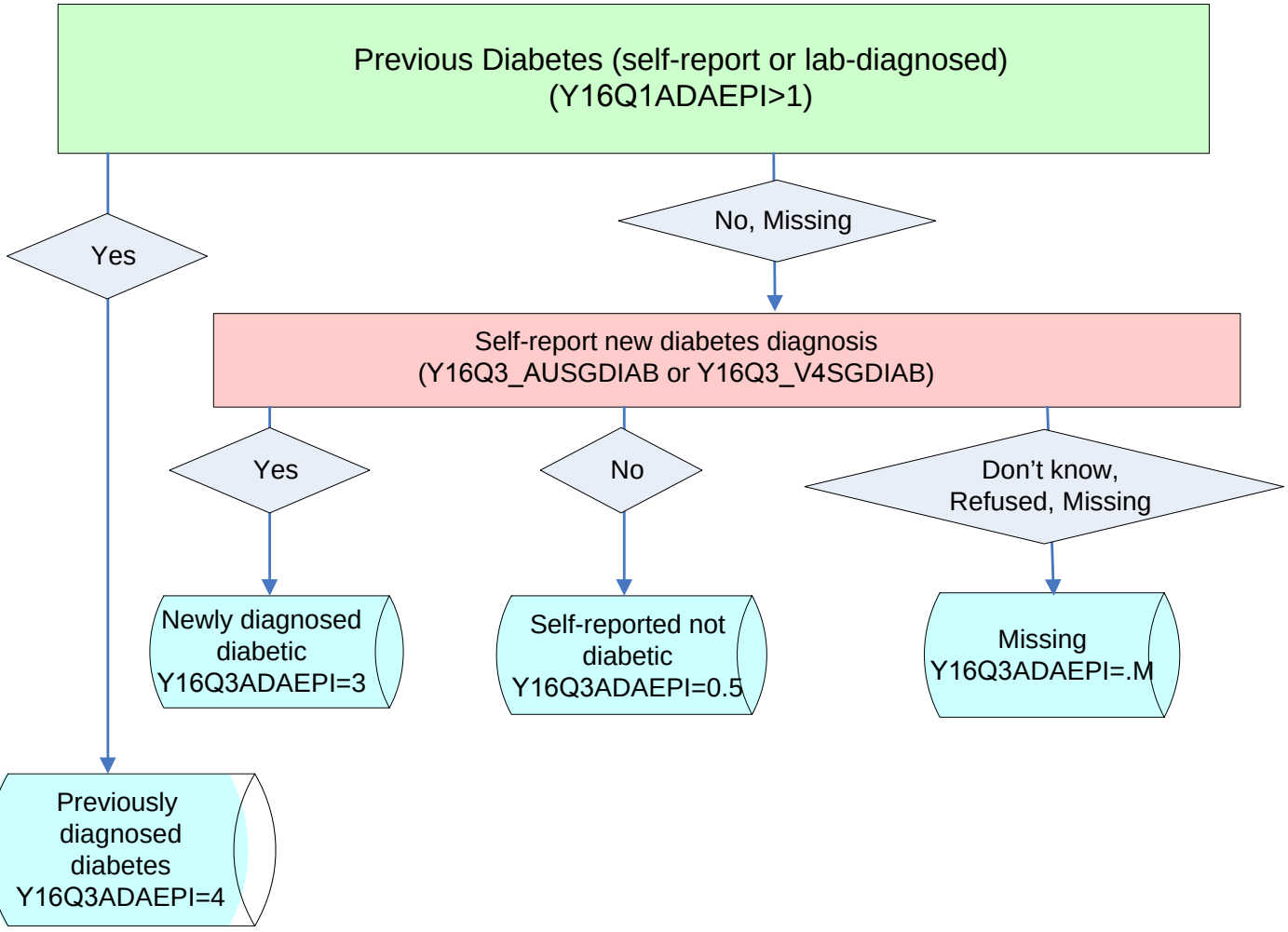
Incident Glucose Status
Year 16 Quarter 1: ADAEPI Definition of Baseline Diabetes



Revised 12/15/15

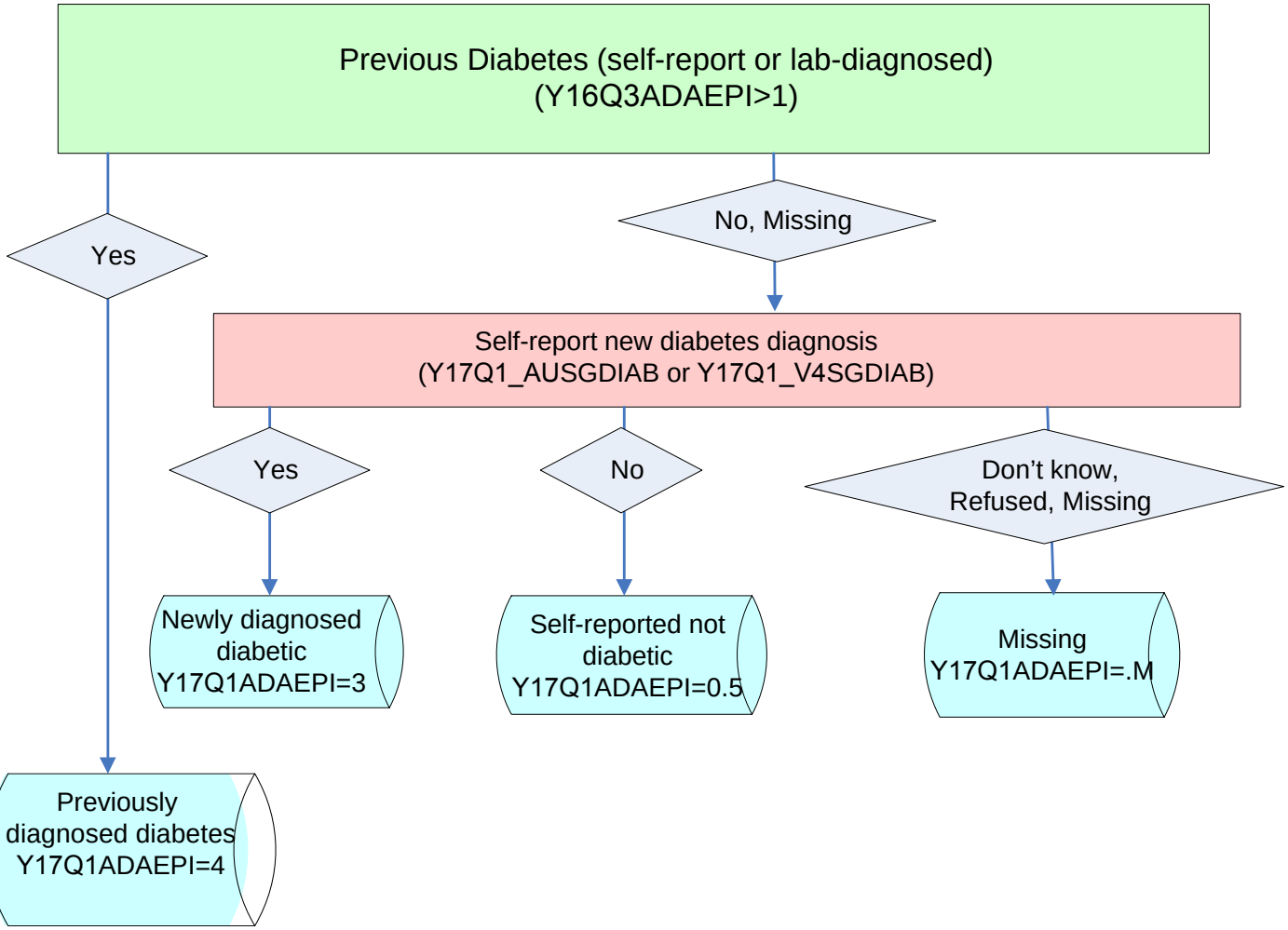
Health ABC

Incident Glucose Status
Year 16 Quarter 3: ADAEPI Definition of Baseline Diabetes



Health ABC

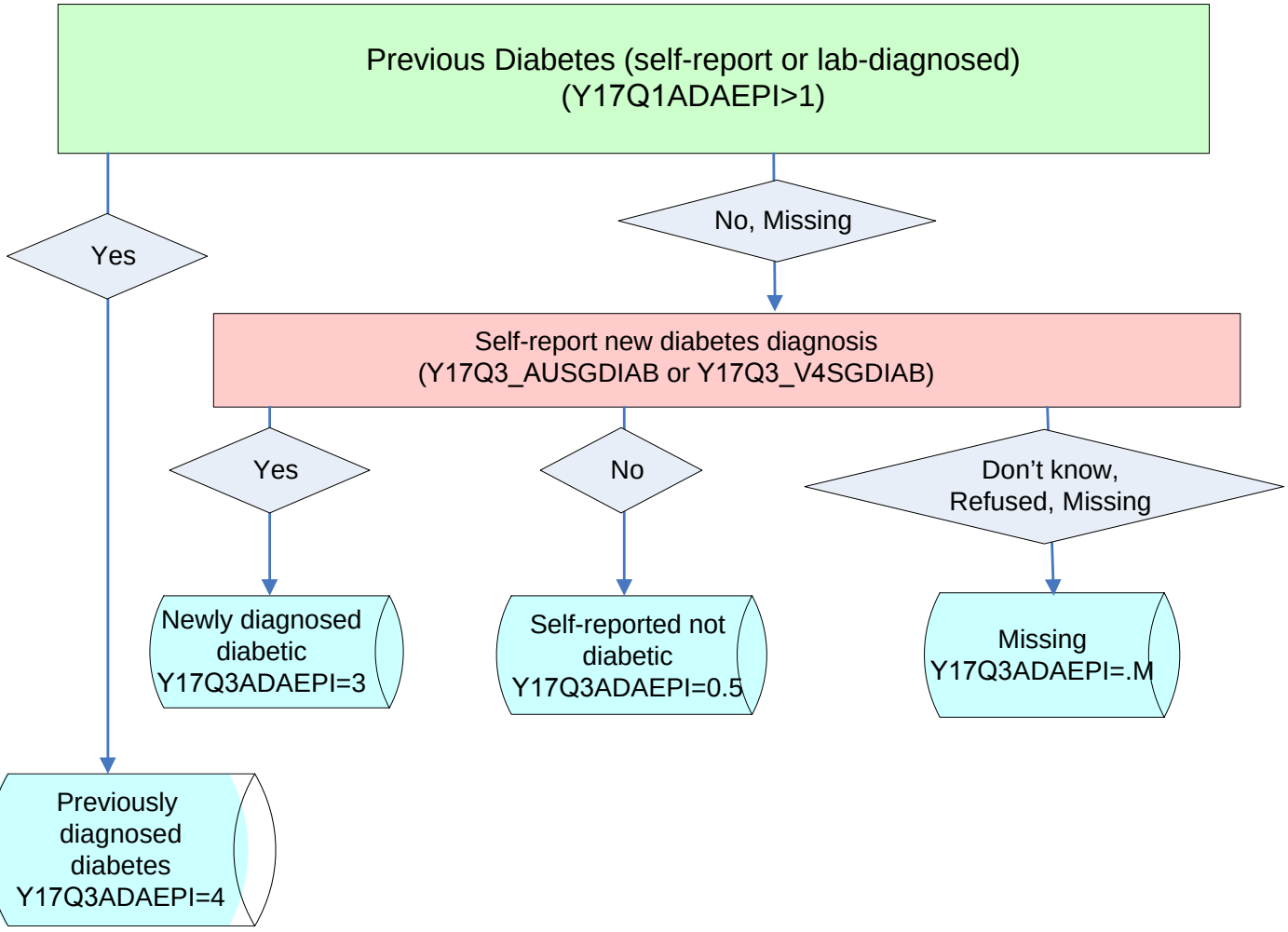
Incident Glucose Status
Year 17 Quarter 1: ADAEPI Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

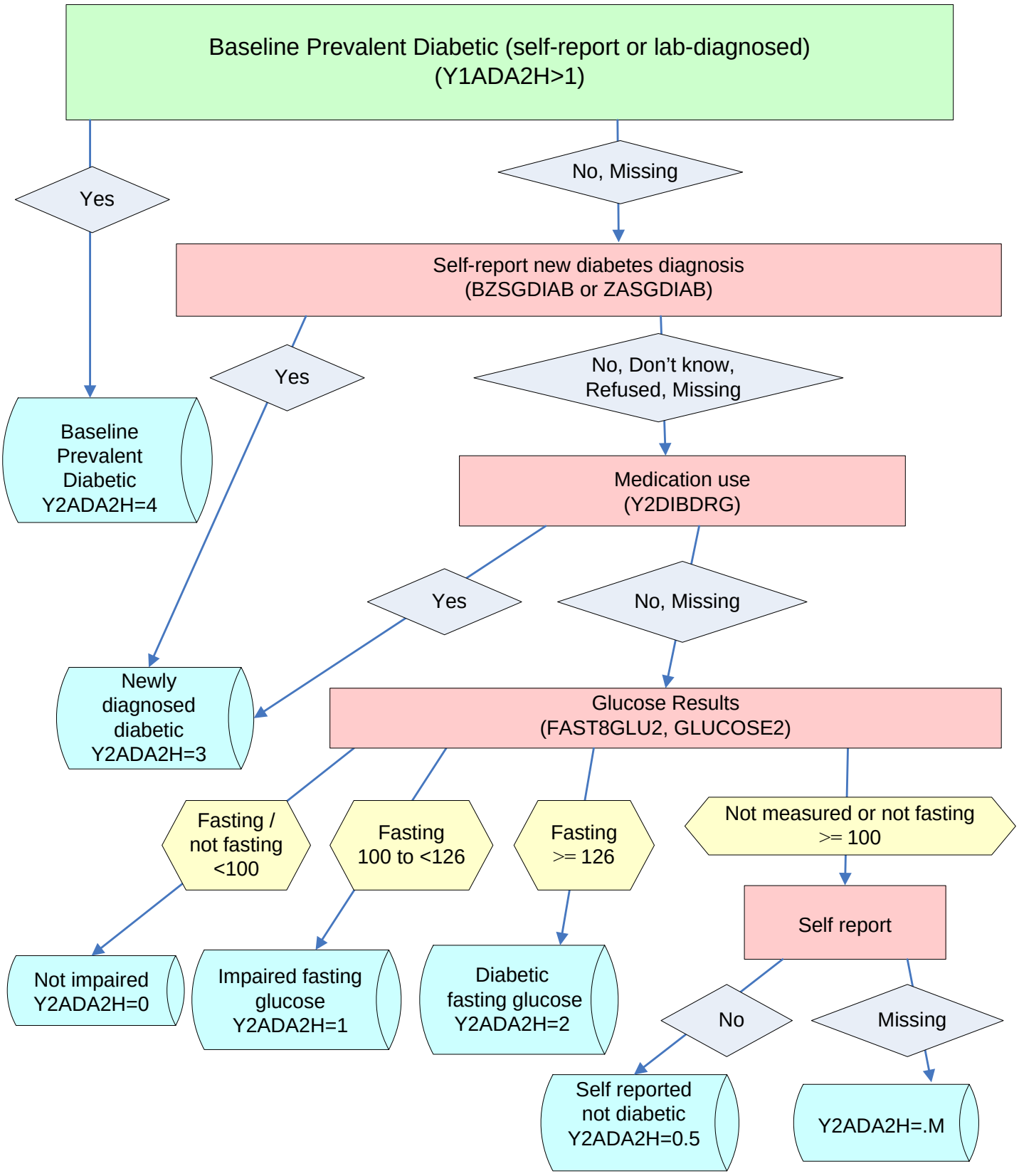
Incident Glucose Status
Year 17 Quarter 3: ADAEPI Definition of Baseline Diabetes



Revised 12/15/15

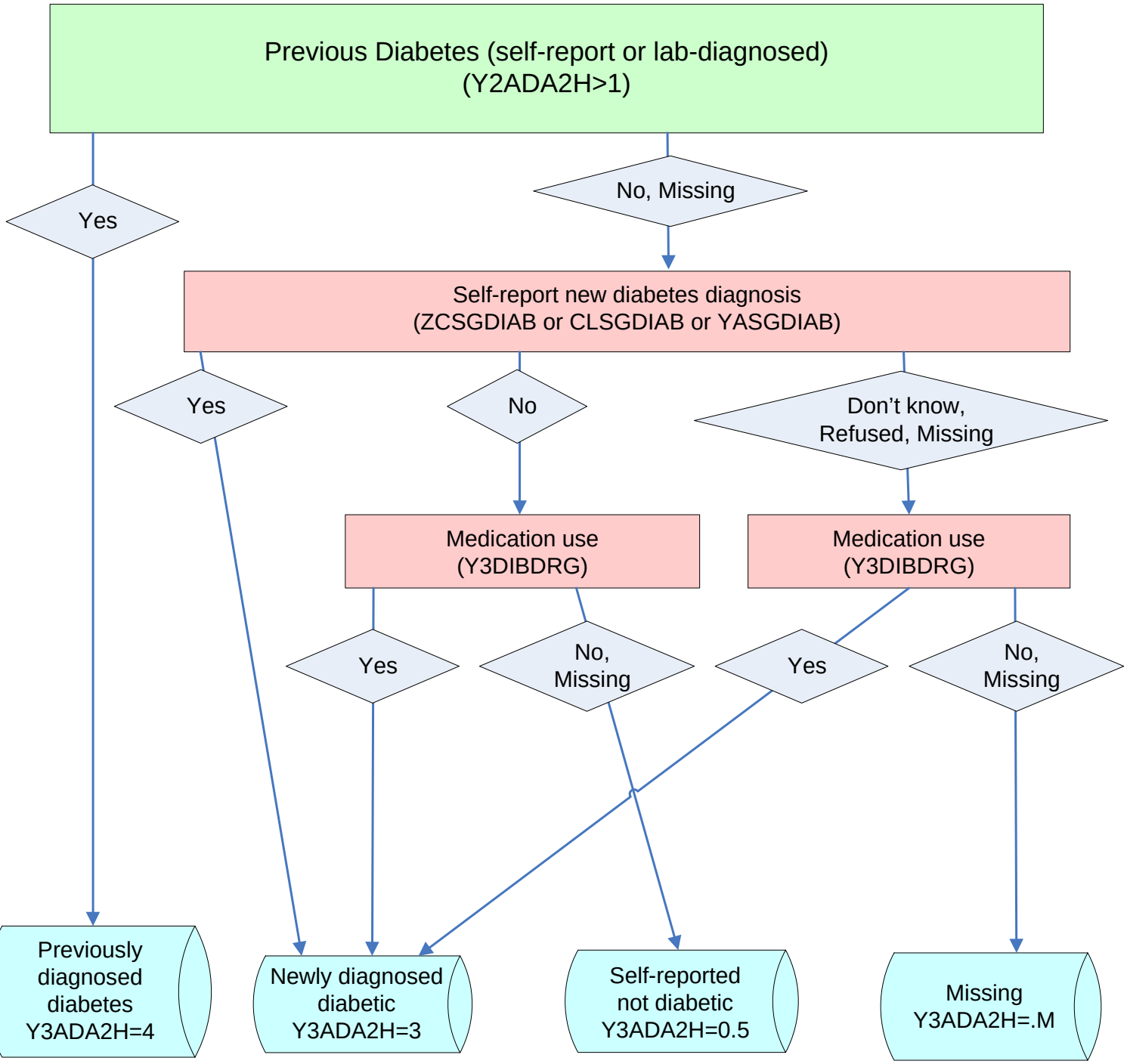
Health ABC

Incident Glucose Status
Year 2: ADAEPI + OGTT Definition of Baseline Diabetes



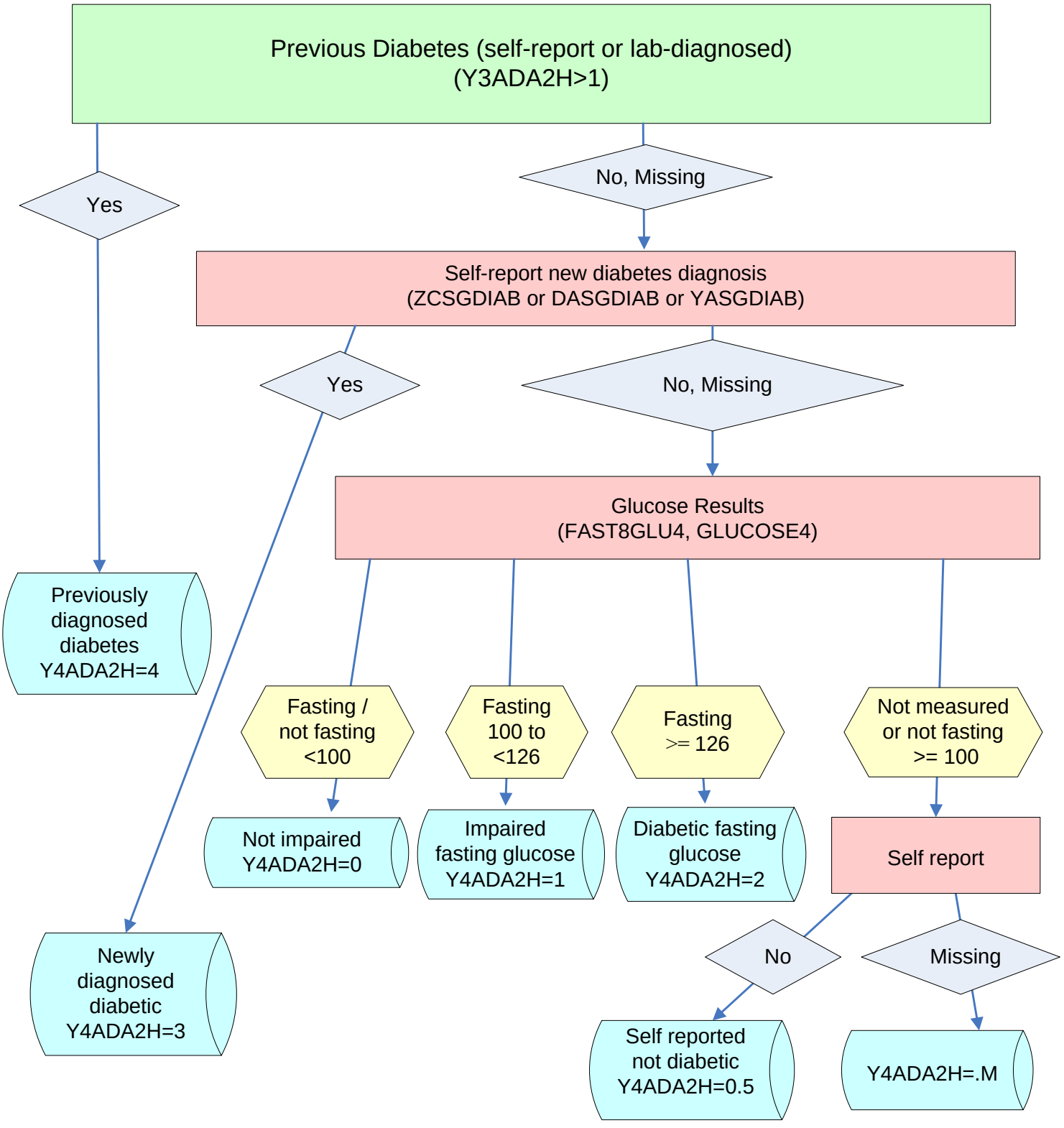
Health ABC

Incident Glucose Status
Year 3: ADAEPI + OGTT Definition of Baseline Diabetes



Health ABC

Incident Glucose Status
Year 4: ADAEPI + OGTT Definition of Baseline Diabetes

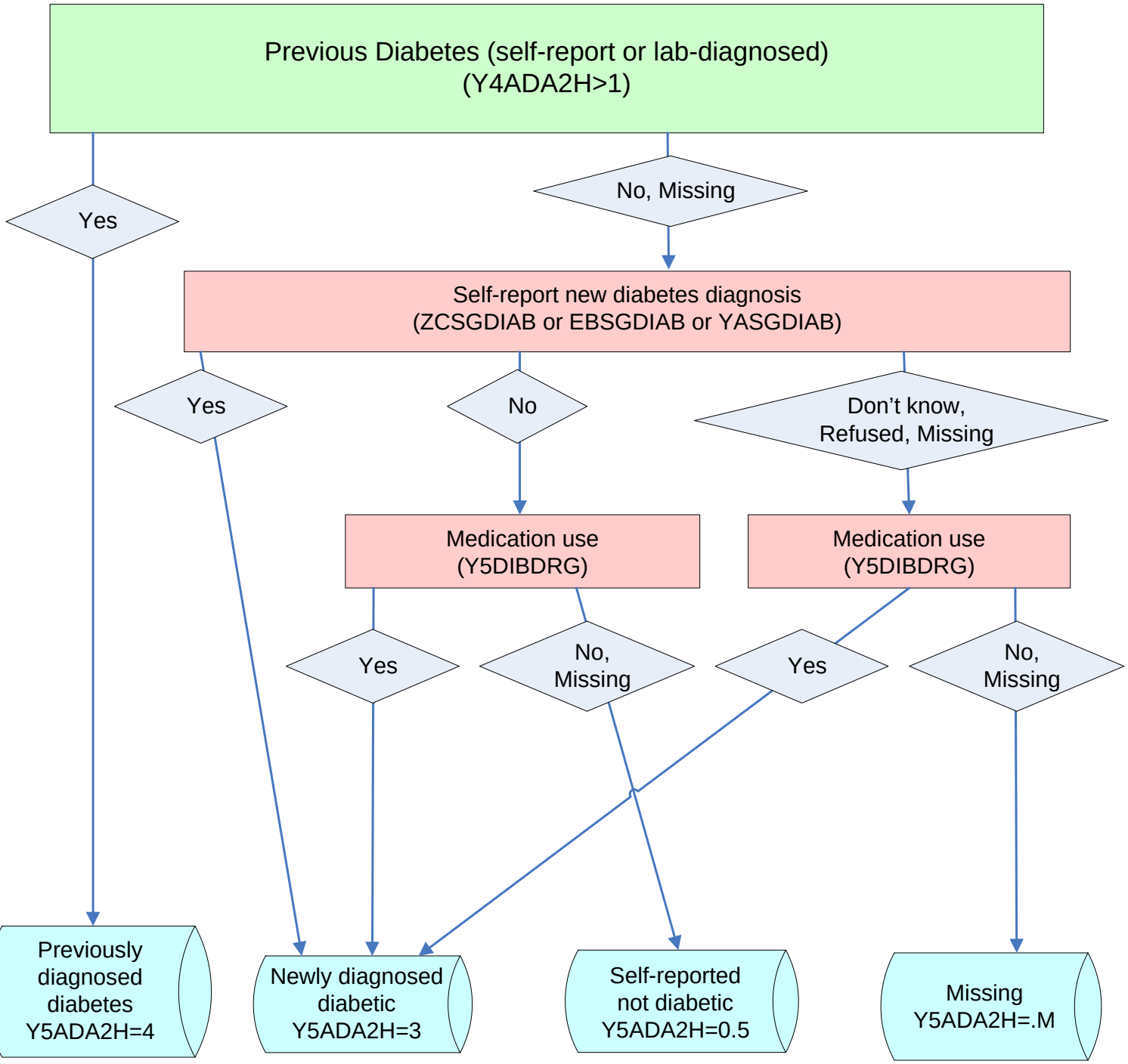


Revised 6/16/10

Documentation date: 2012-09-01

Health ABC

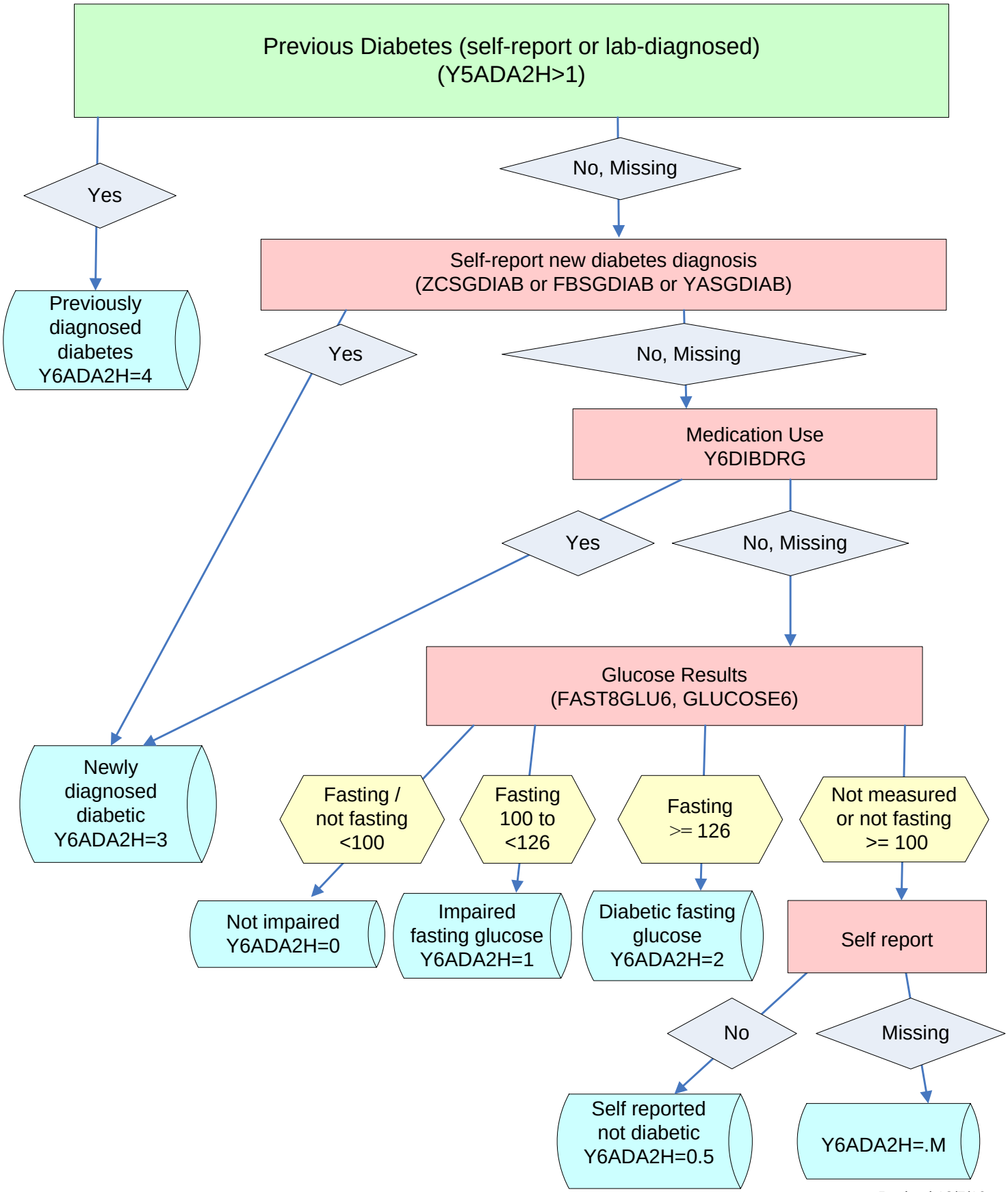
Incident Glucose Status
Year 5: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 6/16/10
Documentation date: 2012-09-01

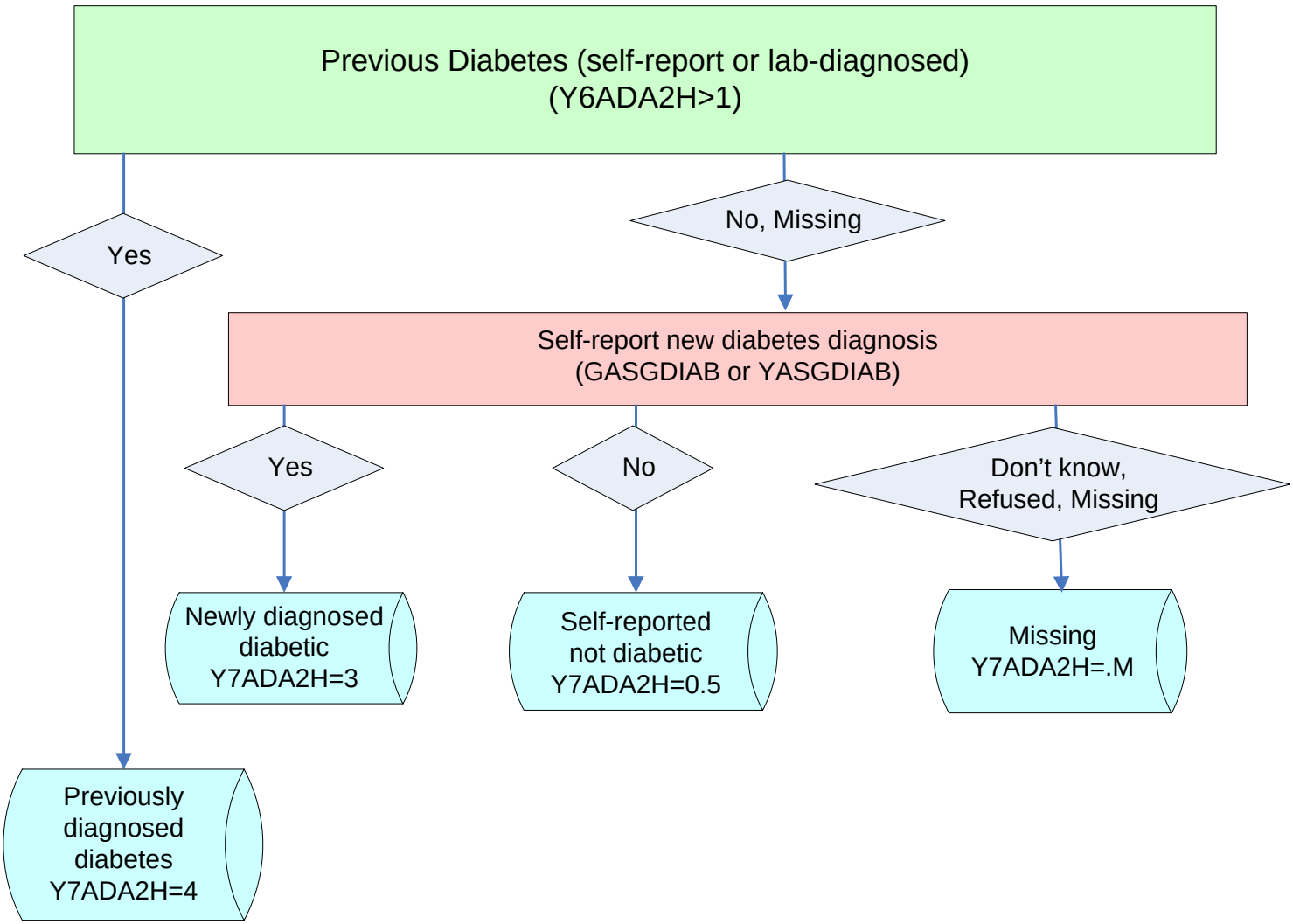
Health ABC

Incident Glucose Status
Year 6: ADAEPI + OGTT Definition of Baseline Diabetes



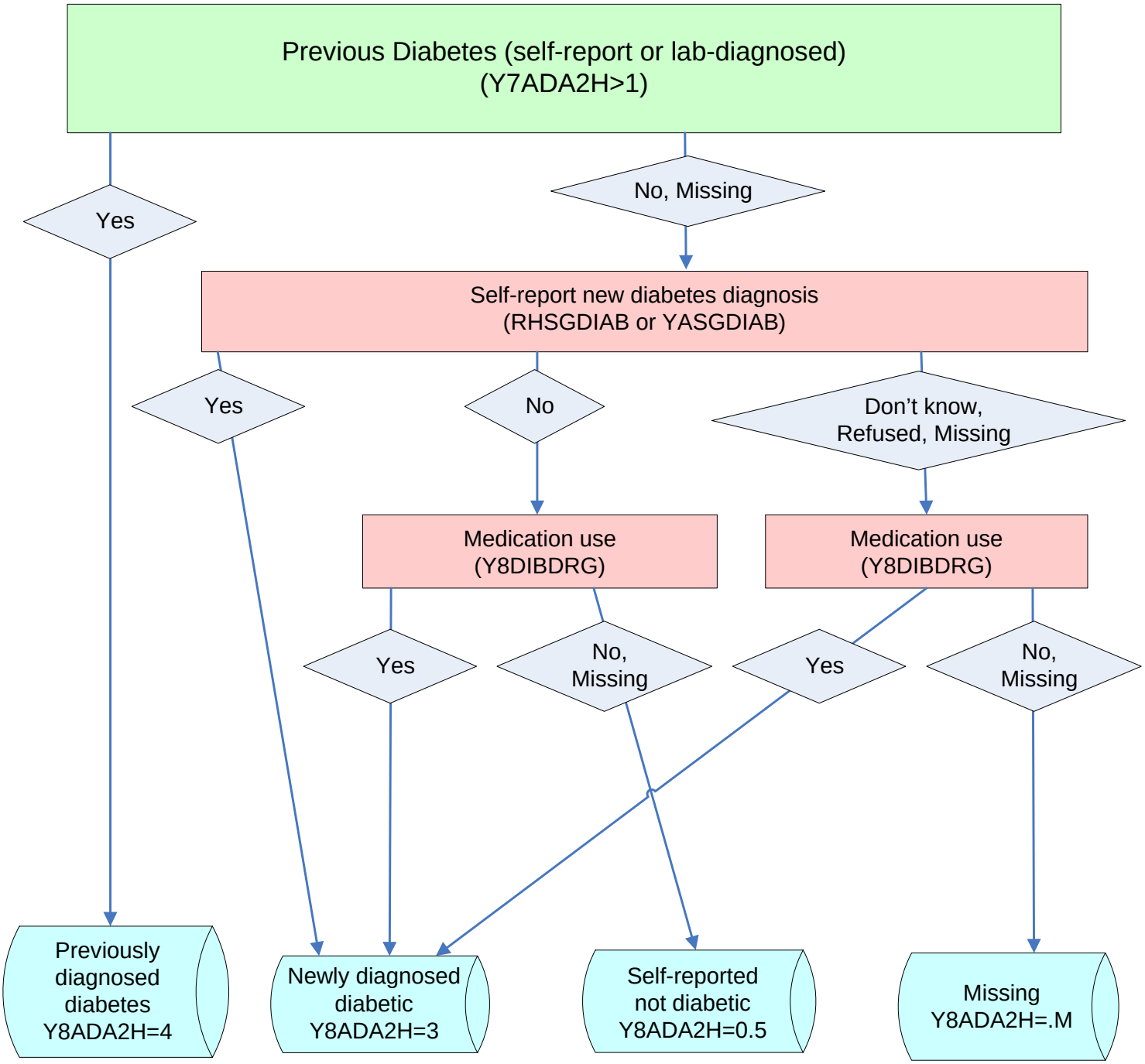
Health ABC

Incident Glucose Status
Year 7: ADAEPI + OGTT Definition of Baseline Diabetes



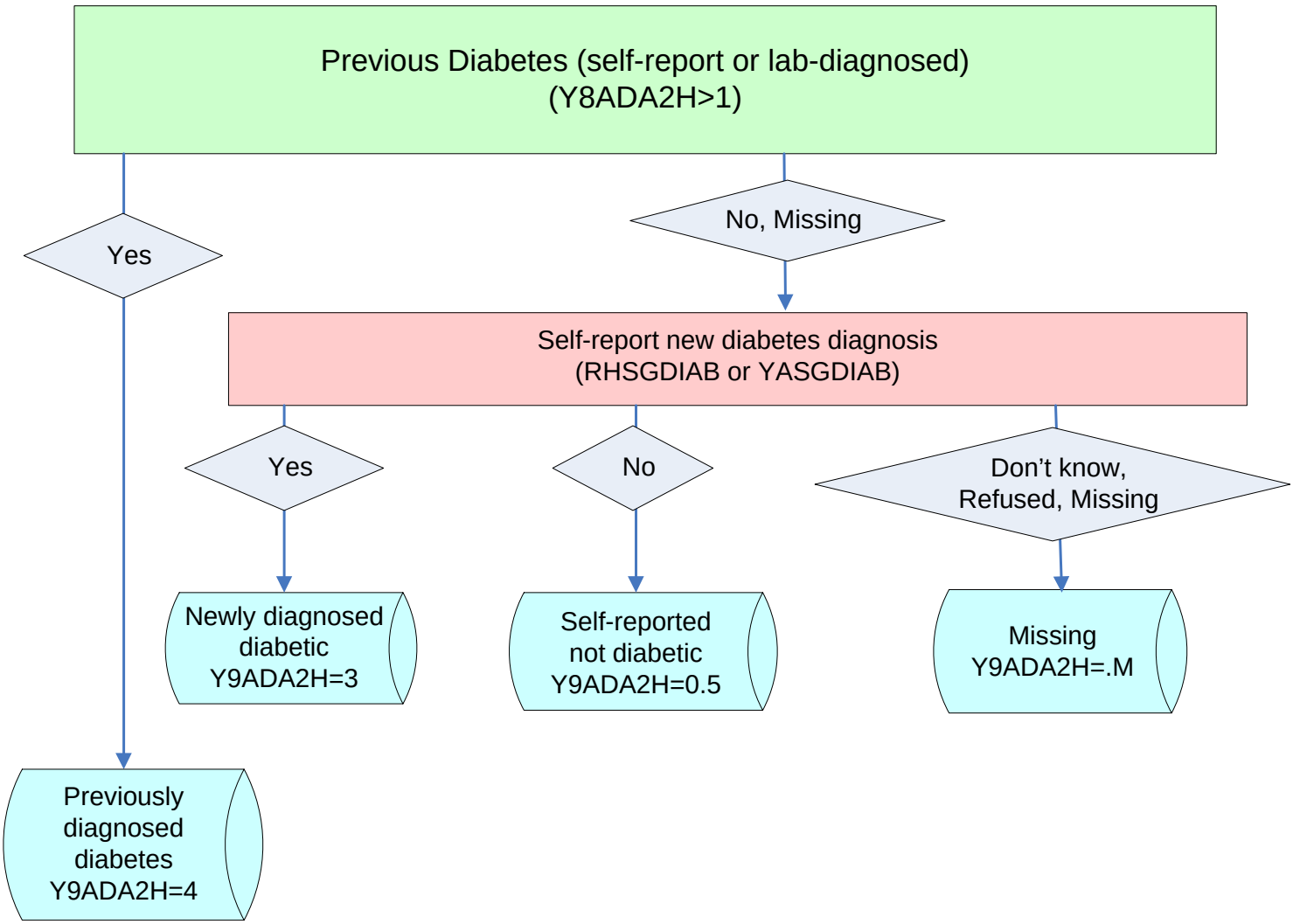
Health ABC

Incident Glucose Status
Year 8: ADAEPI + OGTT Definition of Baseline Diabetes



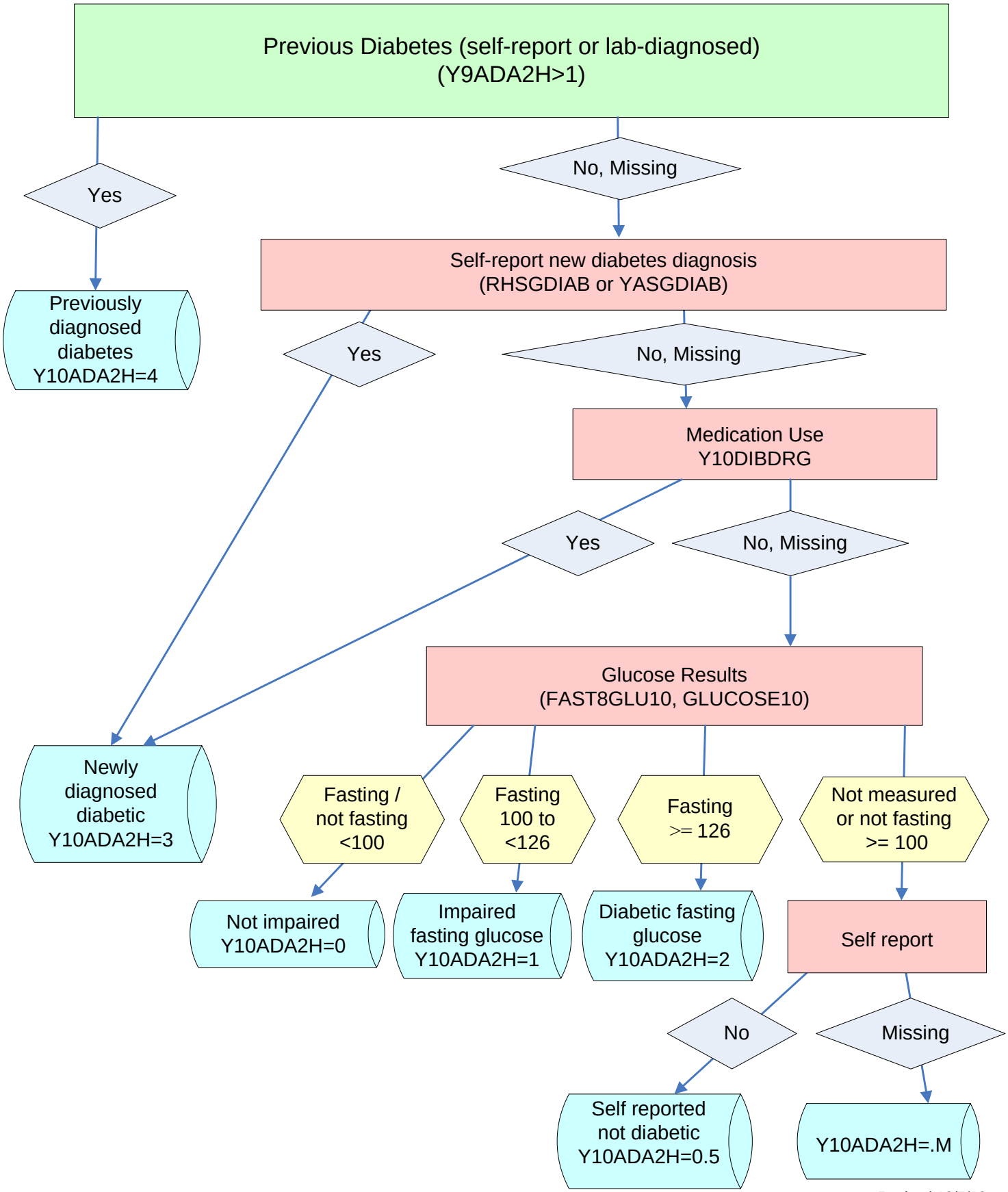
Health ABC

Incident Glucose Status
Year 9: ADAEPI + OGTT Definition of Baseline Diabetes



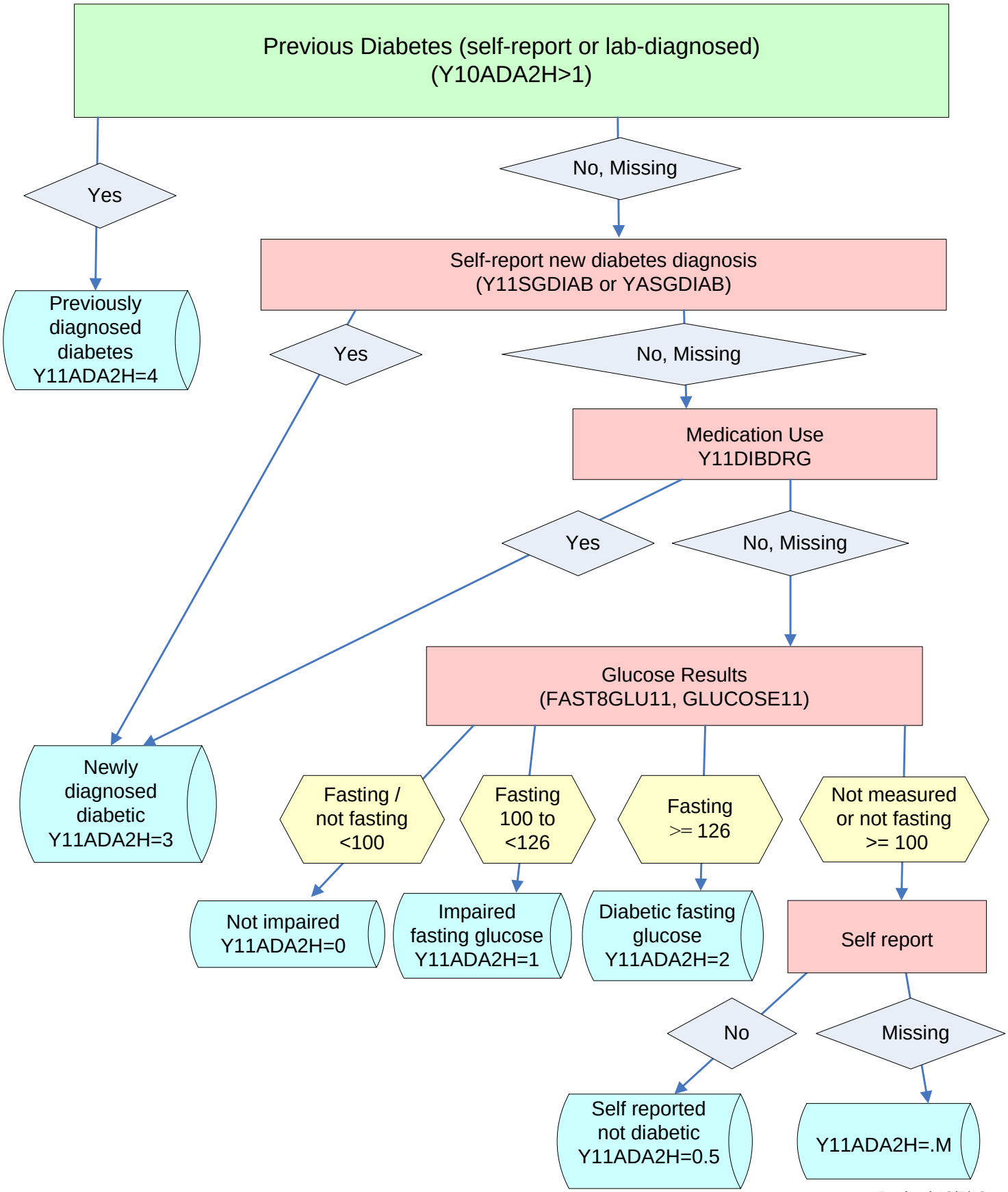
Health ABC

Incident Glucose Status
Year 10: ADAEPI + OGTT Definition of Baseline Diabetes



Health ABC

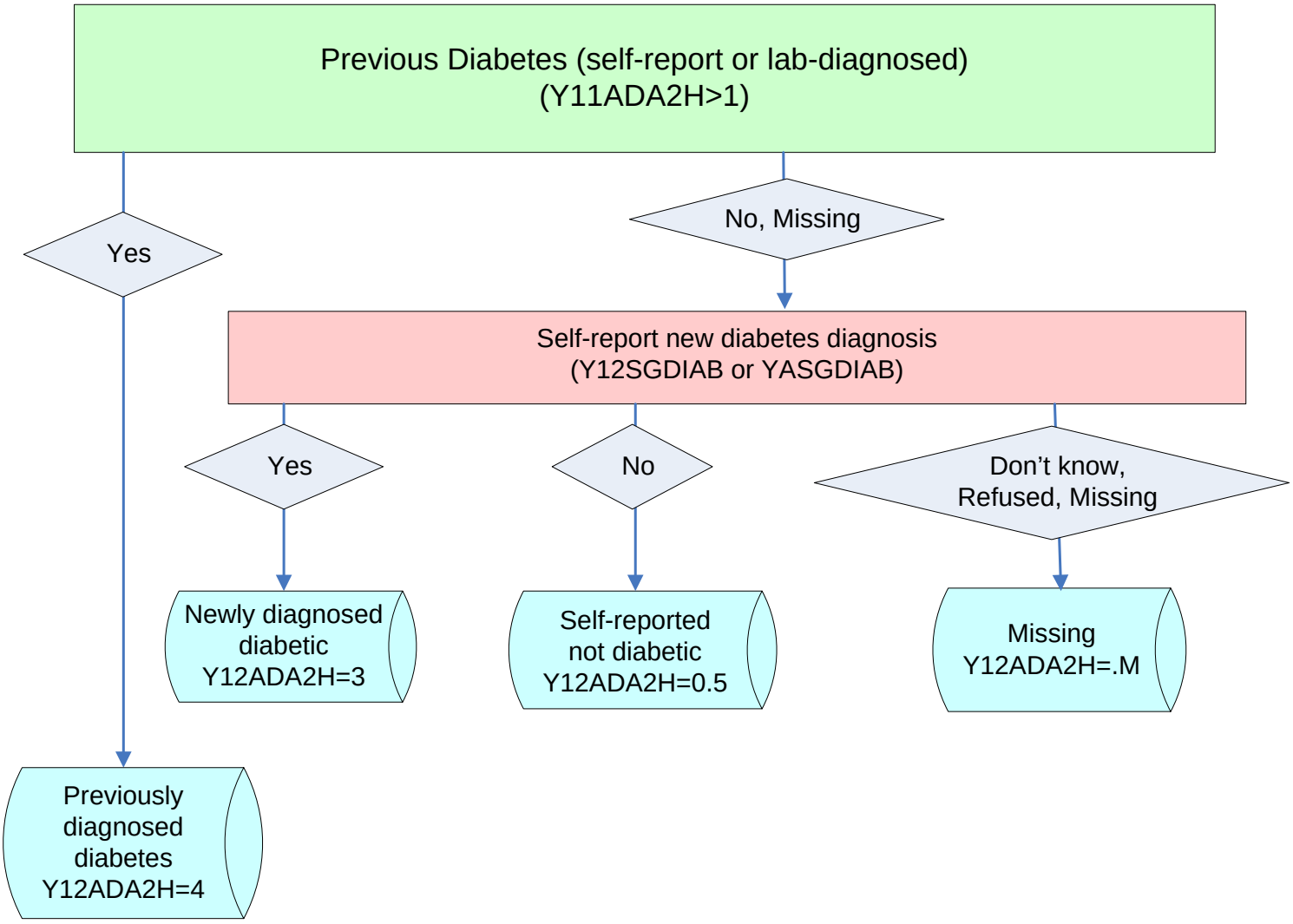
Incident Glucose Status
Year 11: ADAEPI + OGTT Definition of Baseline Diabetes



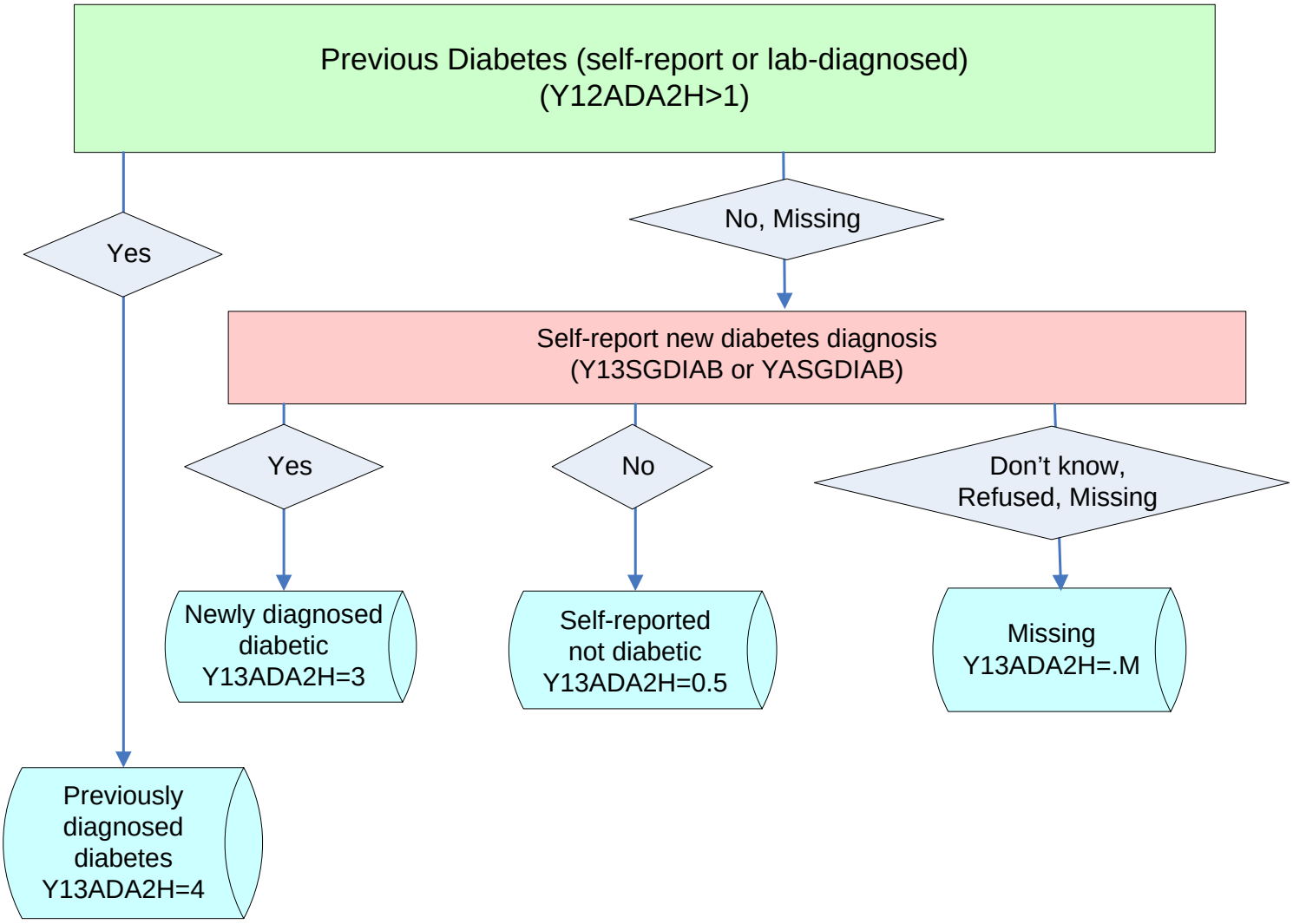
Revised 12/7/10

Documentation date: 2012-09-01

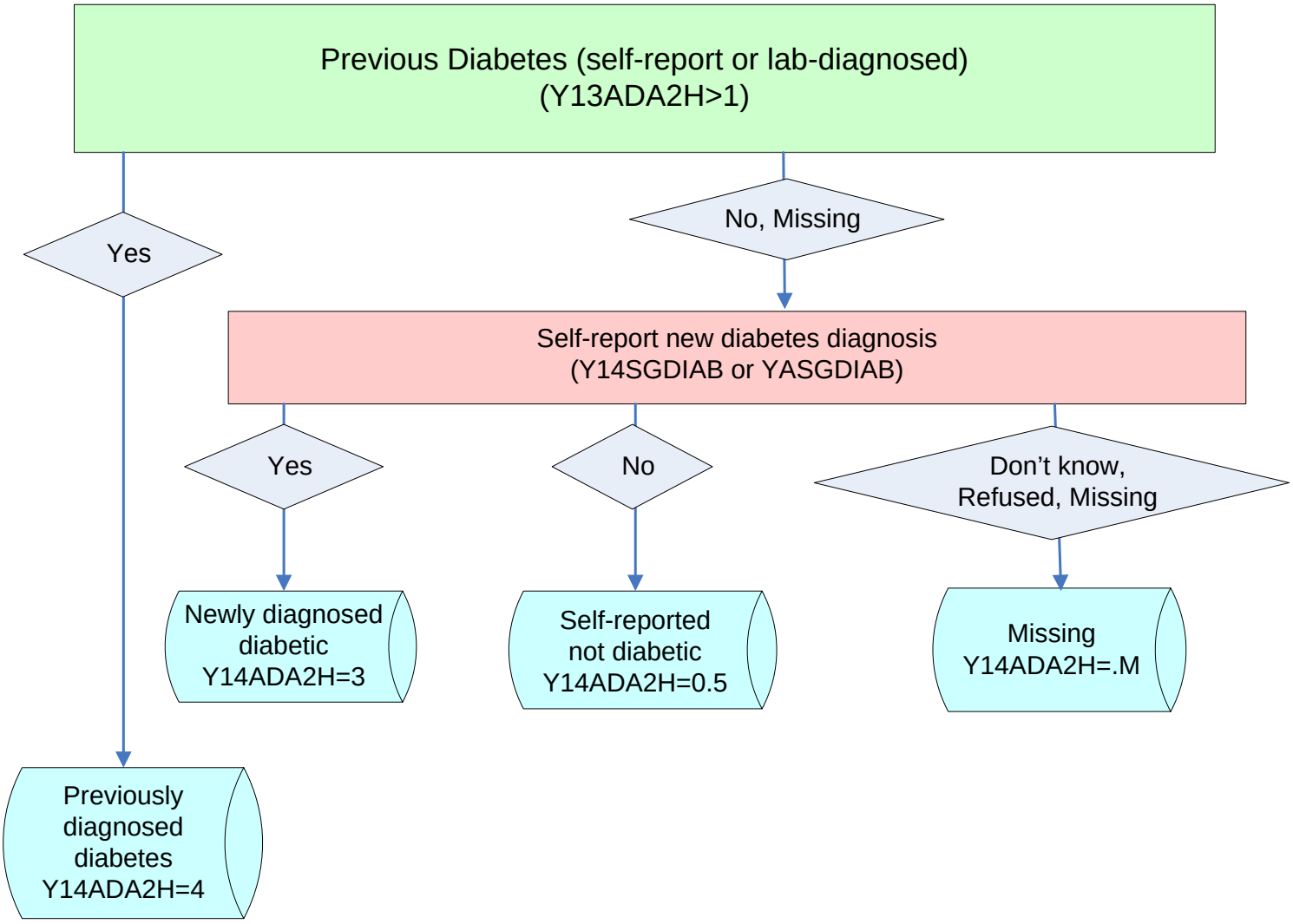
Incident Glucose Status
Year 12: ADAEPI + OGTT Definition of Baseline Diabetes



Incident Glucose Status
Year 13: ADAEPI + OGTT Definition of Baseline Diabetes

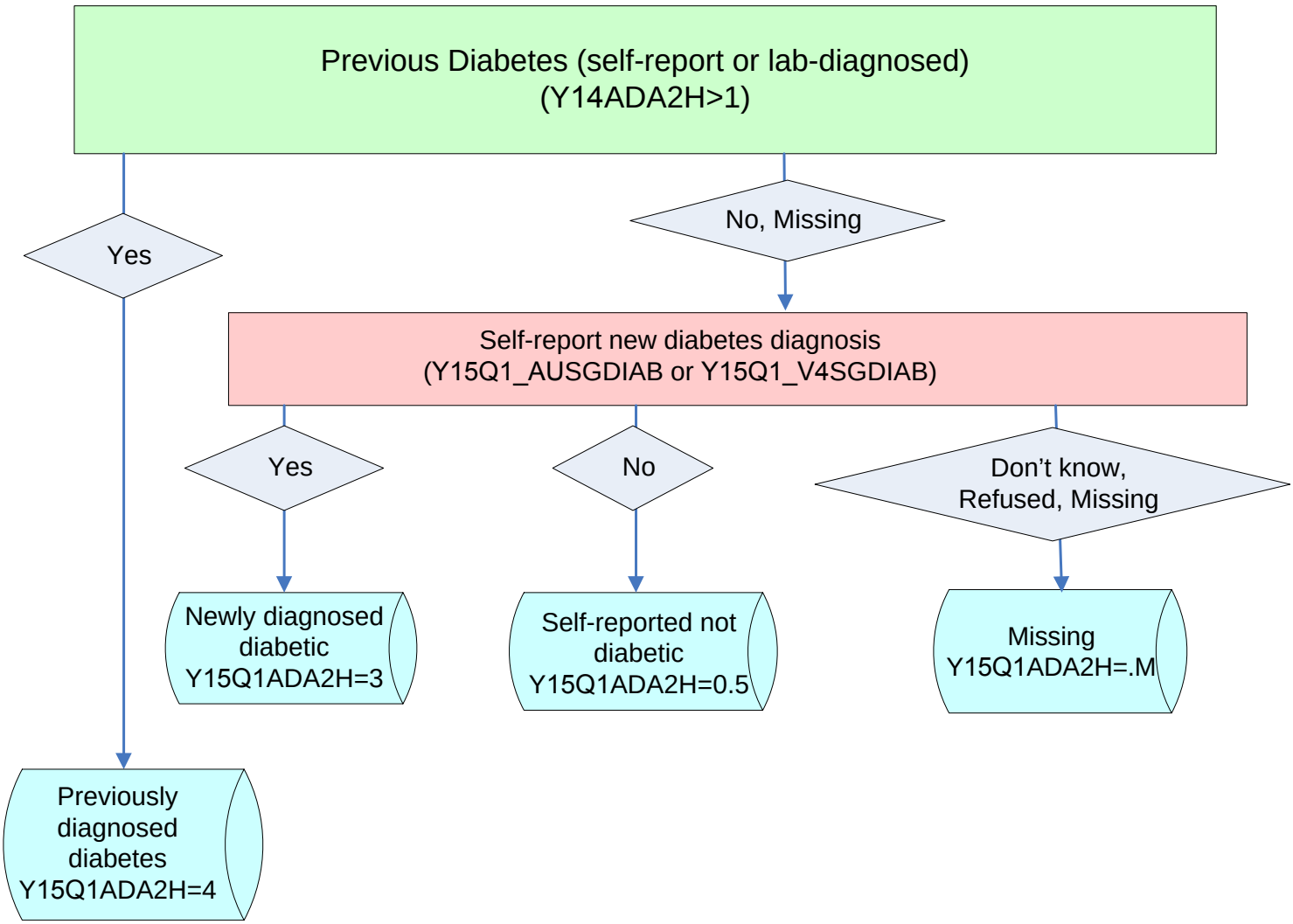


Incident Glucose Status
Year 14: ADAEPI + OGTT Definition of Baseline Diabetes



Health ABC

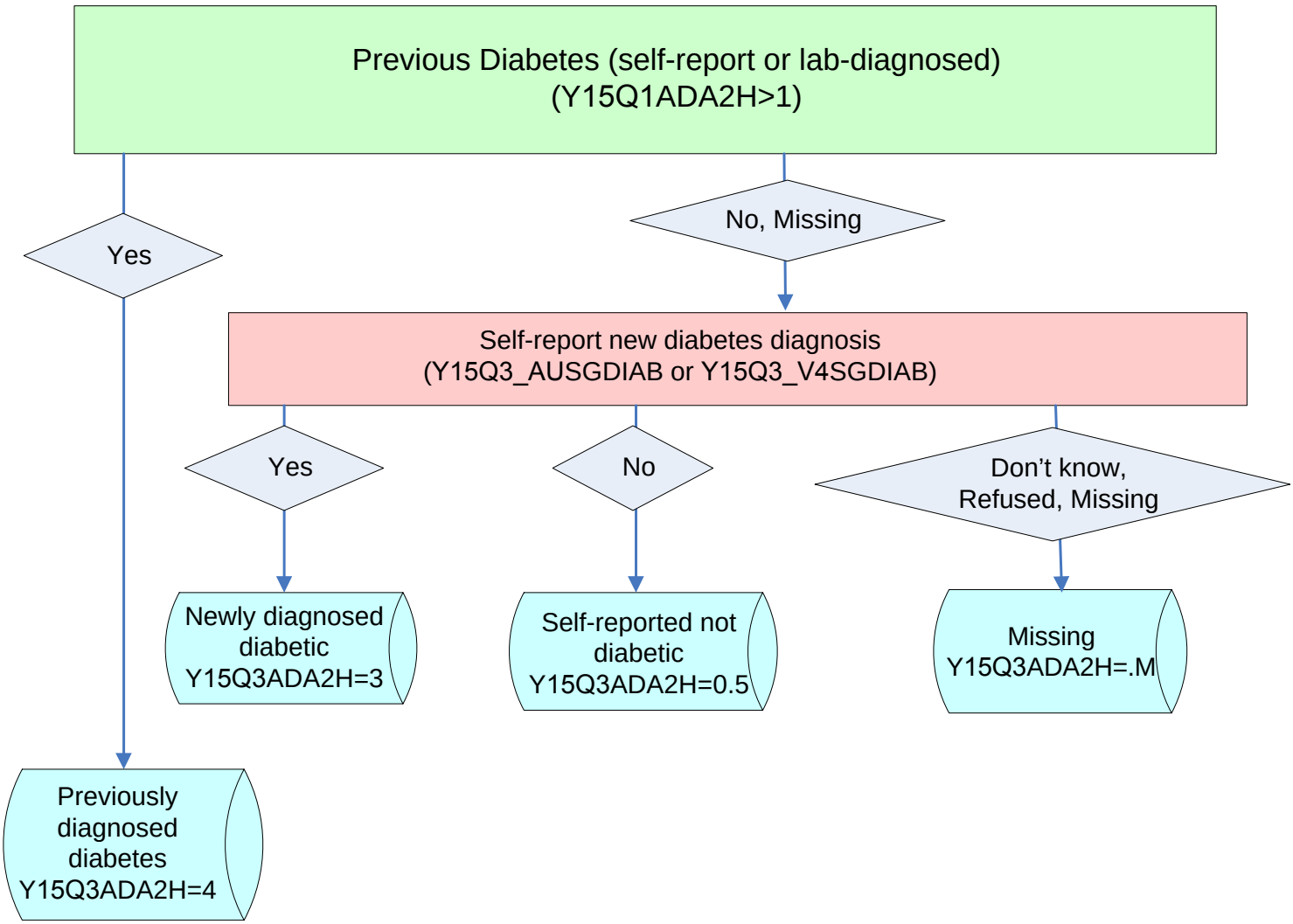
Incident Glucose Status
Year 15 Quarter 1: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

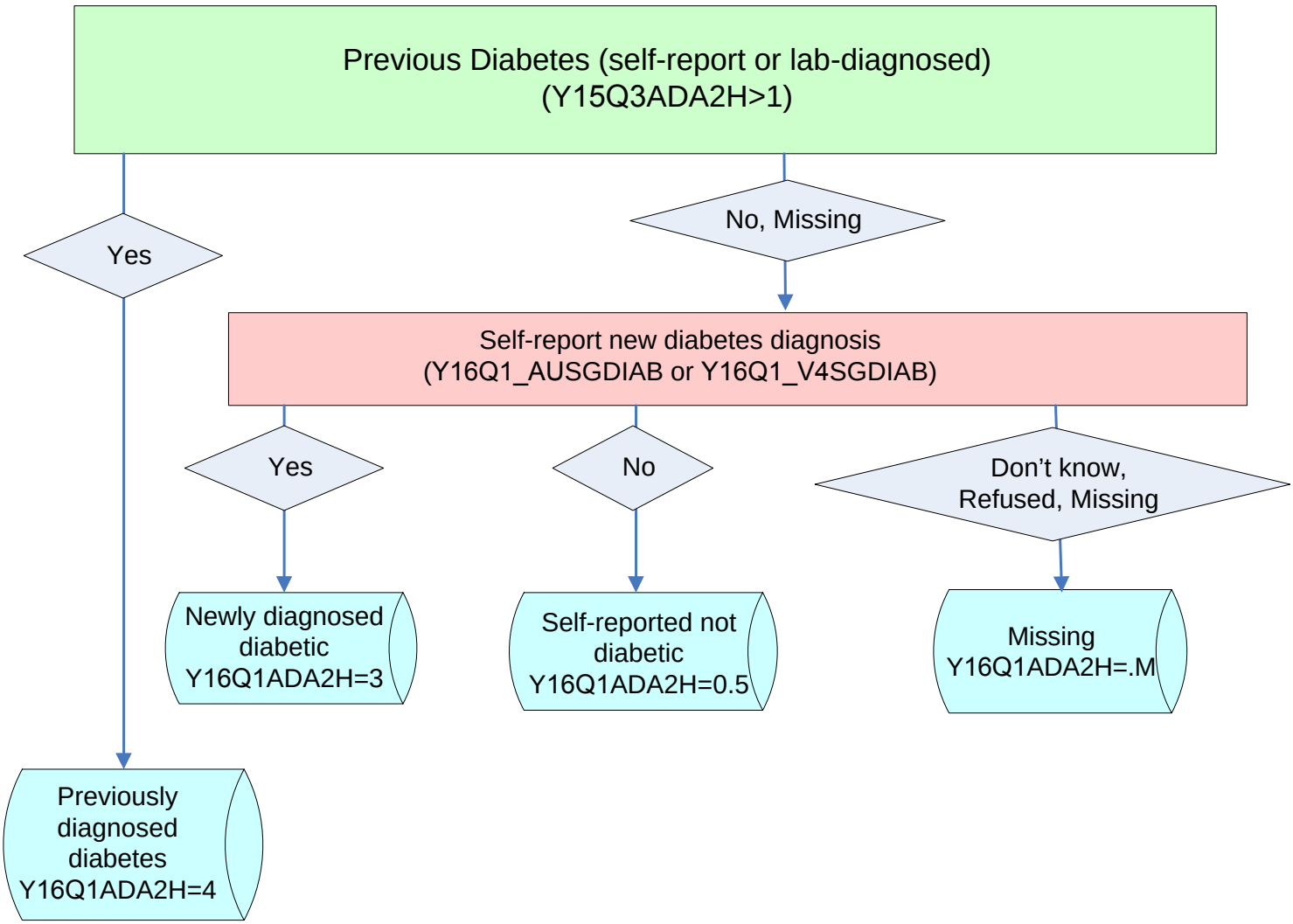
Incident Glucose Status
Year 15 Quarter 3: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

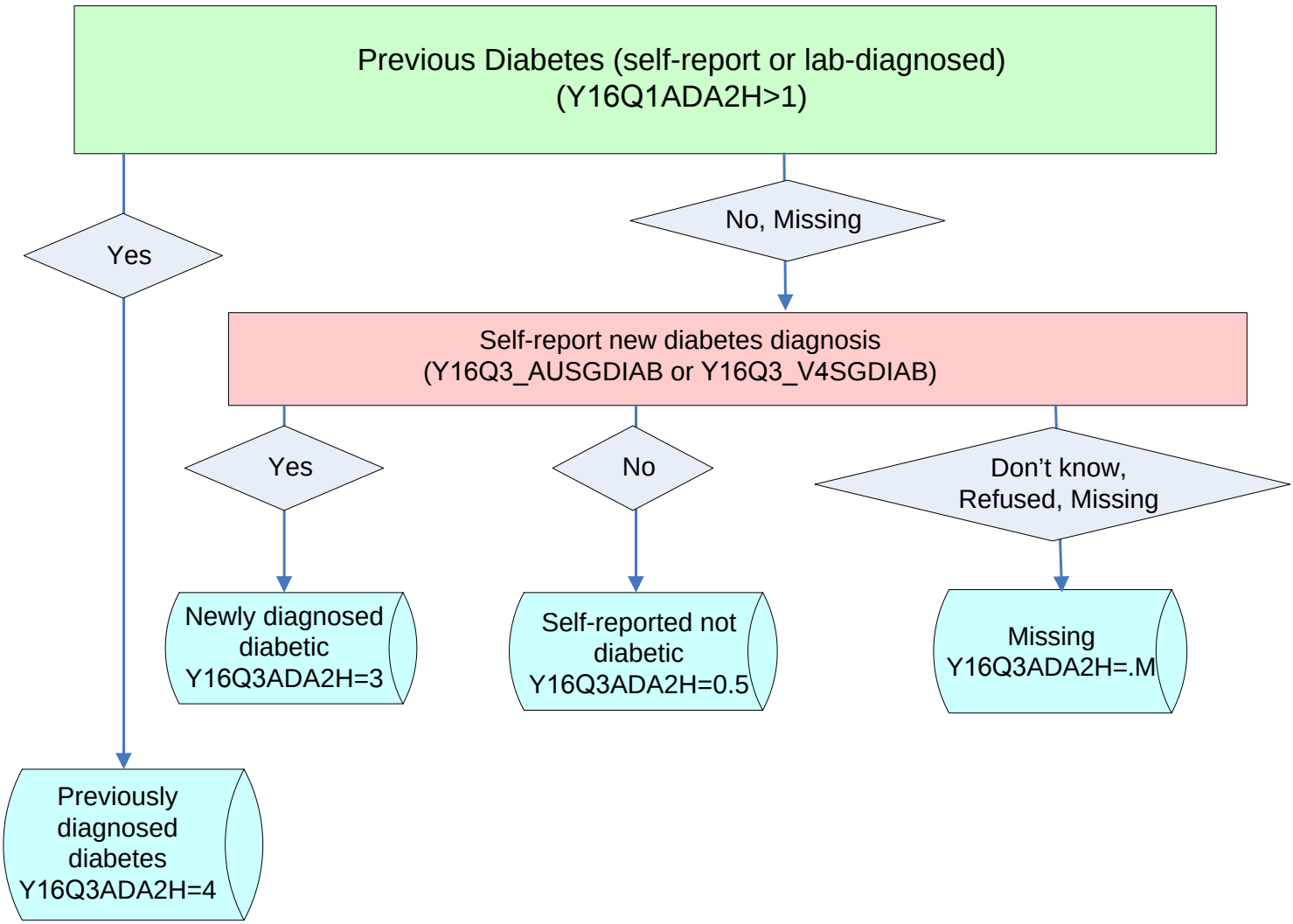
Incident Glucose Status
Year 16 Quarter 1: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

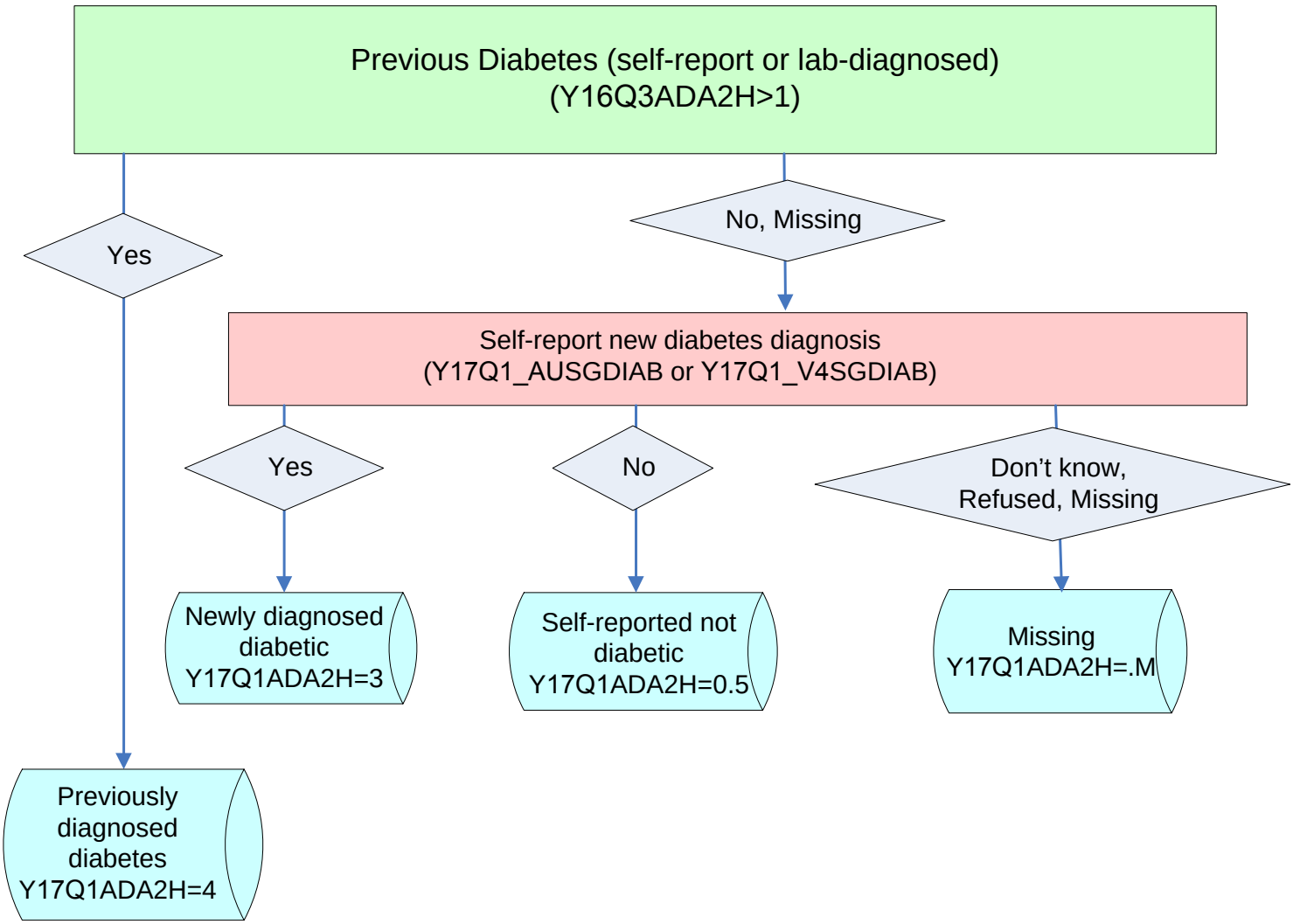
Incident Glucose Status
Year 16 Quarter 3: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

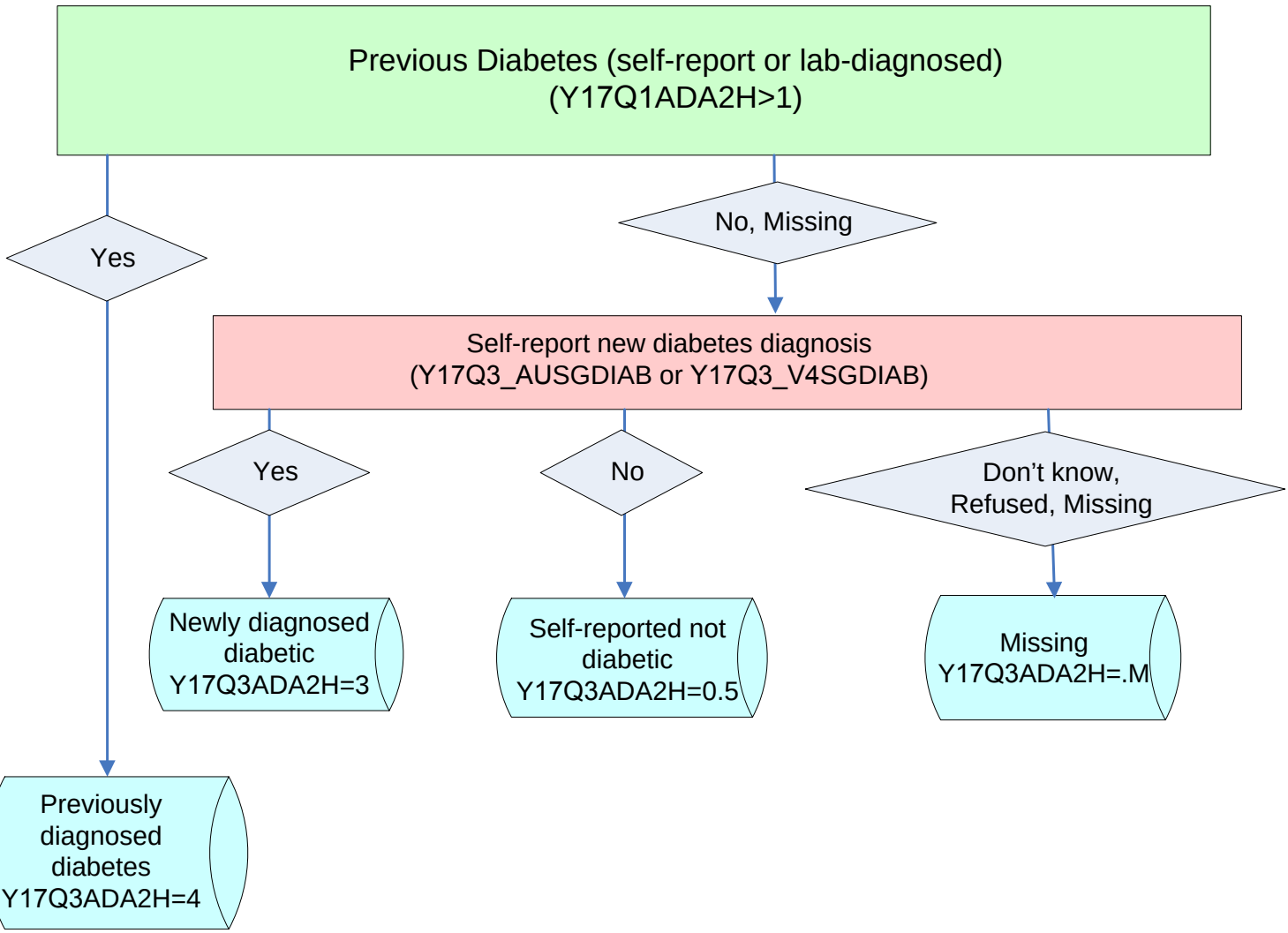
Incident Glucose Status
Year 17 Quarter 1: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Health ABC

Incident Glucose Status
Year 17 Quarter 3: ADAEPI + OGTT Definition of Baseline Diabetes



Revised 12/15/15

Incident Hypertension

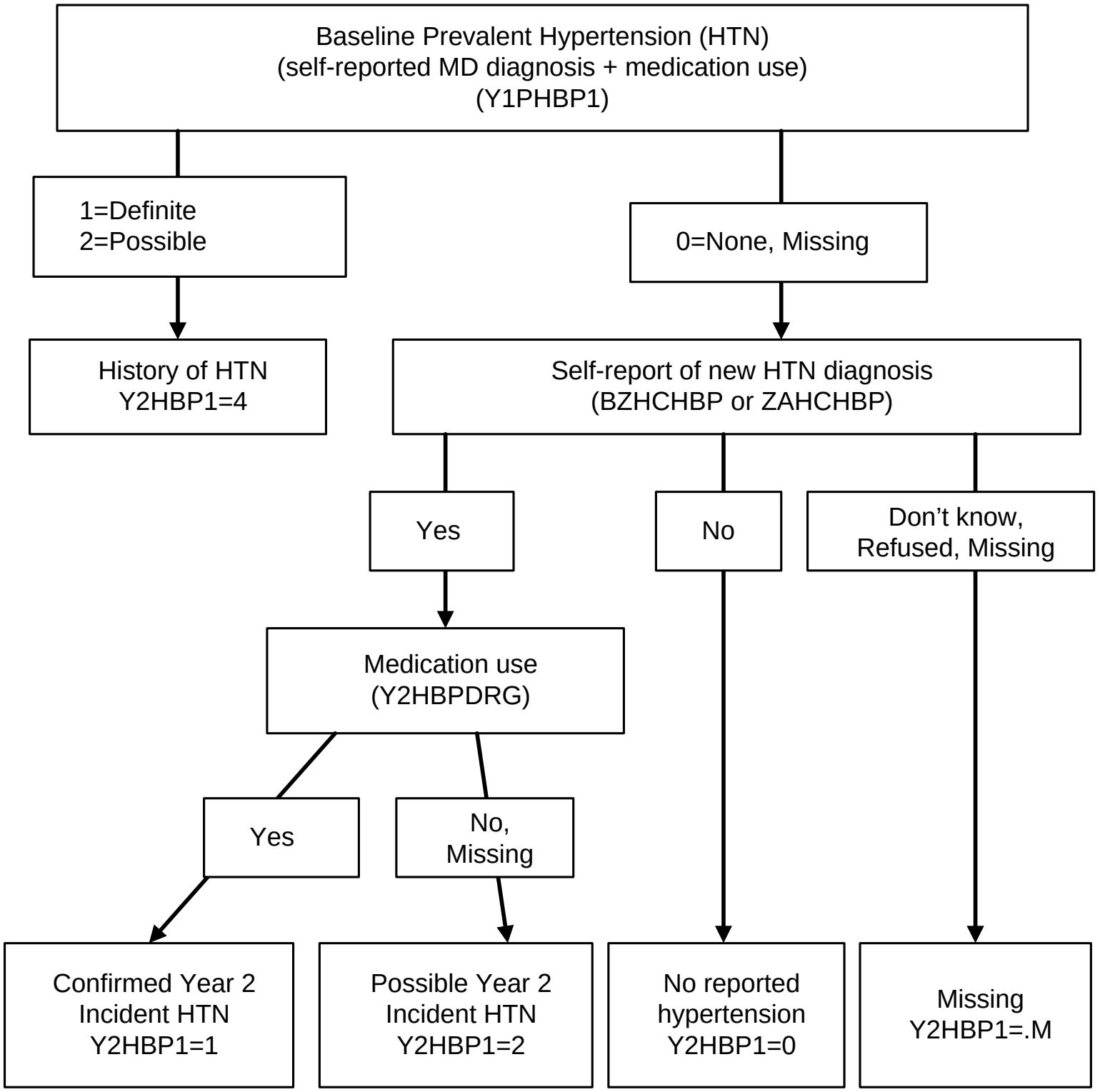
Prime Mover: Suzanne Satterfield

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
YxHBP1	Prevalent hypertension reported/meds	Categorical variable for prevalent hypertension based on self-report/meds	=1 if self-report of hypertension (MHHCHBP=1) and use of anti-hypertensive med (Y1HBPDRG*=1) =2 if self-report of hypertension (MHHCHBP=1) and no use of anti-hypertensive med (Y1HBPDRG* ≠ 1) =4 if Yx-1HBP1≥1 =0 if above conditions not met	If MHHCHBP is missing, Don't know, or Refused and Y1HBPDRG≠1 then Y1PHBP1=.M	0=No reported HTN 1=Confirmed incident HTN 2=Possible incident HTN 4=Confirmed history of HTN
YxHBP2	Prevalent hypertension physiological	Categories for blood pressure measurement based on blood pressure measurement	=0 if (SYSBP < 130) and (DIABP < 85) =1 if [(130≤SYSBP<140) and (DIABP<90)] or [(SYSBP<140) and (85≤DIABP<90)] =2 if SYSBP ≥ 140 or DIABP ≥ 90	=2 if SYSBP is missing and DIABP≥90 or DIABP is missing and SYSBP≥140 =Missing (.M) if other combinations of missing SYSBP and DIABP	0=Normal 1=High normal 2=HTN
YxSHBP	Isolated systolic elevation	Flag for isolated systolic hypertension	=0 if f YxHBP2=2 or history of HTN and DIABP≥90 or SYSBP<140 =1 if YxHBP2=2 or history of HTN and SYSBP≥140 and DIABP<90	=Missing (.A) if Y1PHBP2≠2 and no history of HTN	0=No 1=Yes

*In years 8, 10, and 11 the drug use indicator,YxHBPDRG, no longer includes ALPHABLOCK or ALPHAMALE. For this algorithm, any one of the three variables being Yes is considered confirmation of hypertension.

Health ABC

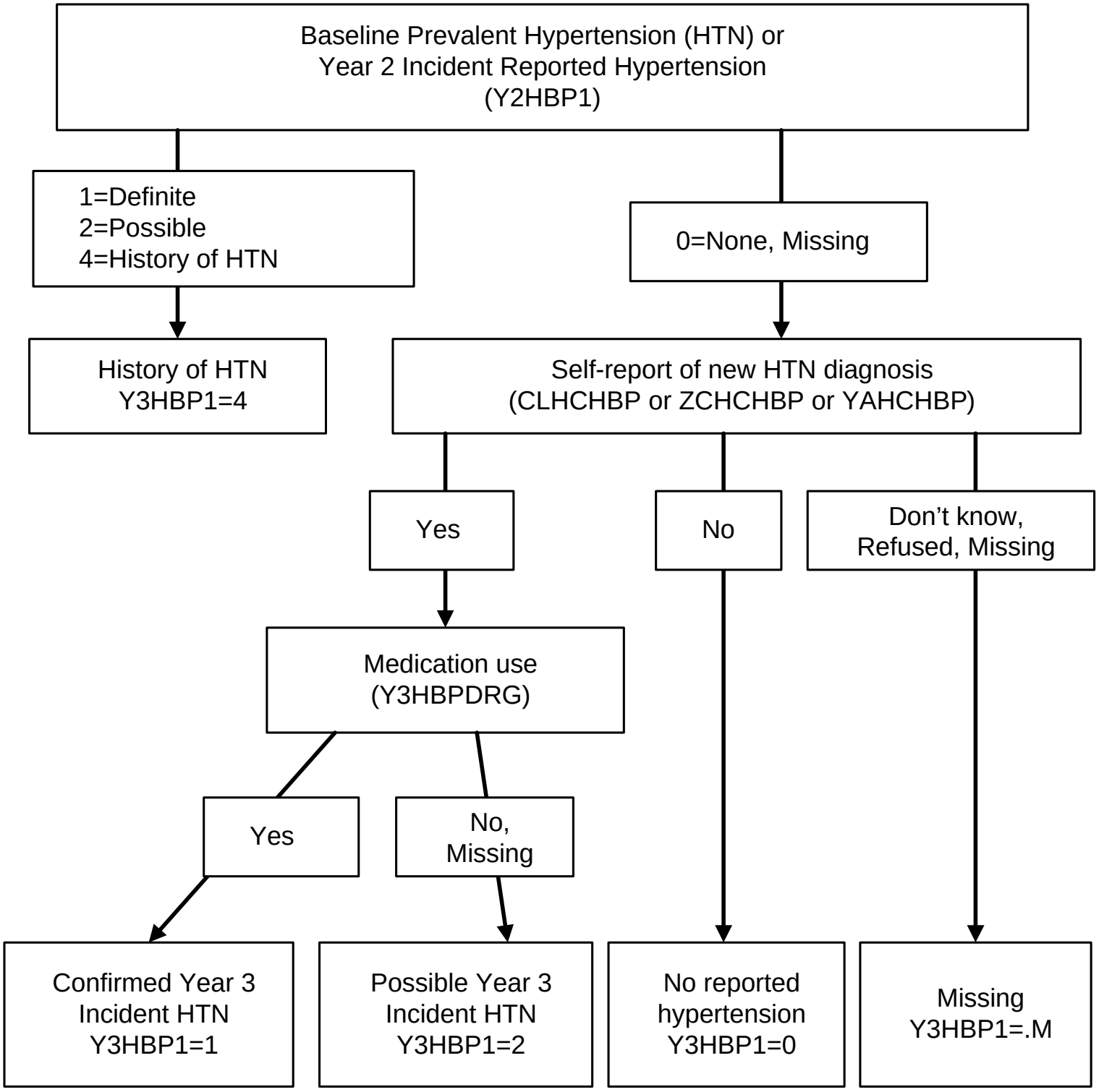
Year 2: Incident Reported Hypertension



Revised 6/22/10

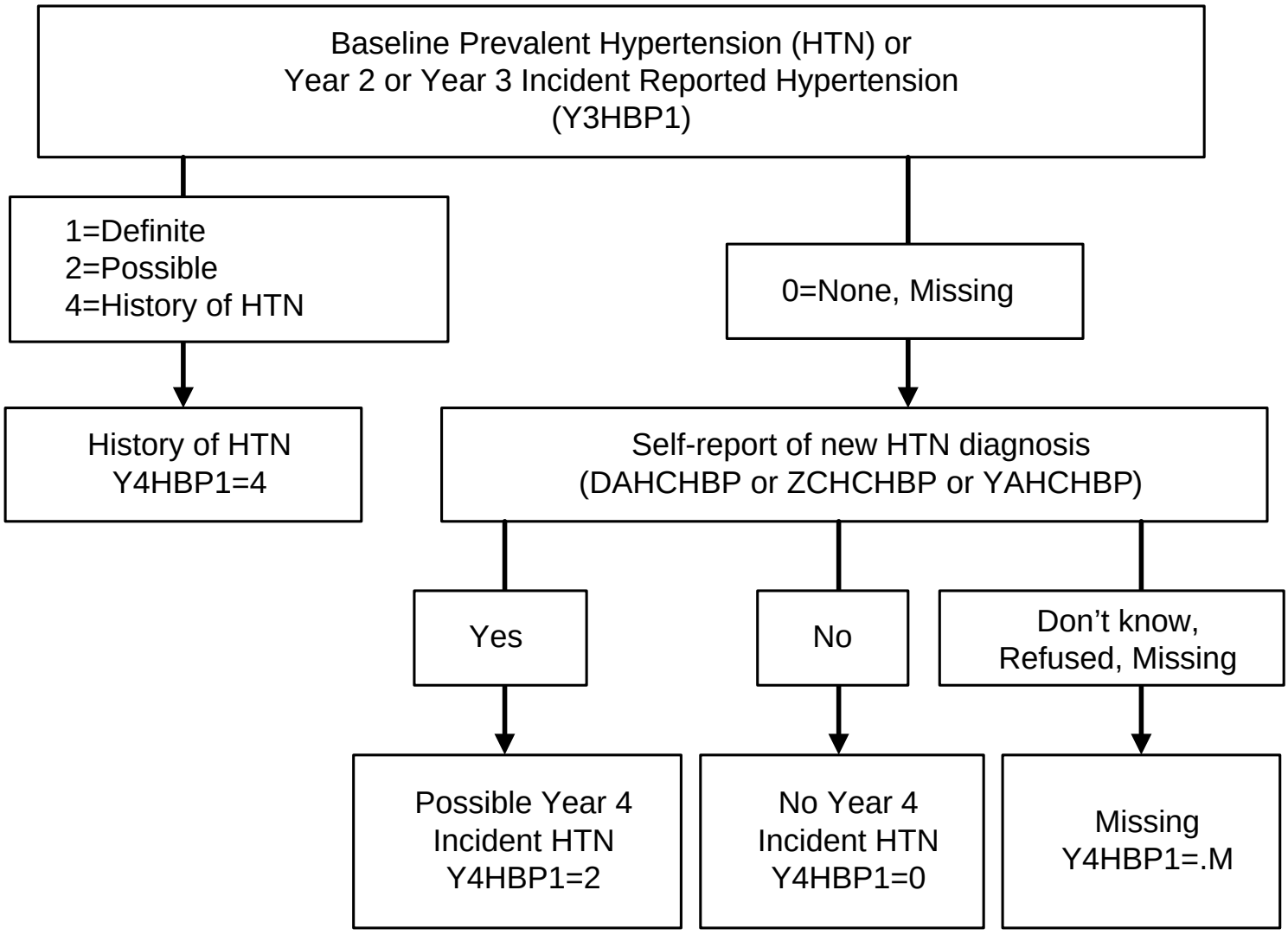
Health ABC

Year 3: Incident Reported Hypertension



Revised 6/22/10

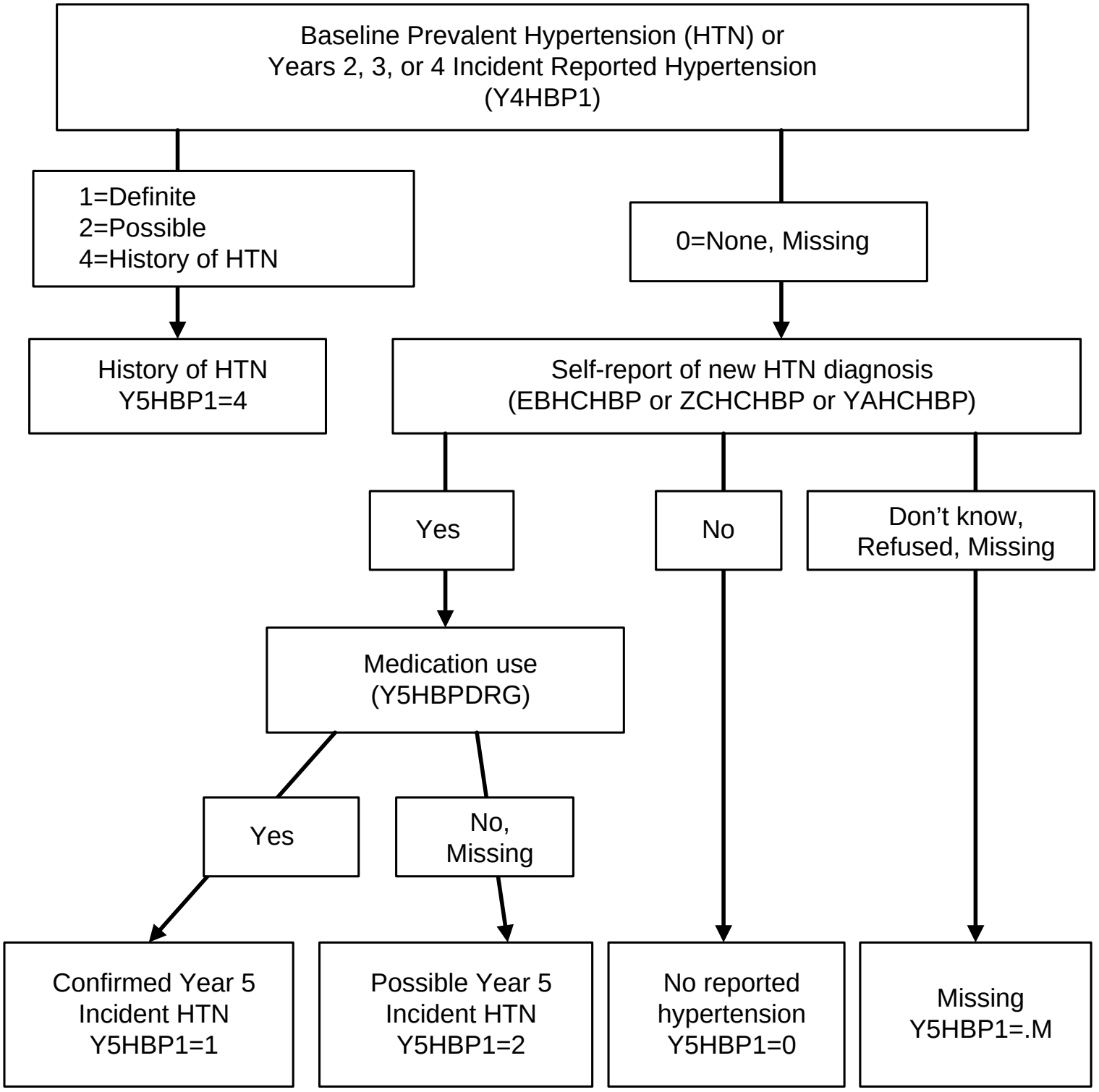
Year 4: Incident Reported Hypertension



Revised 6/22/10

Health ABC

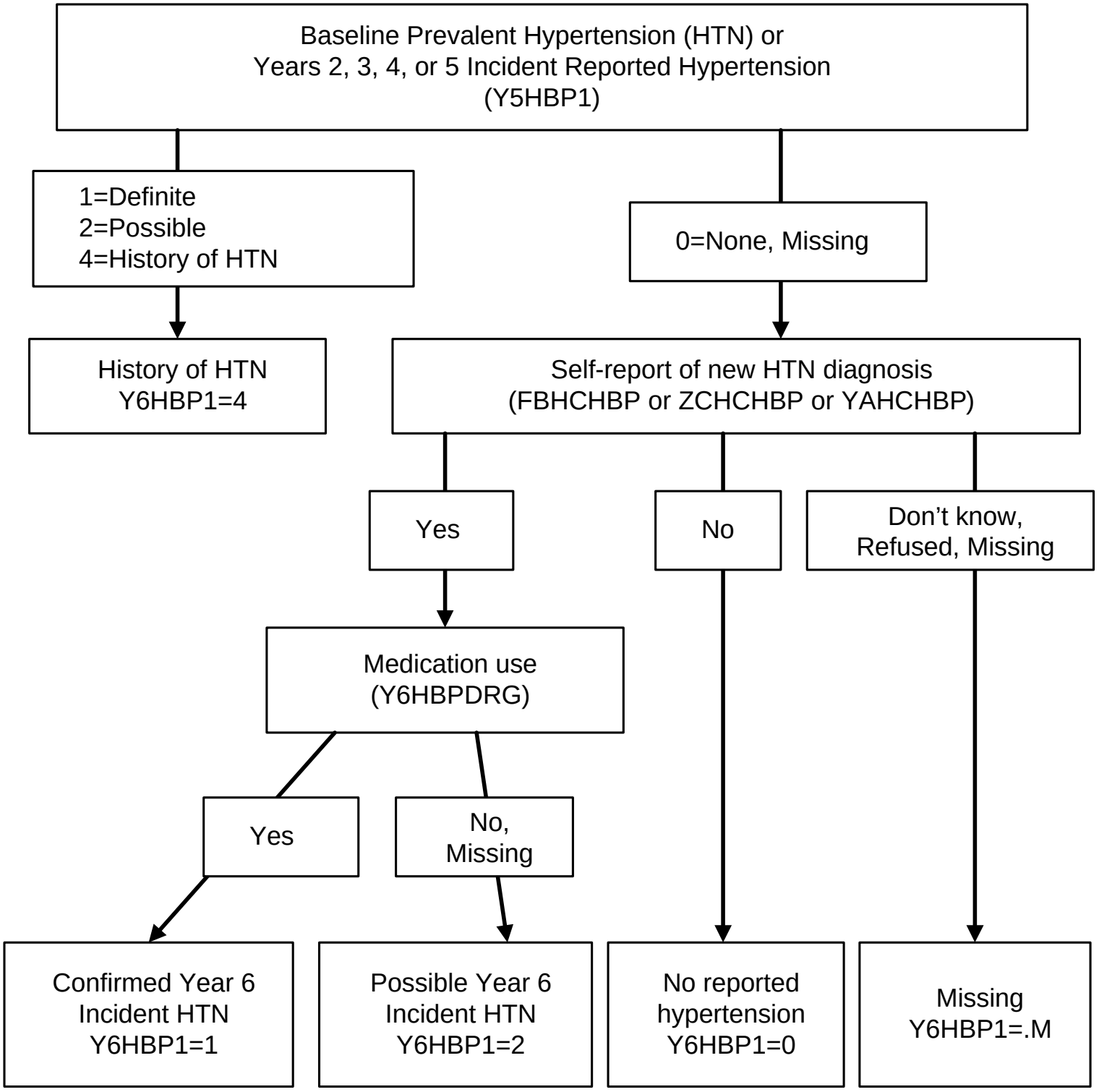
Year 5: Incident Reported Hypertension



Revised 6/22/10

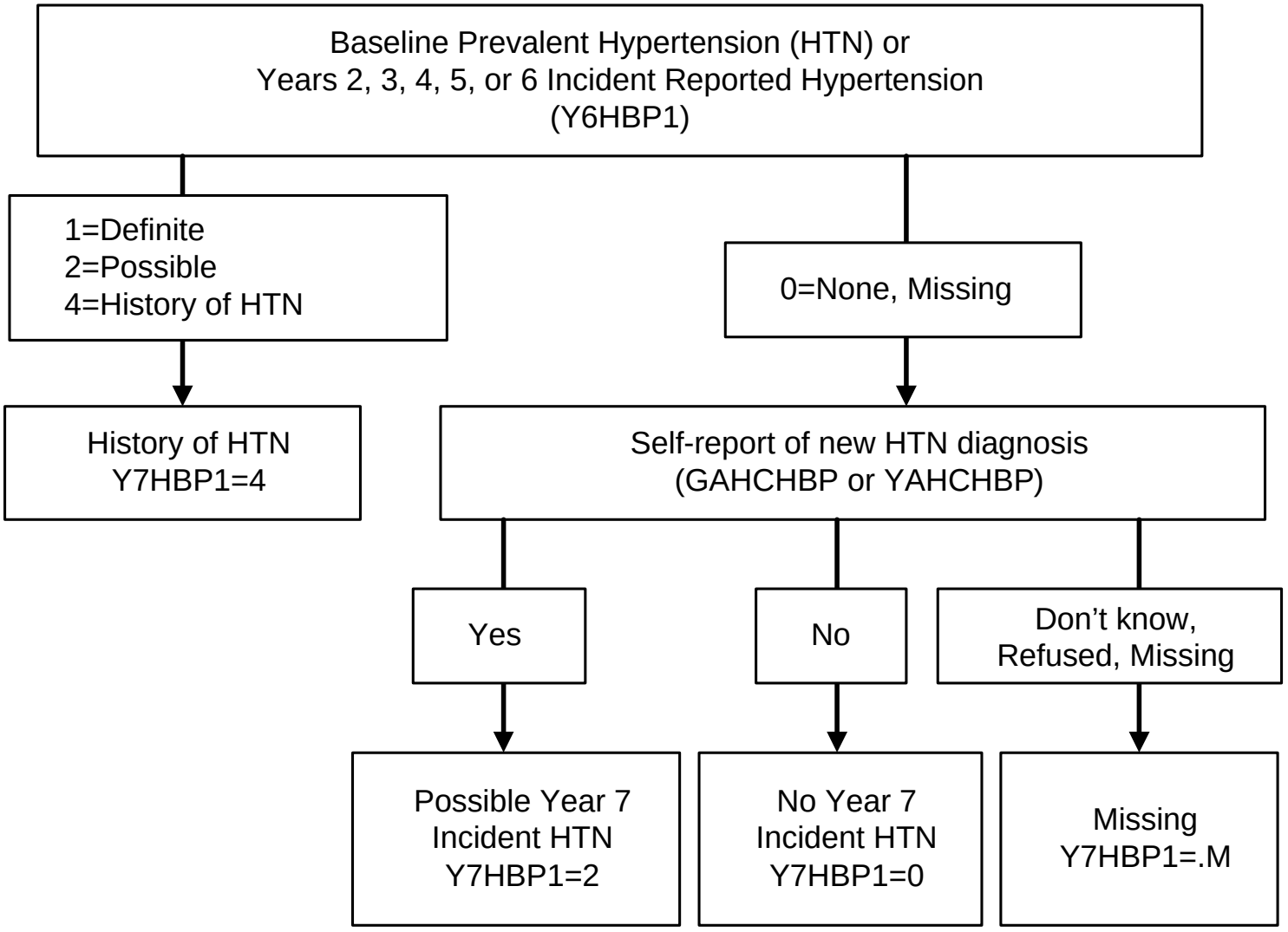
Health ABC

Year 6: Incident Reported Hypertension



Revised 6/22/10

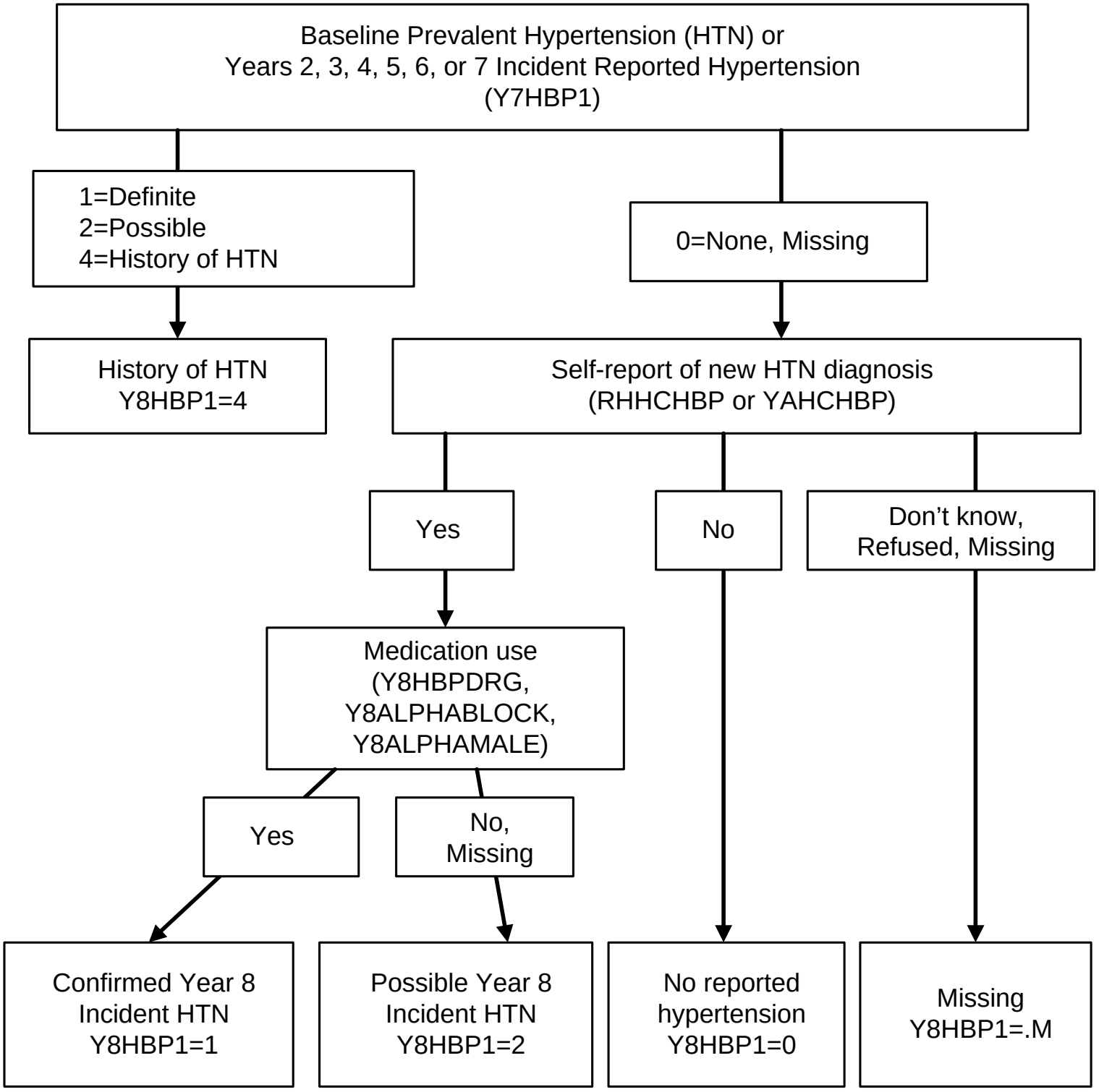
Year 7: Incident Reported Hypertension



Revised 6/22/10

Health ABC

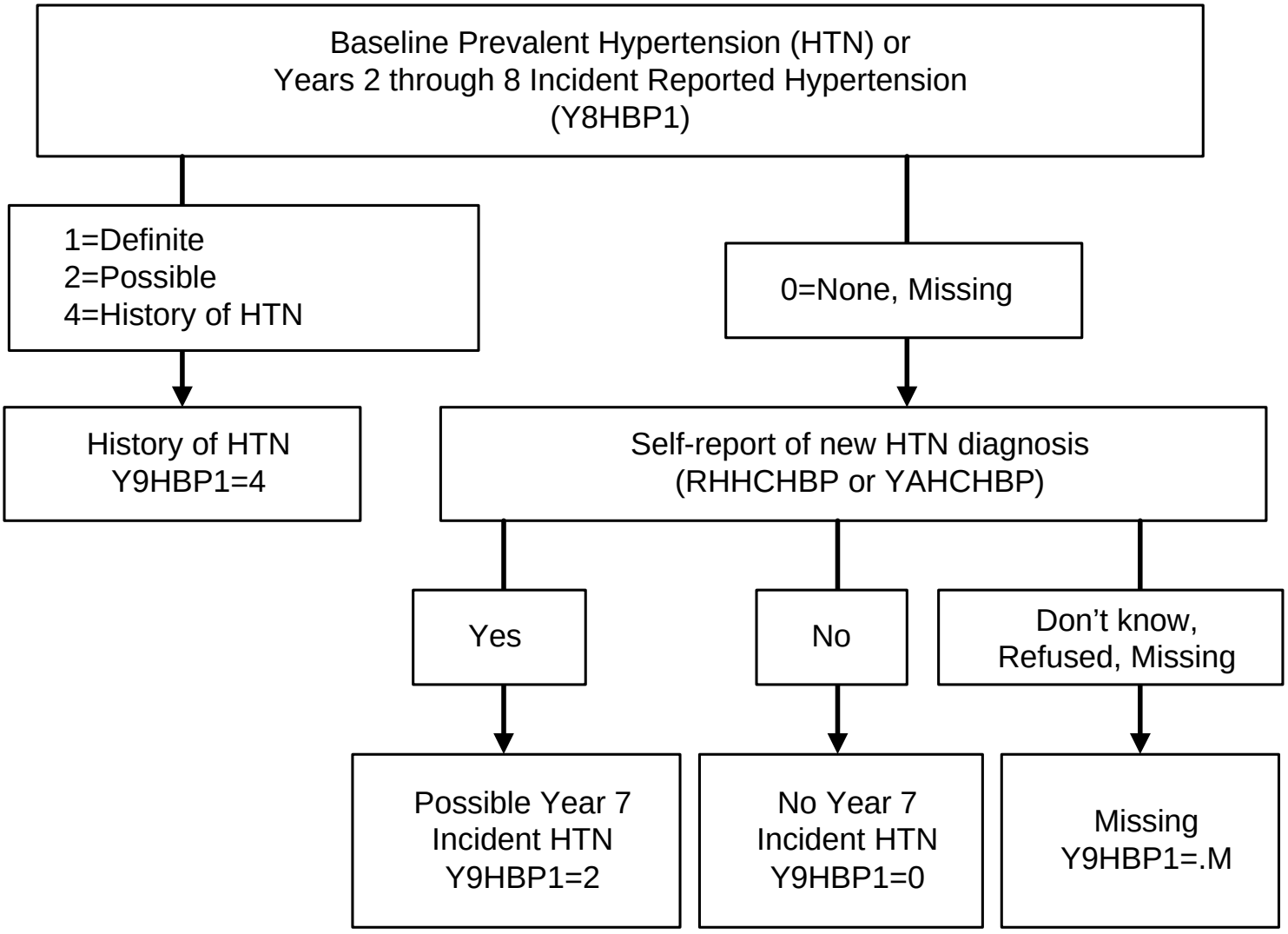
Year 8: Incident Reported Hypertension



Revised 6/22/10

Health ABC

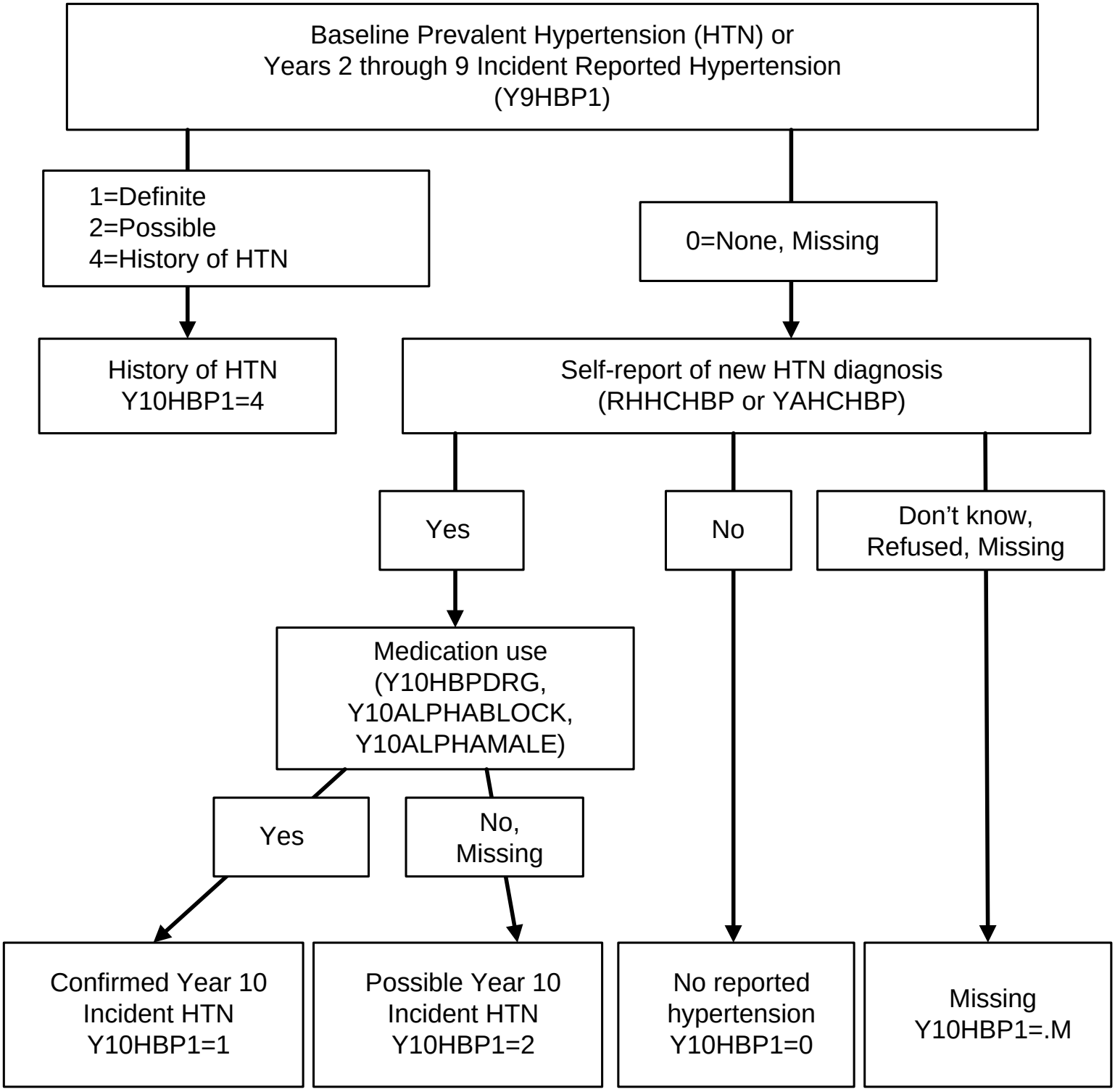
Year 9: Incident Reported Hypertension



Revised 6/22/10

Health ABC

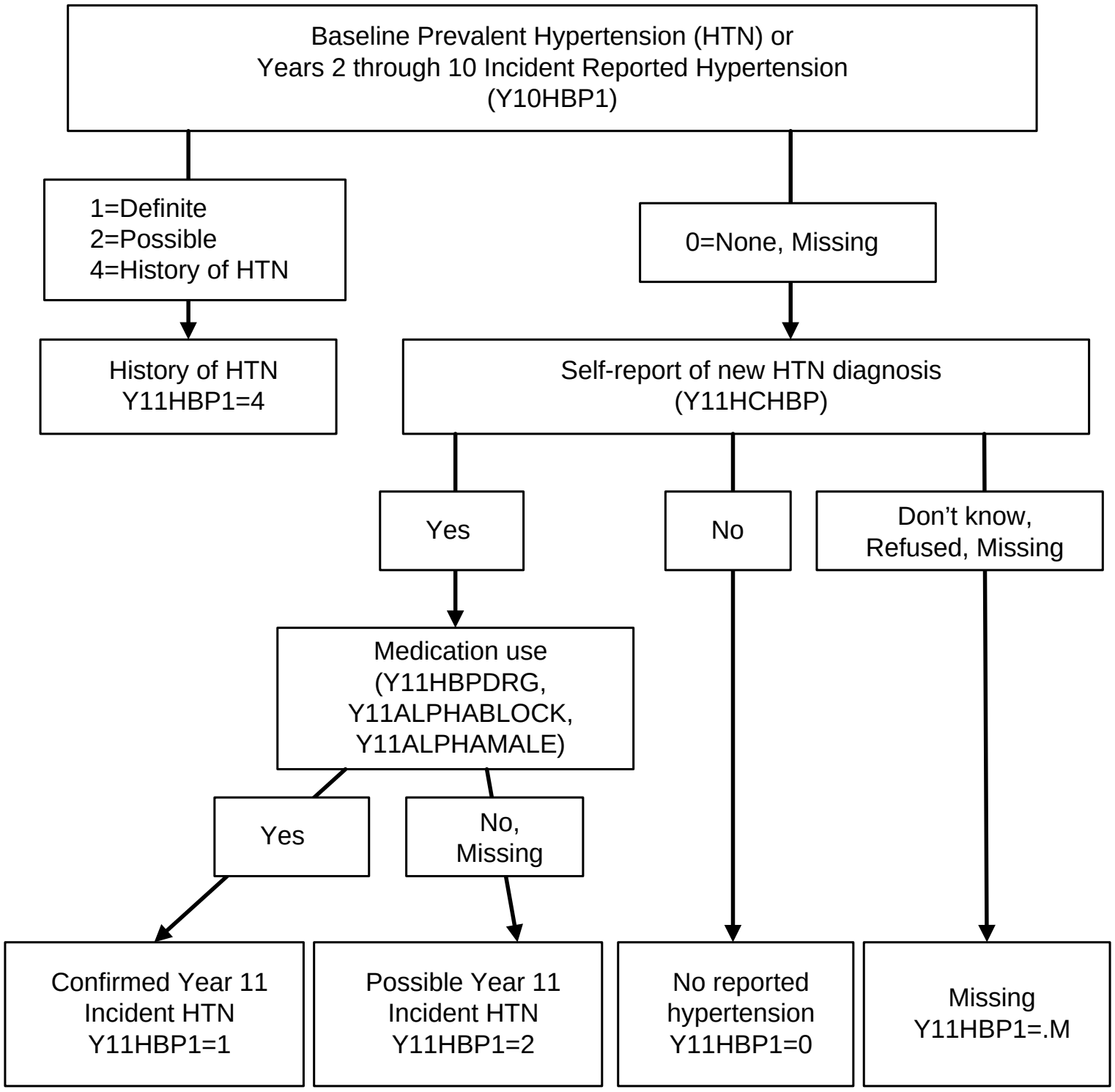
Year 10: Incident Reported Hypertension



Revised 6/22/10

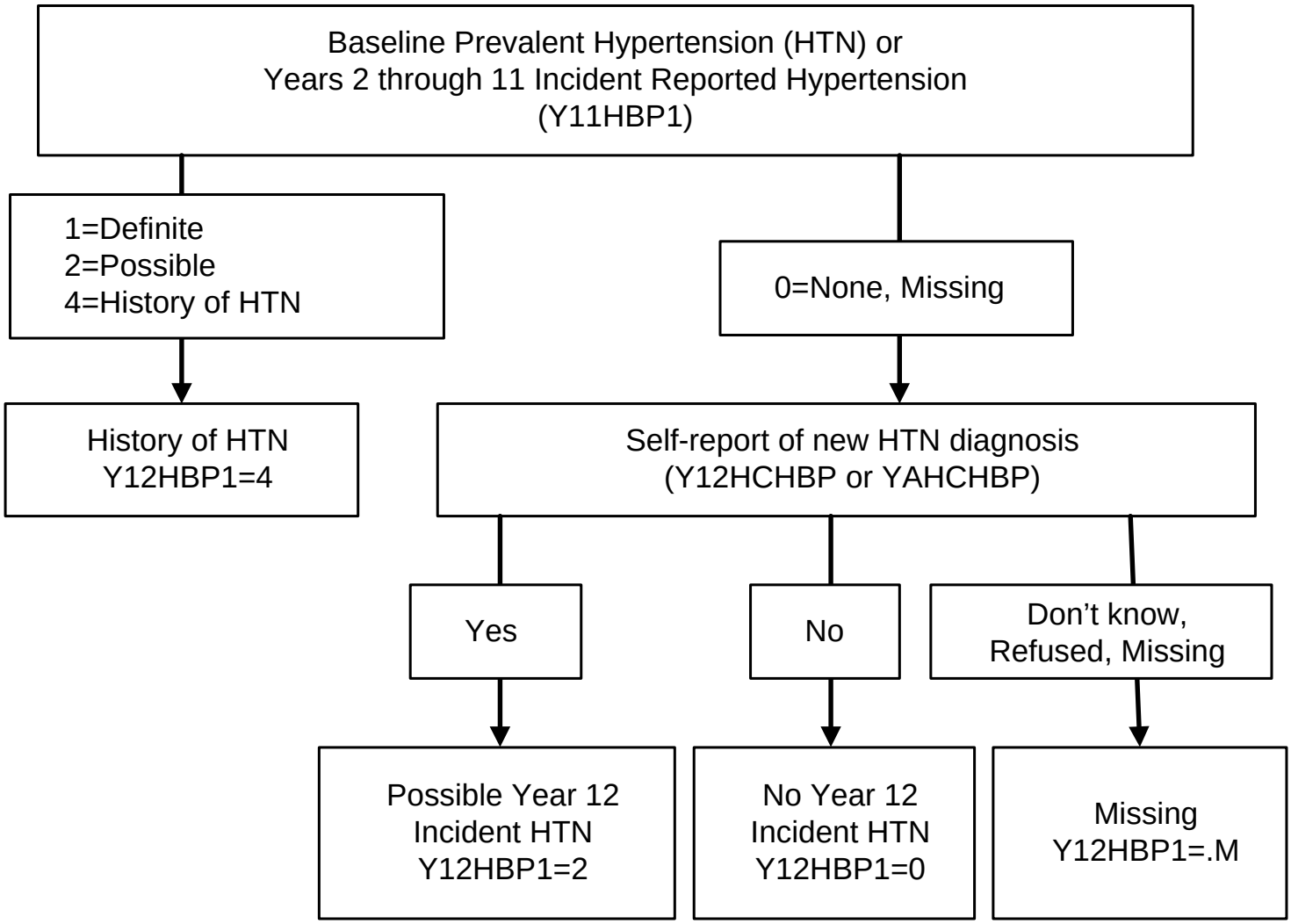
Health ABC

Year 11: Incident Reported Hypertension



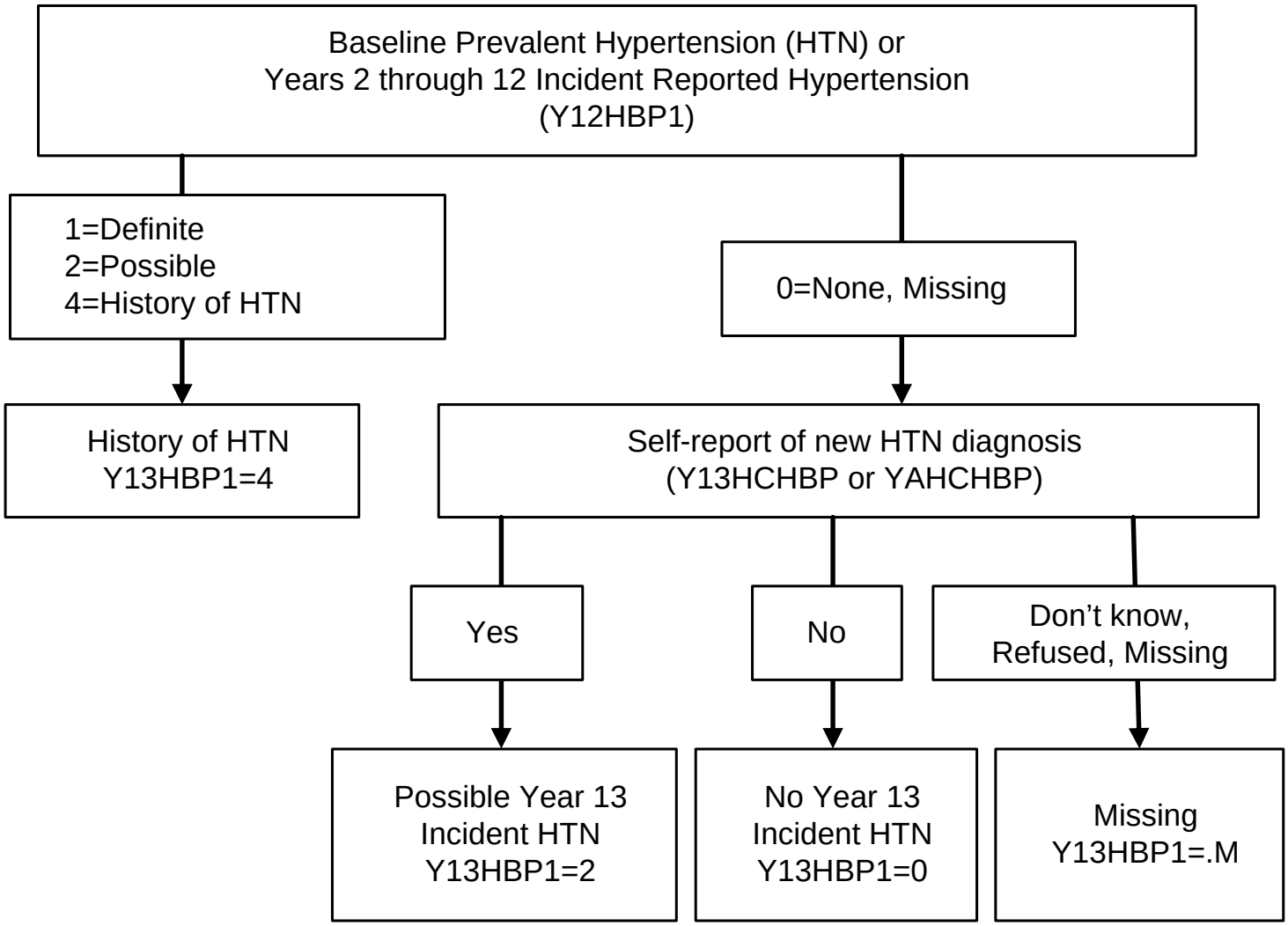
Revised 6/22/10

Year 12: Incident Reported Hypertension



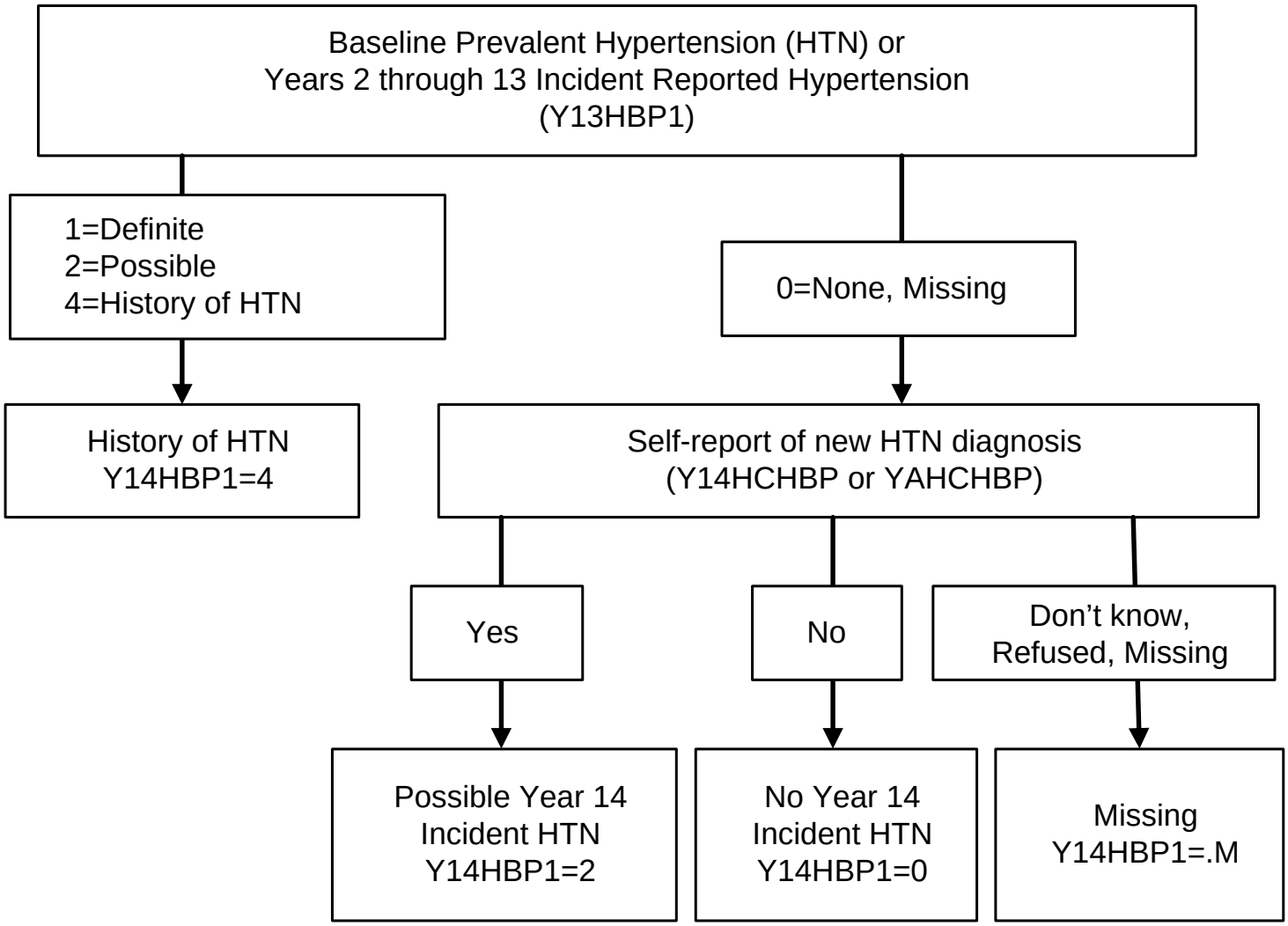
Revised 8/30/12

Year 13: Incident Reported Hypertension



Revised 8/30/12

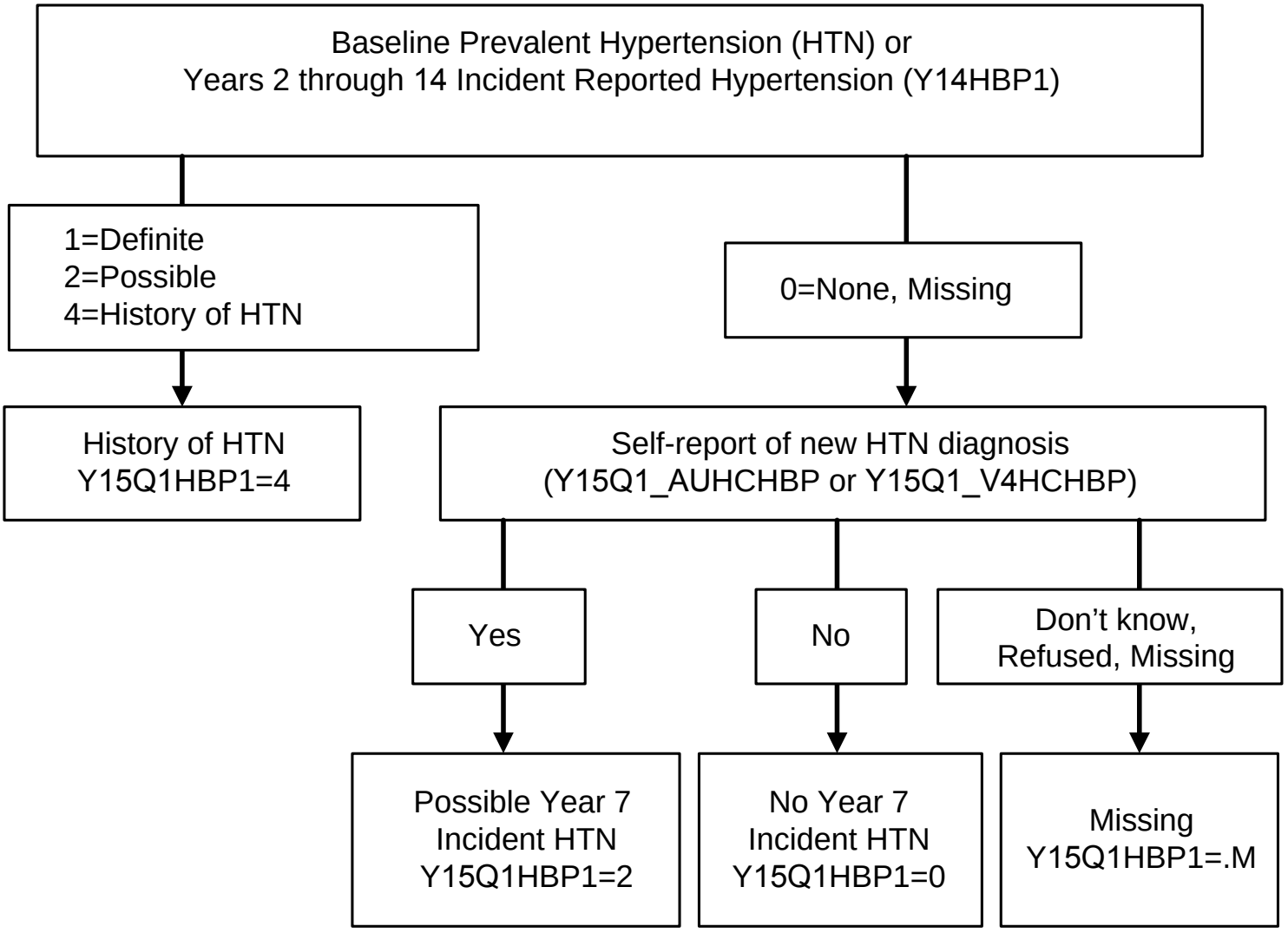
Year 14: Incident Reported Hypertension



Revised 8/30/12

Health ABC

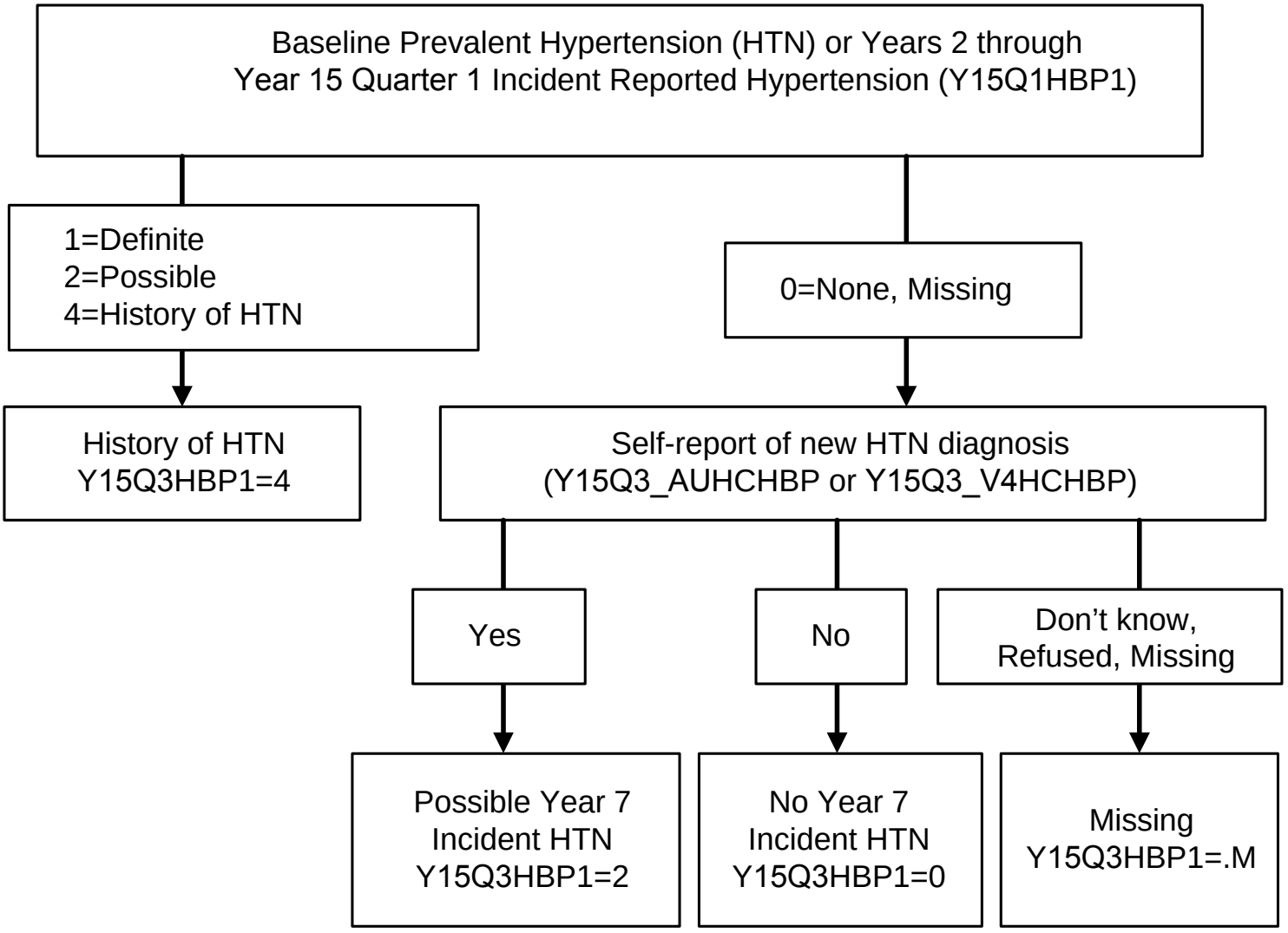
Year 15 Quarter 1: Incident Reported Hypertension



Revised 12/15/15

Health ABC

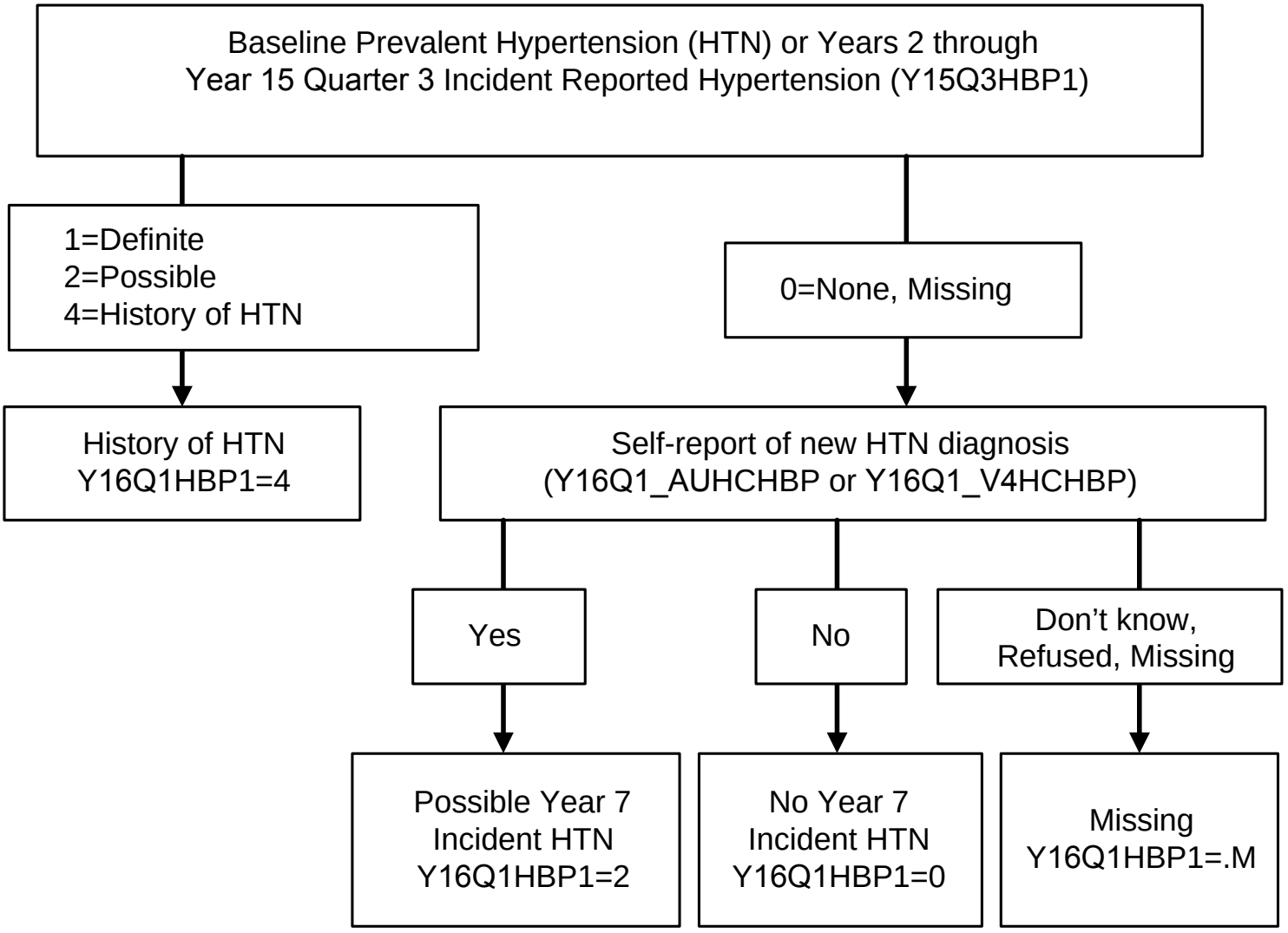
Year 15 Quarter 3: Incident Reported Hypertension



Revised 12/15/15

Health ABC

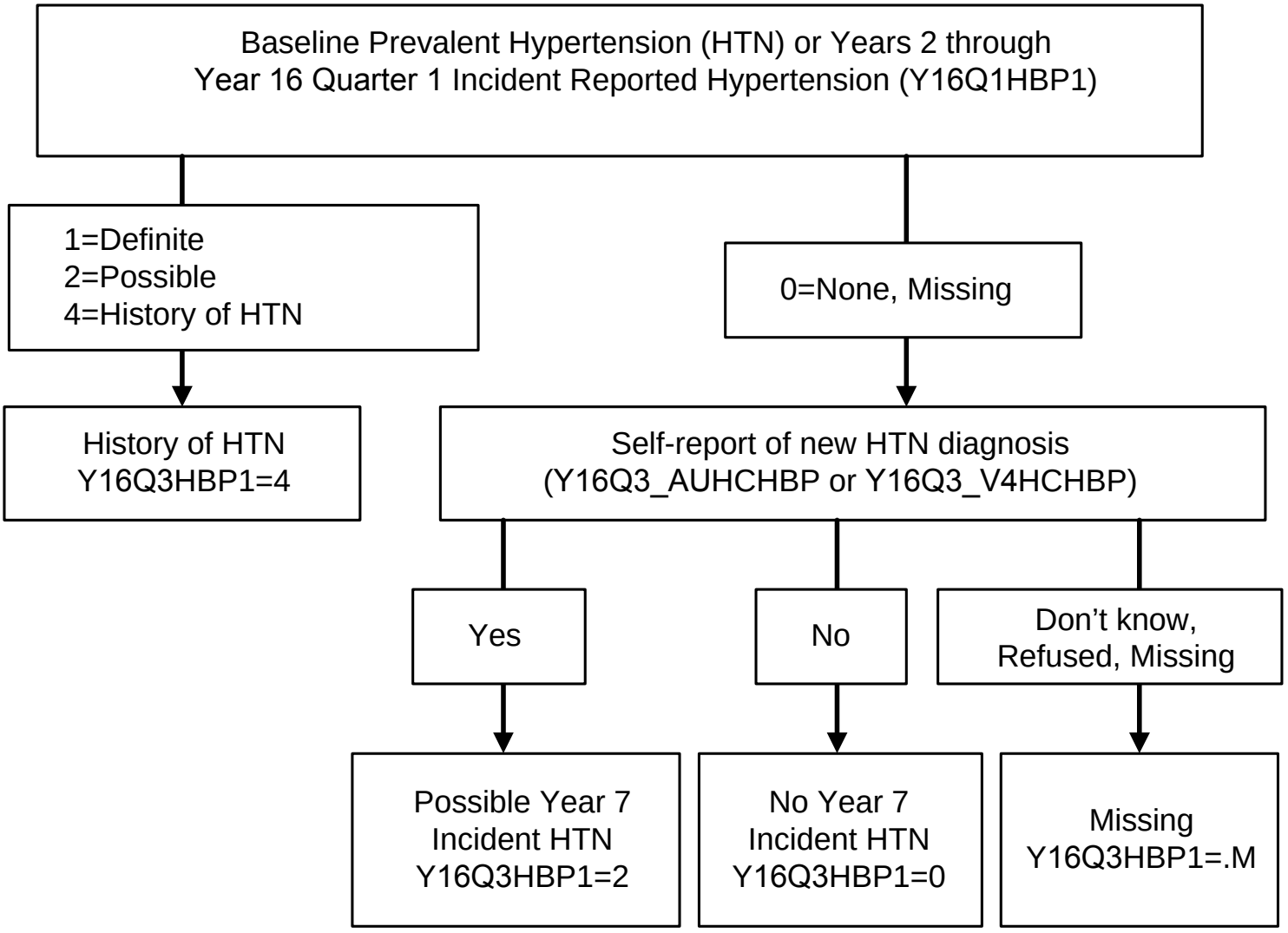
Year 16 Quarter 1: Incident Reported Hypertension



Revised 12/15/15

Health ABC

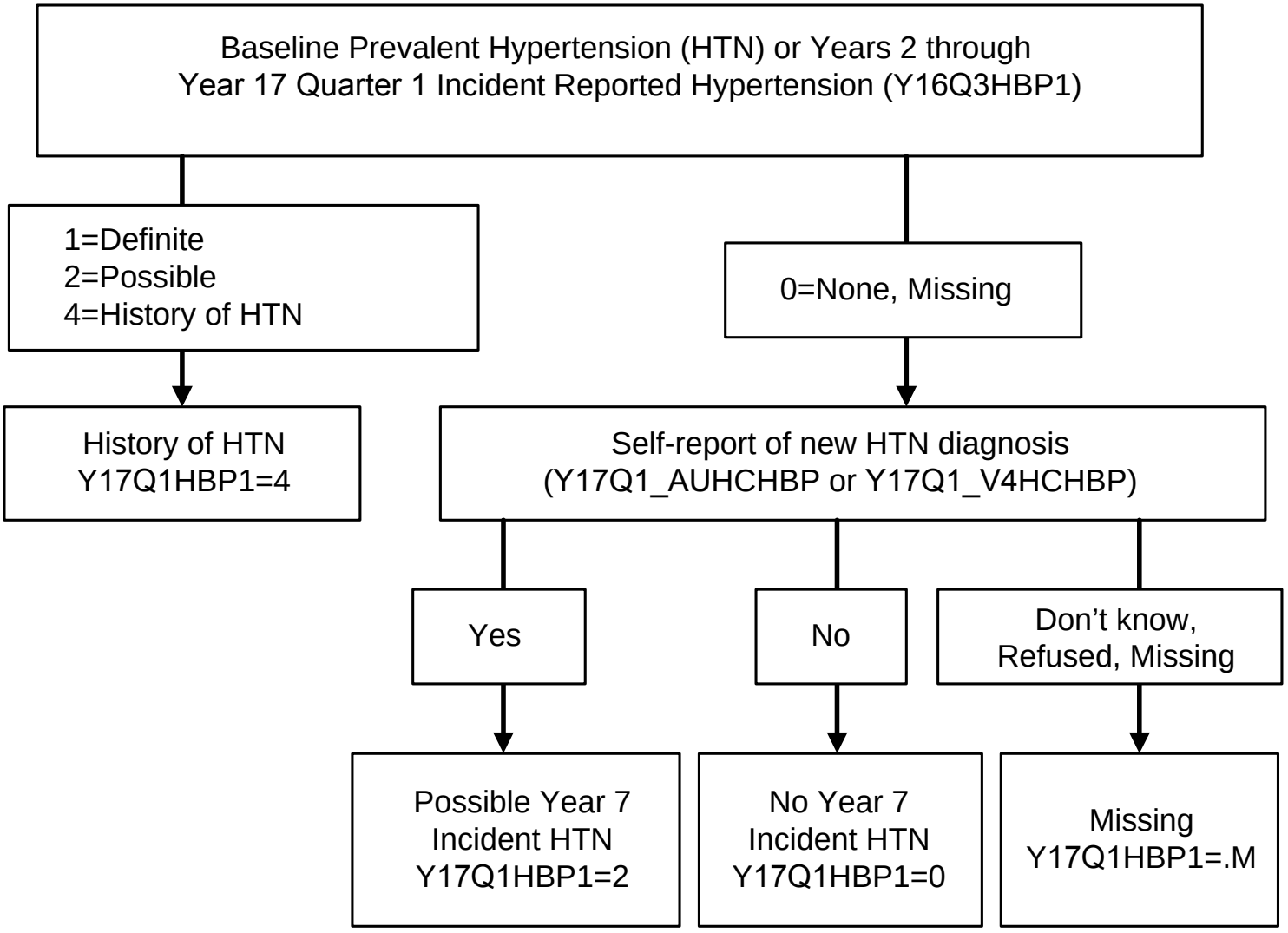
Year 16 Quarter 3: Incident Reported Hypertension



Revised 12/15/15

Health ABC

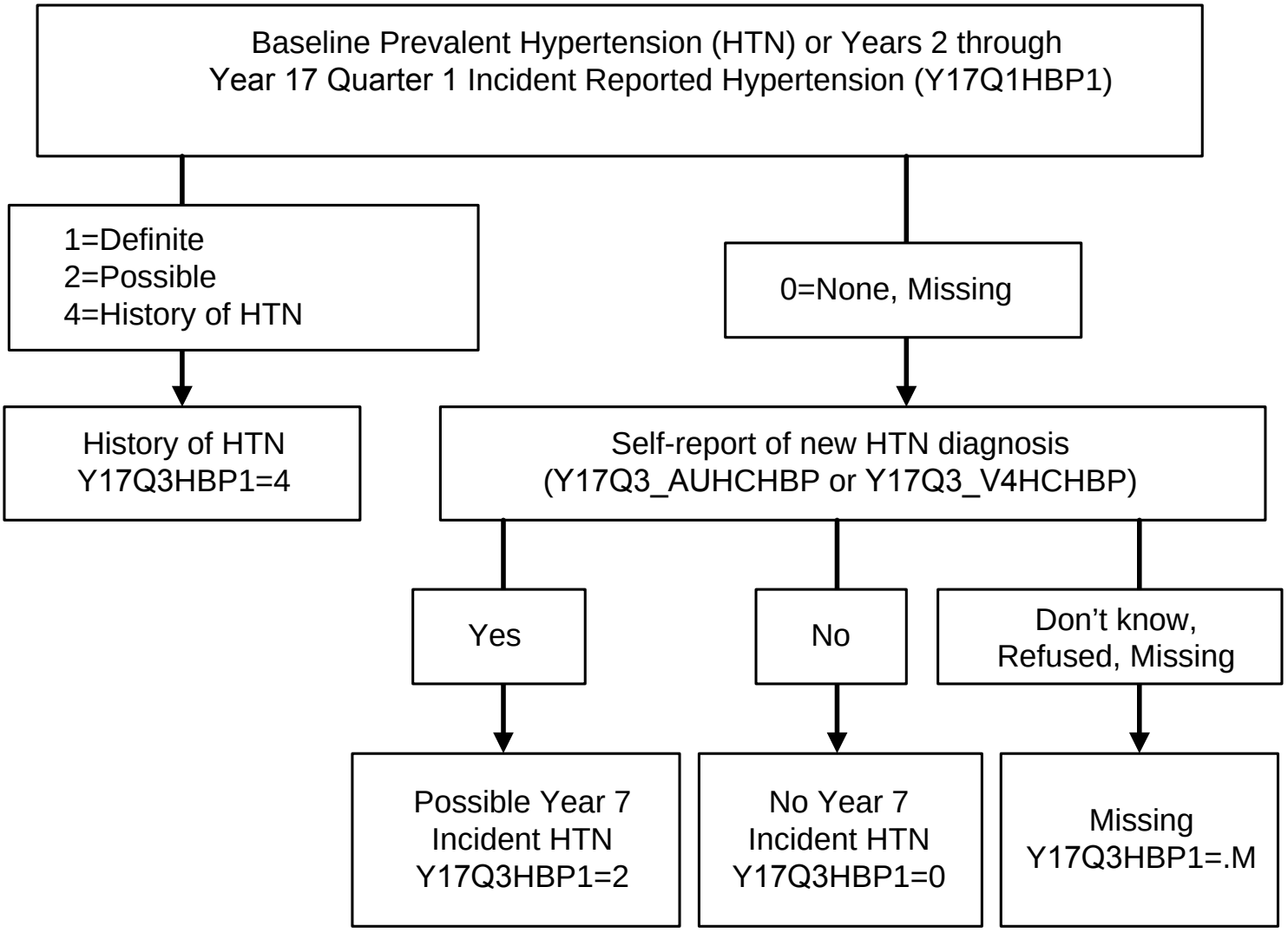
Year 17 Quarter 1: Incident Reported Hypertension



Revised 12/15/15

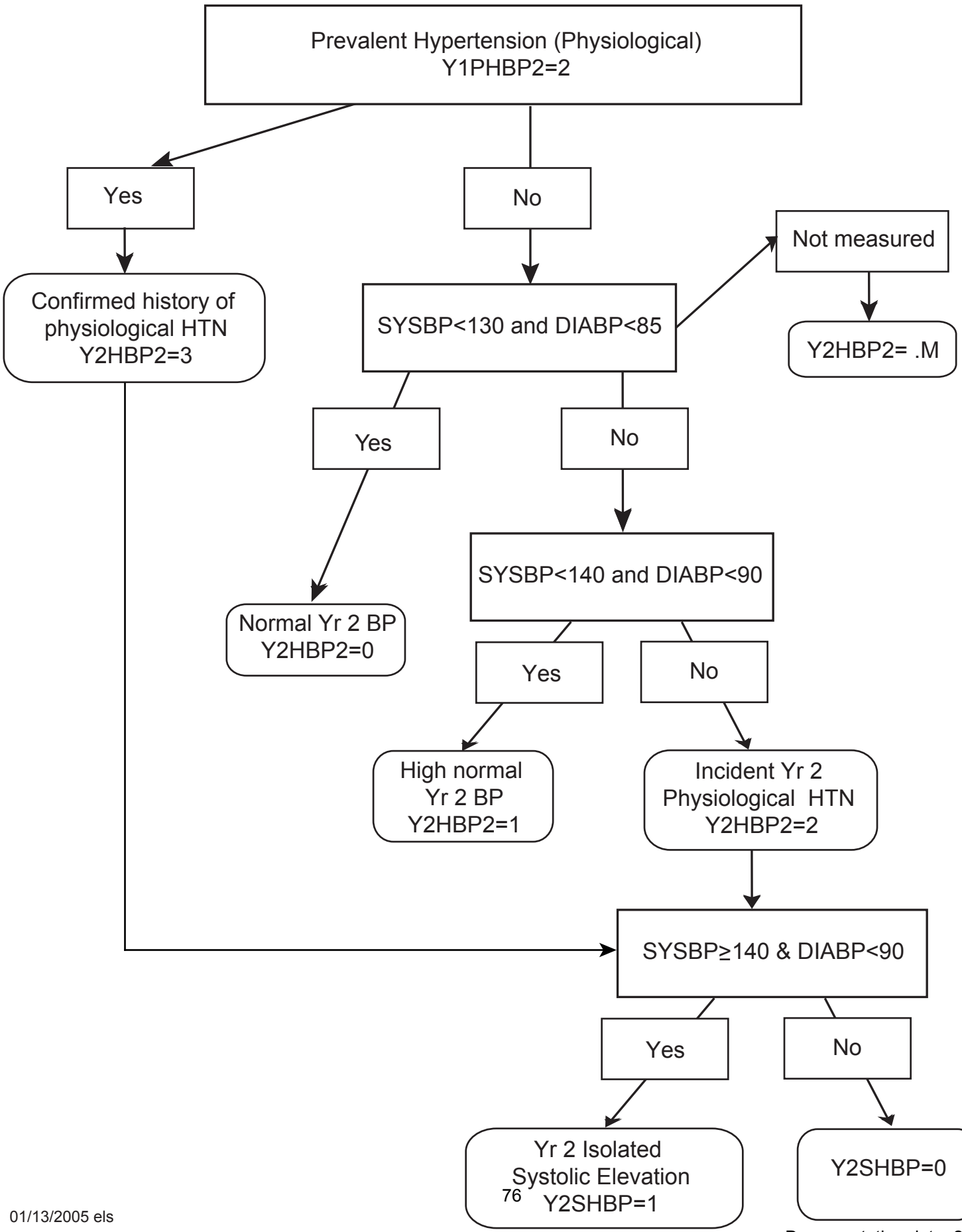
Health ABC

Year 17 Quarter 3: Incident Reported Hypertension



Revised 12/15/15

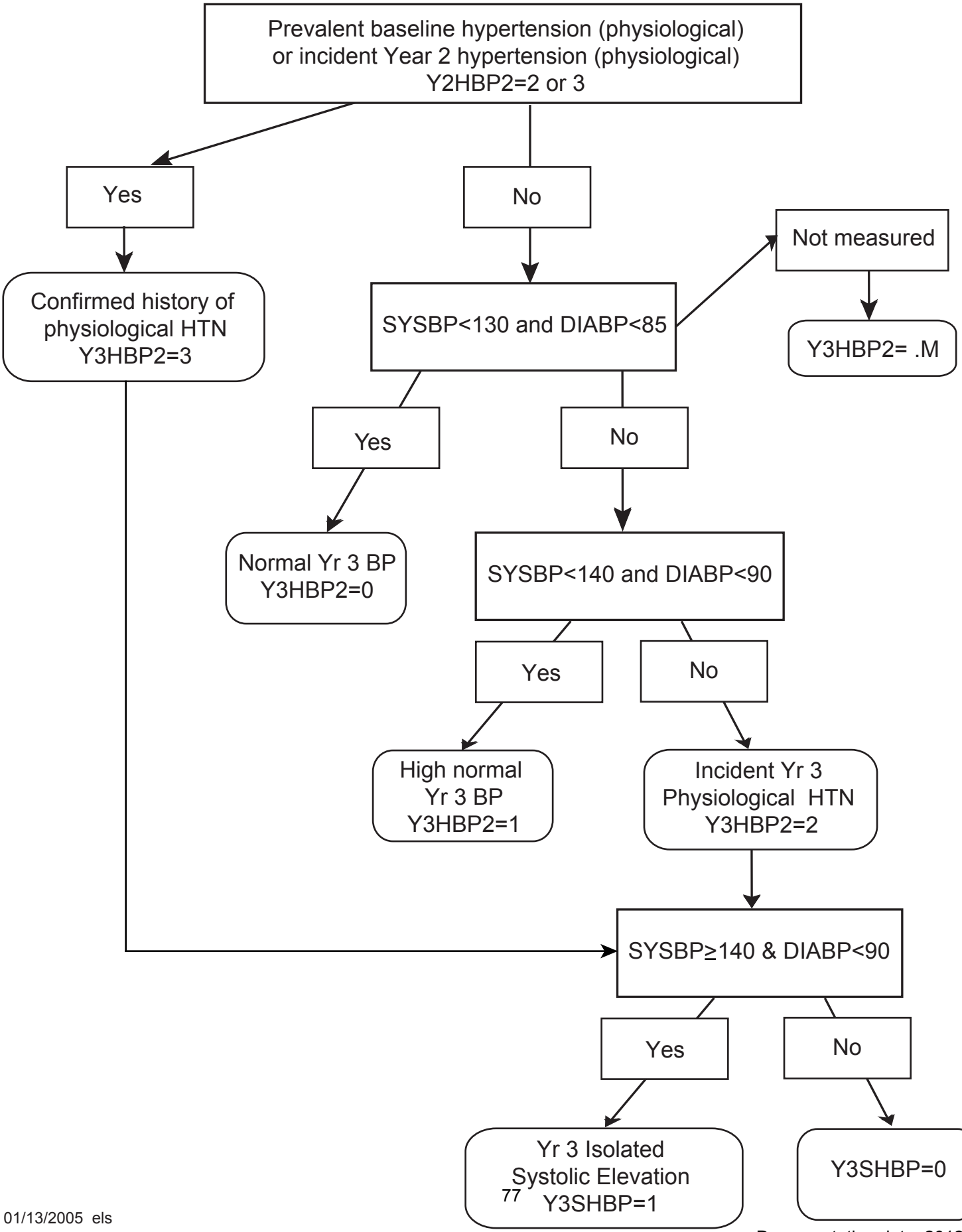
Year 2: Incident Hypertension (Physiological)



01/13/2005 els

Documentation date: 2012-09-01

Year 3: Incident Hypertension (Physiological)



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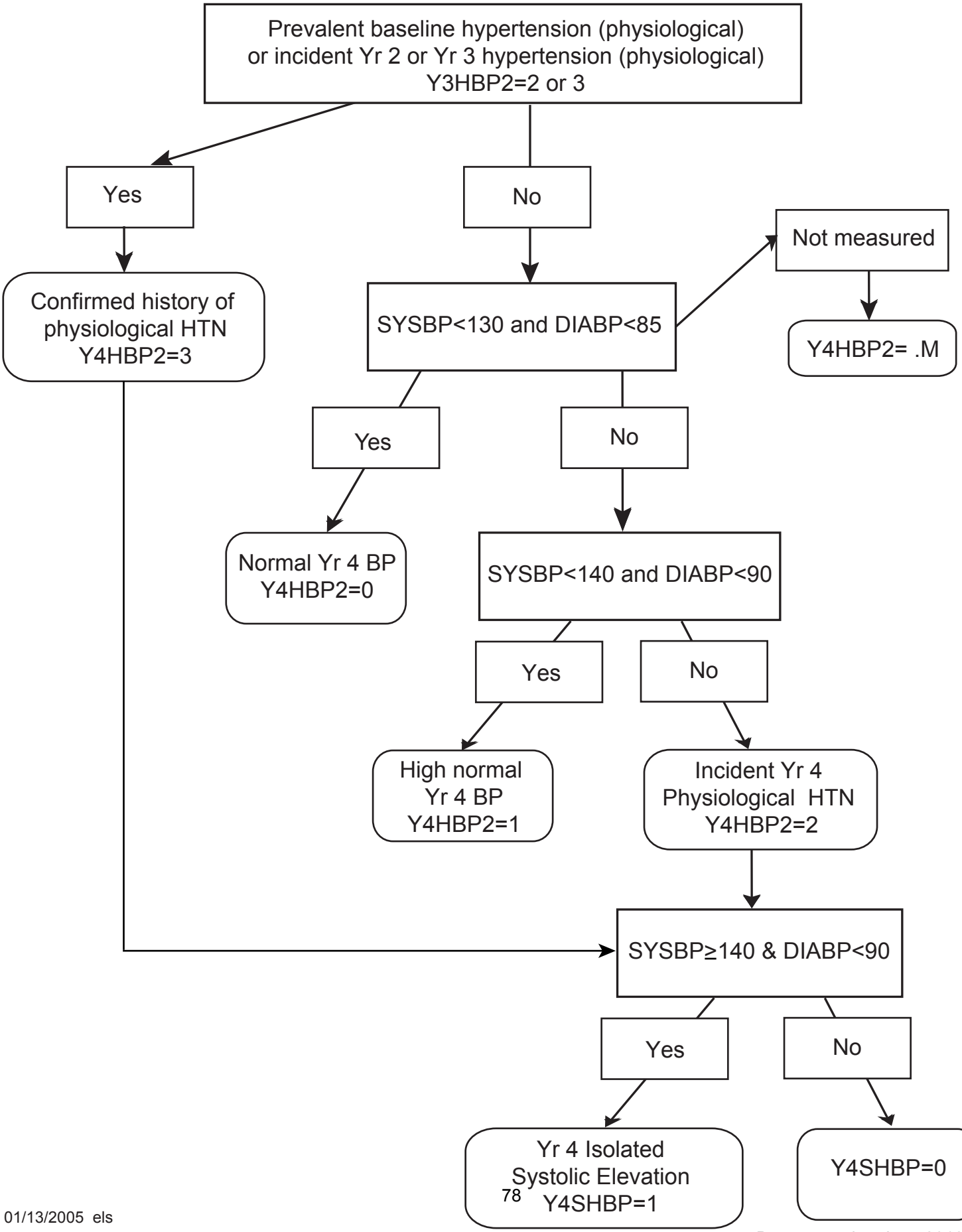
Documentation date: 2012-09-01

Year 4: Incident Hypertension (Physiological)



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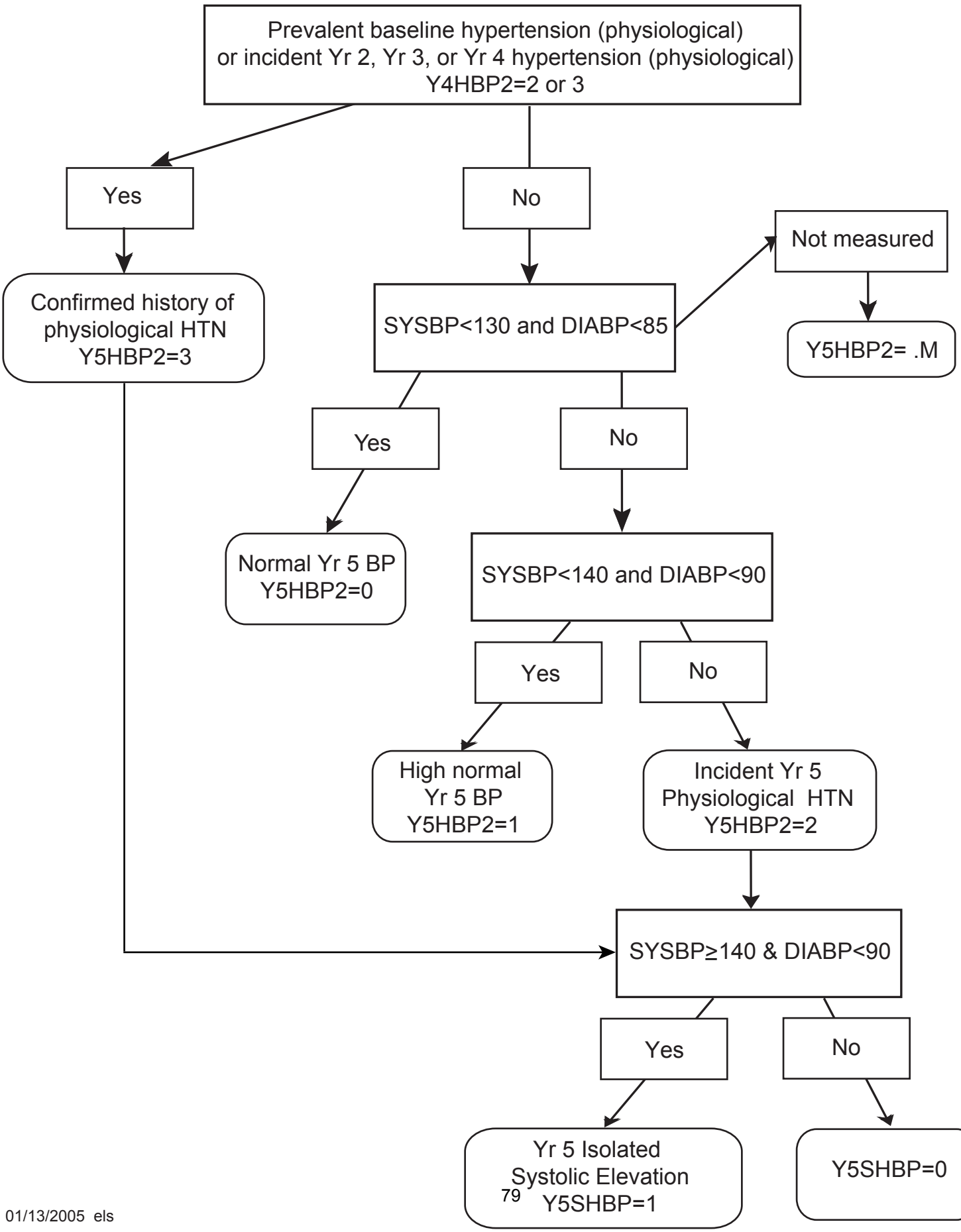
Documentation date: 2012-09-01

Year 5: Incident Hypertension (Physiological)



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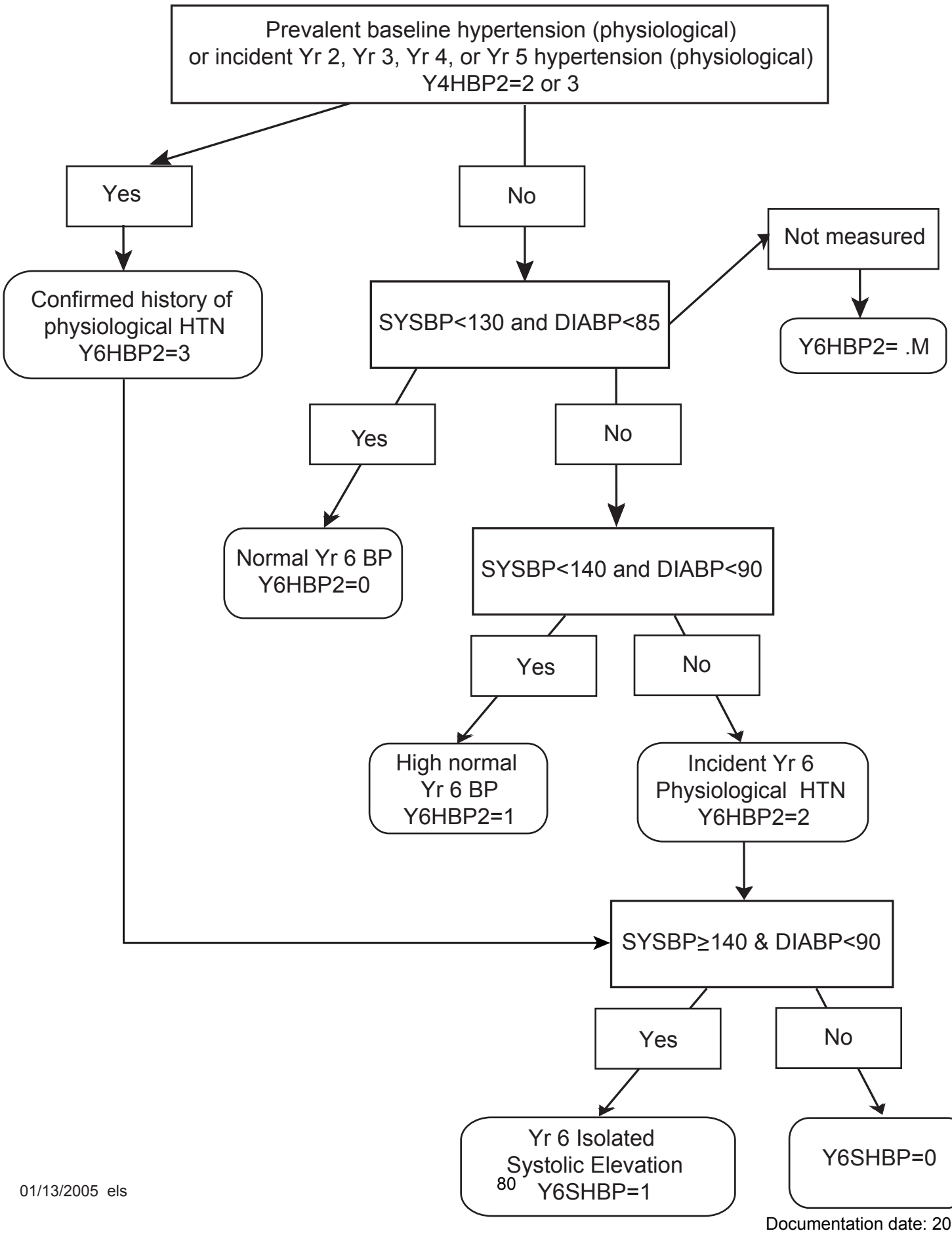
Documentation date: 2012-09-01

Year 6: Incident Hypertension (Physiological)



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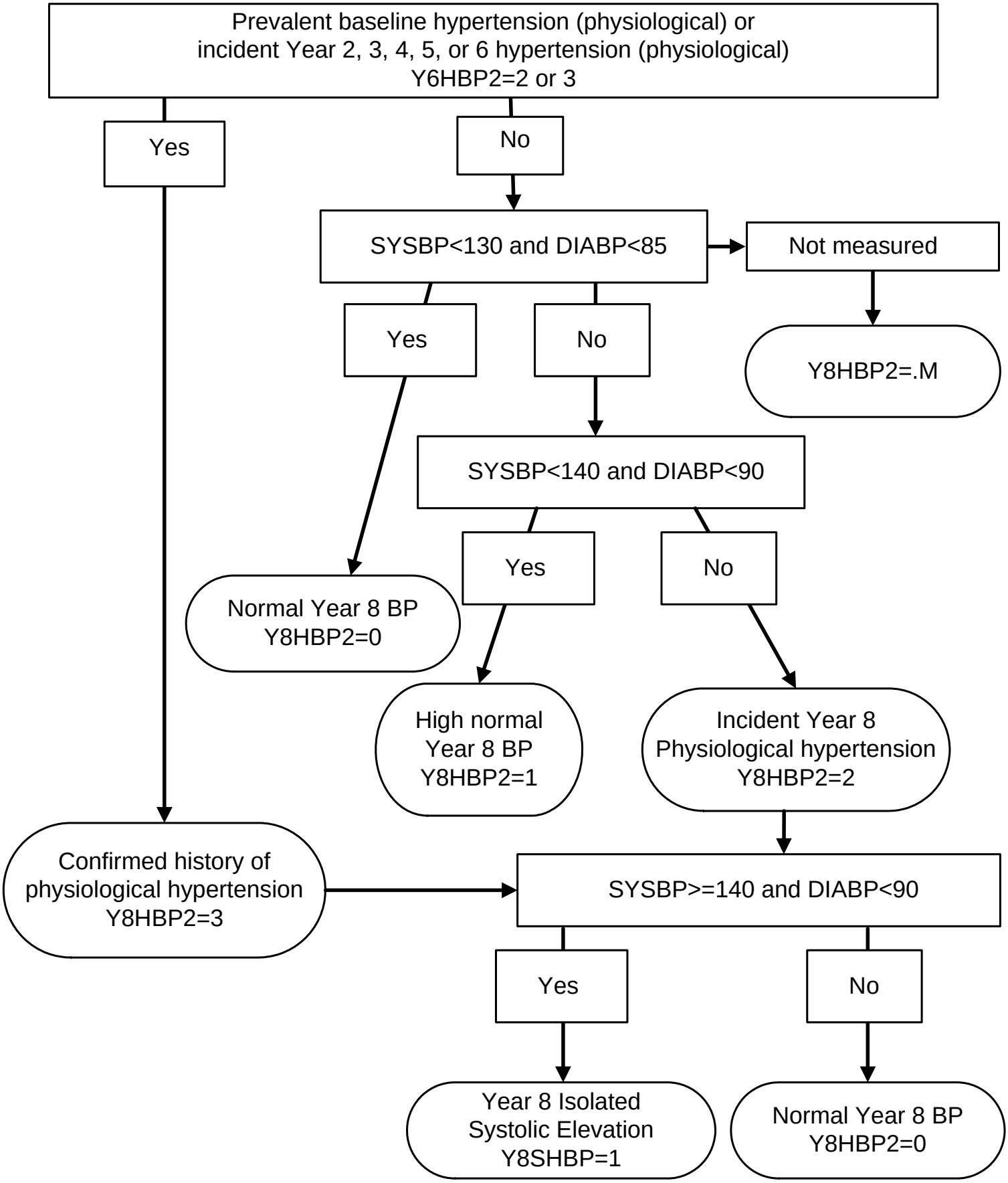
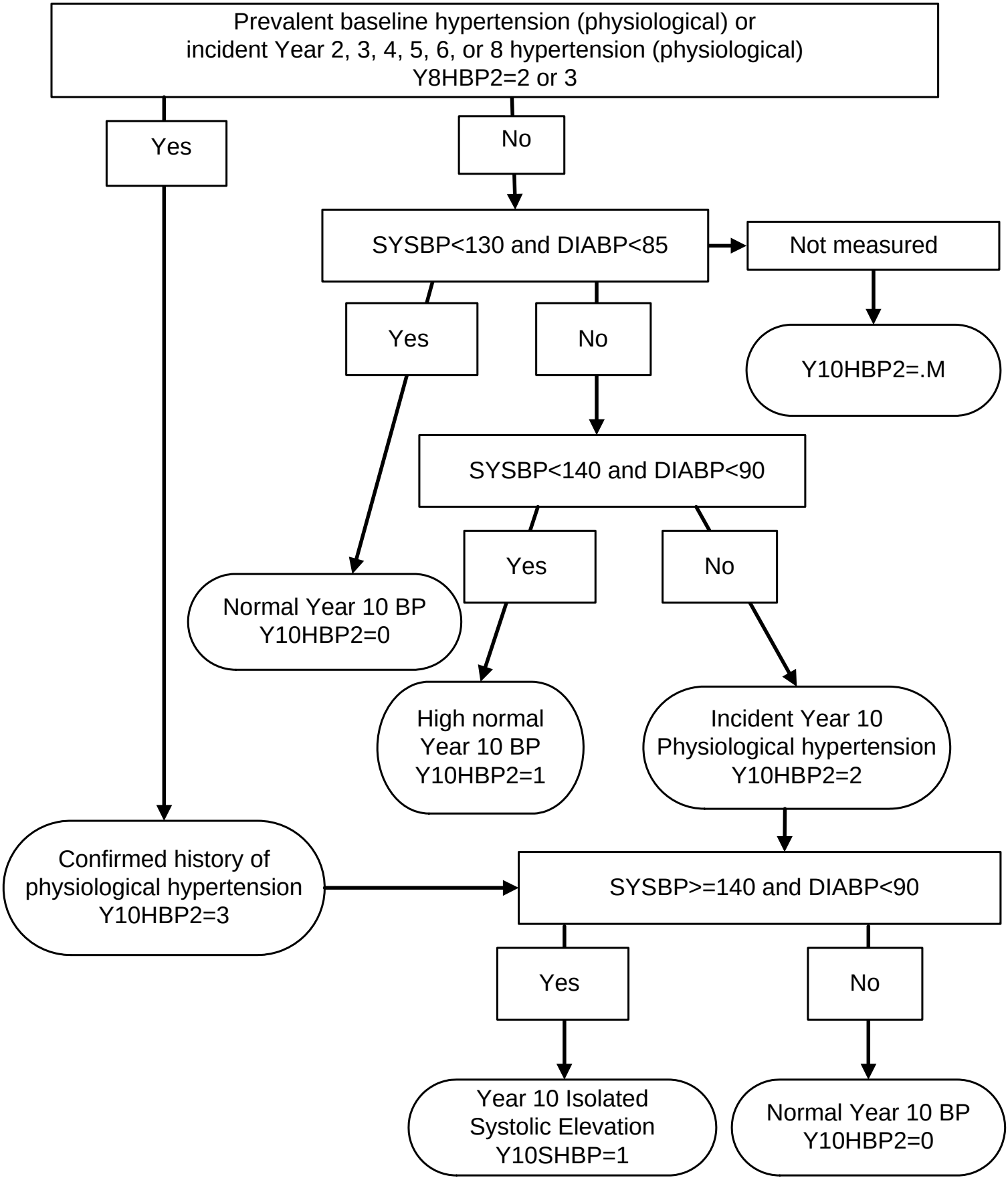
Documentation date: 2012-09-01

Year 8 Incident Hypertension (Physiological)

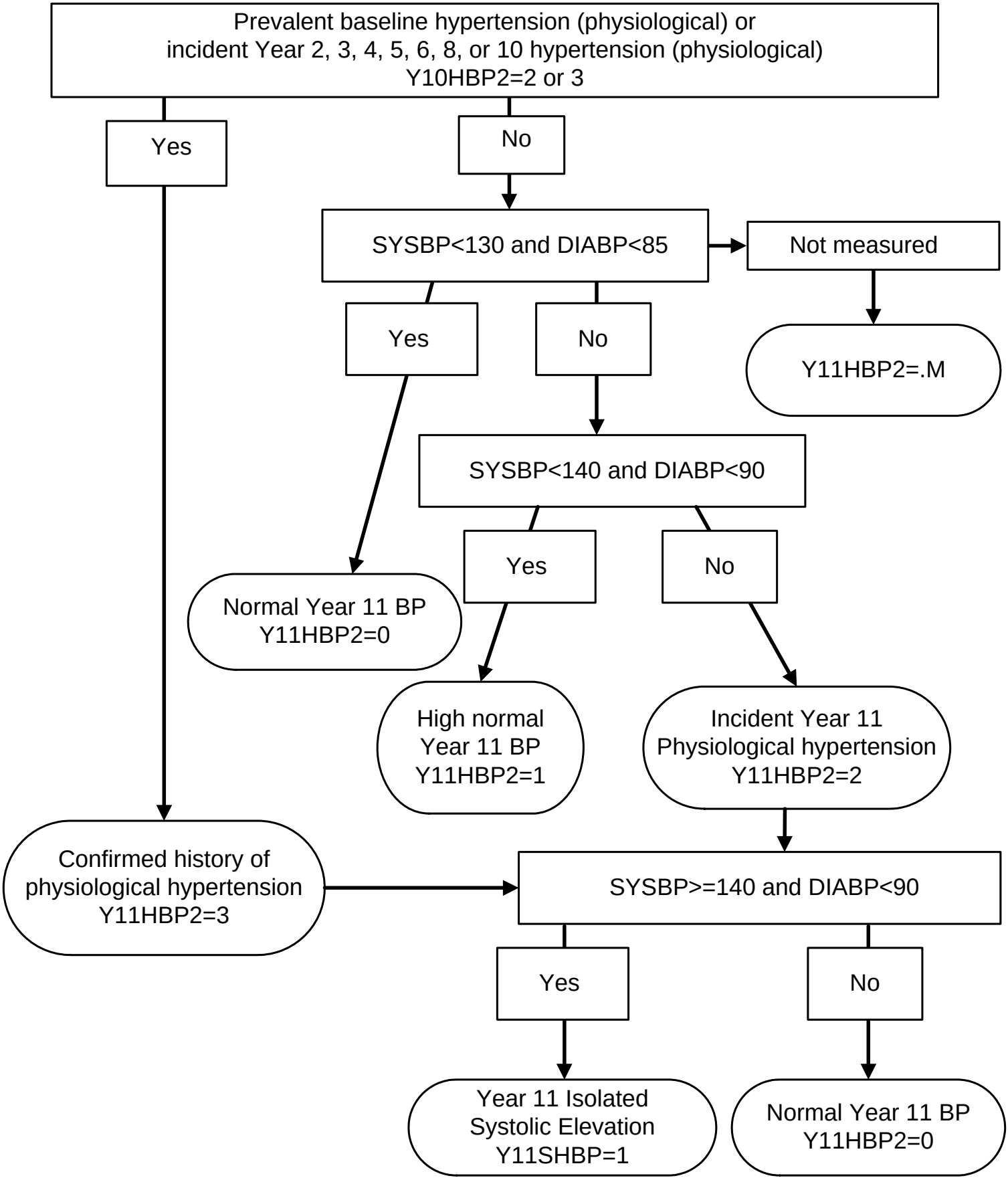


Year 10 Incident Hypertension (Physiological)



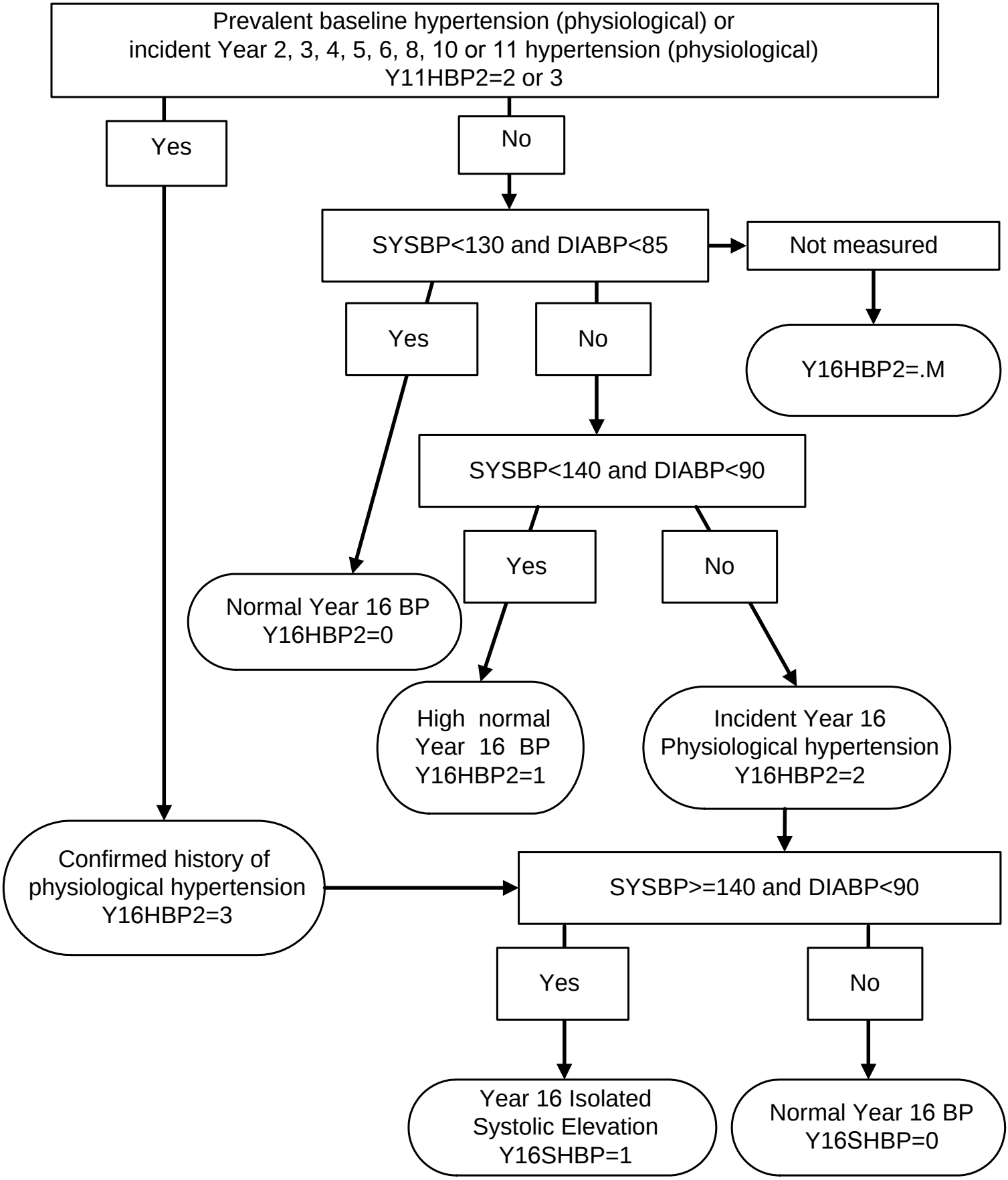
Health ABC

Year 11 Incident Hypertension (Physiological)



Health ABC

Year 16 Incident Hypertension (Physiological)



Revised 12/15/15

Year 6 Metabolic Syndrome

Investigator Name: Stephen B. Kritchevsky, Ph.D.
E-mail Address: skritchevsky@utmem.edu
Unit: Memphis Field Center
Analysis Plan Reference Number:

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
Y6METSAB*	Abdominal circumference criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) For men: waist circumference > 102 cm For women: waist circumference > 88 cm	If F3ABI>0 then Y6METSAB=0; If gender=1 and F3ABI>102 then Y6METSAB=1; If gender=2 and F3ABI>88 then Y6METSAB=1;	If F3ABI is missing, then Y6METSAB=missing.	0=No 1=Yes
Y6METSBP	Blood pressure criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) Blood pressure $\geq$ 130/85 or taking anti-hypertensive medication	If SYSBP>0 and DIABP>0 then Y6METSBP=0; If SYSBP>=130 then Y6METSBP=1; If DIABP>=85 then Y6METSBP=1; If (Y6HBPDRG=1 and MIFREAS indicates drug is used for hypertension) then Y6METSBP=1;	If SYSBP or DIABP is missing then Y6METSBP=missing unless (Y6HBPDRG=1 and MIFREAS indicates drug is used for hypertension)	0=No 1=Yes
Y6METSGL	High glucose criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) Glucose $\geq$ 110 or taking antidiabetic medication (Ford definition is only insulin drugs)	If 0<GLUCOSE6<110 then Y6METSGL=0 If GLUCOSE6>=110 then Y6METSGL=1 If Y6DIBDRG=1 then Y6METSGL=1;	If GLUCOSE6 is missing, then Y6METSGL=missing unless Y6dibdrg=1	0=No 1=Yes

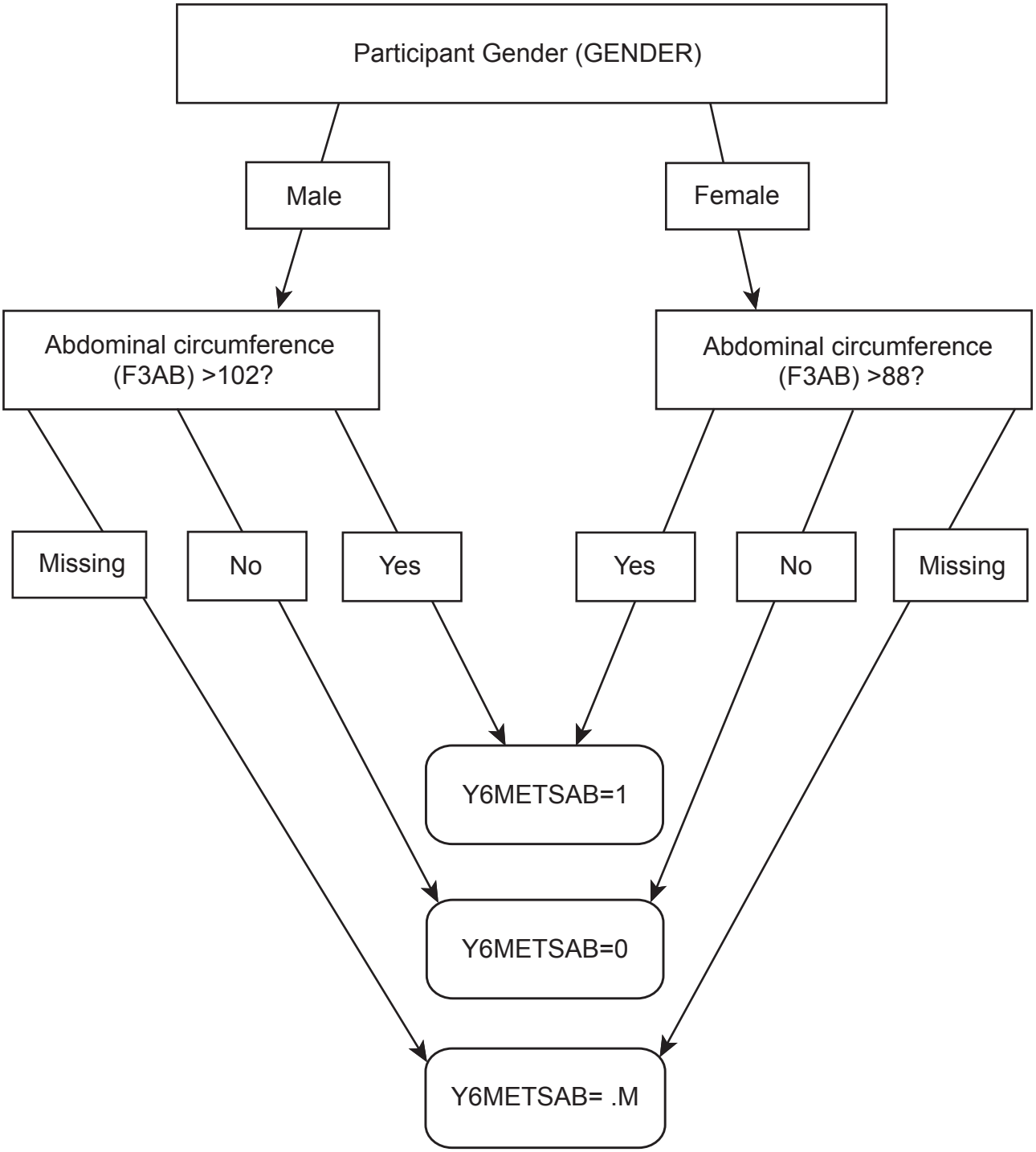
*Y6METSAB used an imputed version of the abdominal circumference variable; a comparable variable was not created in Year 6

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
Y6METS8GL	High glucose criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) FAST8GLU6≥ 110 or taking antidiabetic medication (Ford definition is only insulin drugs)	If 0<(GLUCOSE6<110) then Y6METS8GL=0 If FAST8GLU6>=110 then Y6METS8GL=1 If Y6DIBDRG=1 then Y6METS8GL=1;	If FAST8GLU6 is missing, then Y6METS8GL=missing unless Y6DIBDRG=1	0=No 1=Yes
Y6METSHD	Low HDL criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) For men: HDL < 40 For women: HDL < 50	If HDL>0 then Y6METSHD=0; If GENDER=1 and 0≤HDL<40 then Y6METSHD=1; If GENDER=2 and 0≤HDL<50 then Y6METSHD=1;	If HDL value is missing then Y6METSHD=missing.	0=No 1=Yes
Y6METSTG	High TRIGeride criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) TRIGerides ≥ 150	If TRIGLYC6>0 then Y6METSTG=0; If TRIGLYC6>=150 then Y6METSTG=1;	If TRIGLYC6 value is missing, then Y6METSTG=missing.	0=No 1=Yes
Y6METS8TG	High TRIGeride criterion met	Adapted from Ford et al (JAMA 2002;287:356-9) TRIGerides ≥ 150	If (TRIGLYC6 or FAST8TRIG6)>0 then Y6METSTG=0; If FAST8TRIG6>=150 then Y6METSTG=1;	If FAST8TRIG6 is missing, then Y6METS8TG=missing.	0=No 1=Yes
Y6METSYN	Metabolic syndrome at year 6	Adapted from Ford et al (JAMA 2002;287:356-9)	If the sum of the missing values (Y6METSHD, Y6METSTG, Y6METSGL, Y6METSBP, Y6METSAB) is greater than 0 then Y6METSYN=.; If the sum of the nonmissing values (Y6METSHD, Y6METSTG, Y6METSGL, Y6METSBP, Y6METSAB) is greater than 2 then Y6METSYN=1;	If a person has a missing value then they are not scored for metabolic syndrome, unless they are positive on 3 or more non-missing criteria, in which case they do have metabolic syndrome	0=No 1=Yes

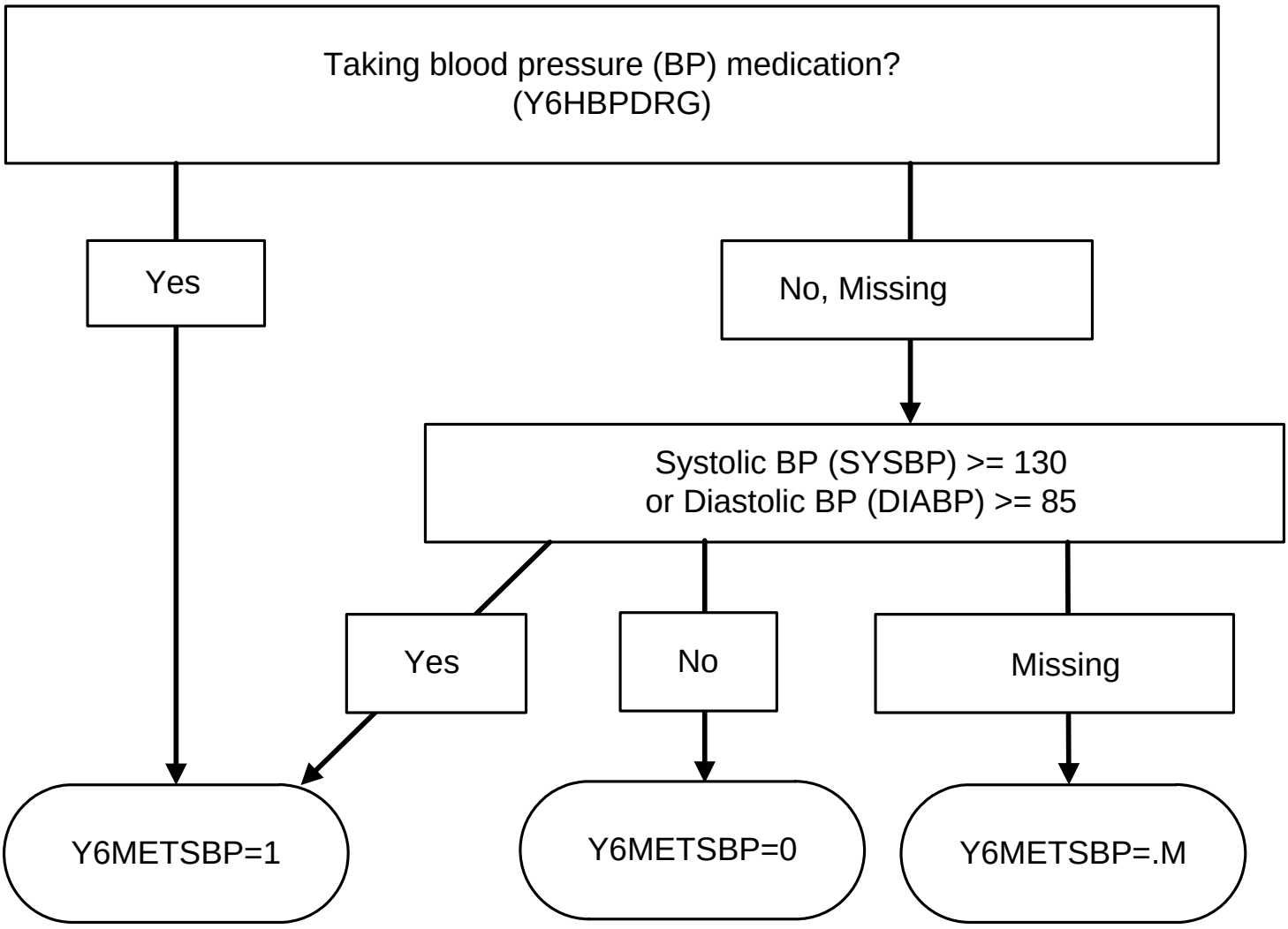
Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
Y6METS8YN	Metabolic syndrome at year 6	Adapted from Ford et al (JAMA 2002;287:356-9)	If the sum of the missing values (Y6METSHD, Y6METS8TG, Y6METS8GL, Y6METSBP, Y6METSAB) is greater than 0 then Y6METS8YN=.; If the sum of the nonmissing values (Y6METSHD, Y6METS8TG, Y6METS8GL, Y6METSBP, Y6METSAB) is greater than 2 then Y6METS8YN=1;	If a person has a missing value then they are not scored for metabolic syndrome, unless they are positive on 3 or more non-missing criteria, in which case they do have metabolic syndrome	
Y6METSNO	Number of metabolic syndrome criteria met	Adapted from Ford et al (JAMA 2002;287:356-9)	If the sum of the missing values (Y6METSHD, Y6METSTG, Y6METSGL, Y6METSBP, Y6METSAB) equals zero, then Y6METSNO= sum(Y6METSHD, Y6METSTG, Y6METSGL, Y6METSBP, Y6METSAB); To give a number to those with a missing component but still qualify for the syndrome: If the sum of the missing values (Y6METSHD, Y6METSTG, Y6METSGL, Y6METSBP, Y6METSAB) > 0 and Y6METSYN=1 then Y6METSNO=[5-(sum of missing values)];	If Y6METSYN is missing then Y6METSNO is missing	Range: zero to 5

Variable	Descriptive Title	Detailed Description	How variable is calculated	How to handle missing or special values	Value labels
Y6METS8NO	Number of metabolic syndrome criteria met	Adapted from Ford et al (JAMA 2002;287:356-9)	If the sum of the missing values (Y6METSHD, Y6METS8TG, Y6METS8GL, Y6METSBP, Y6METSAB) equals zero, then Y6METSNO= sum(Y6METSHD, Y6METS8TG, Y6METS8GL, Y6METSBP, Y6METSAB); To give a number to those with a missing component but still qualify for the syndrome: If the sum of the missing values (Y6METSHD, Y6METS8TG, Y6METS8GL, Y6METSBP, Y6METSAB) > 0 and Y6METS8YN=1 then Y6METS8NO=[5-(sum of missing values)];	If Y6METS8YN is missing then Y6METS8NO is missing	Range: zero to 5

Year 6 Metabolic Syndrome
Abdominal Circumference Criterion

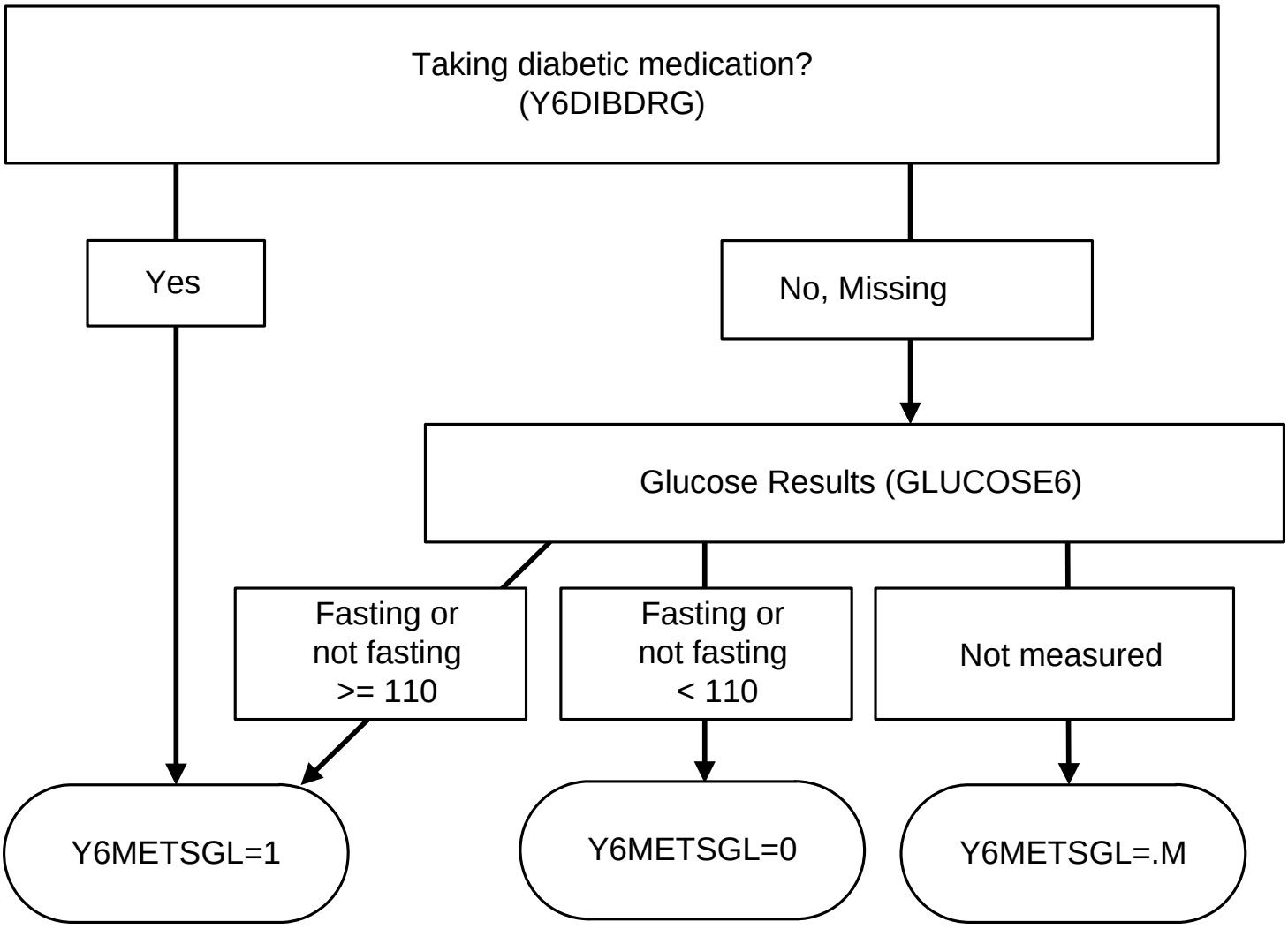


Year 6: Metabolic Syndrome
Blood Pressure Criterion



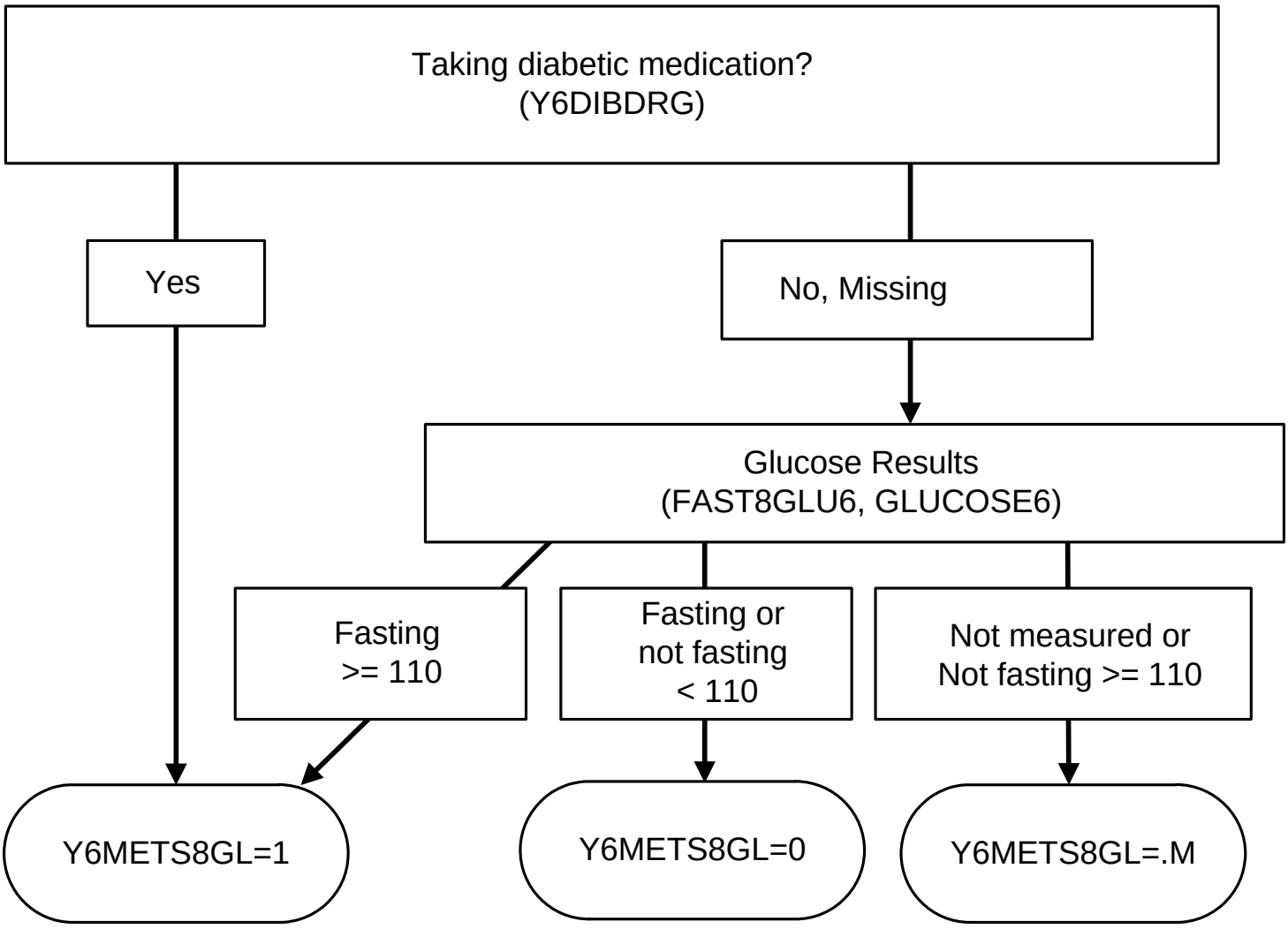
Revised 6/16/10

Year 6: Metabolic Syndrome
Glucose Criterion



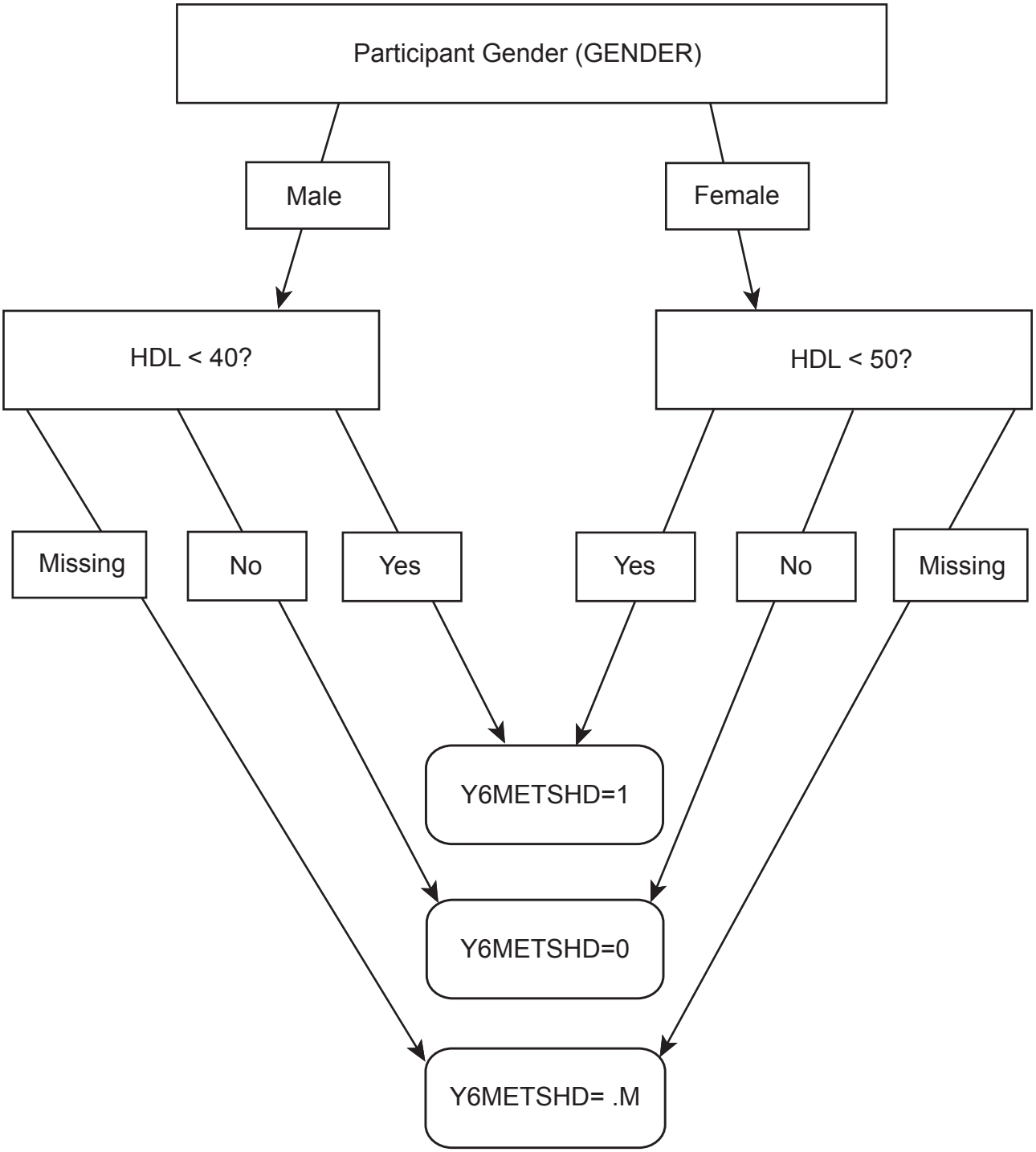
Revised 6/16/10

Year 6: Metabolic Syndrome
Fasting Glucose Criterion

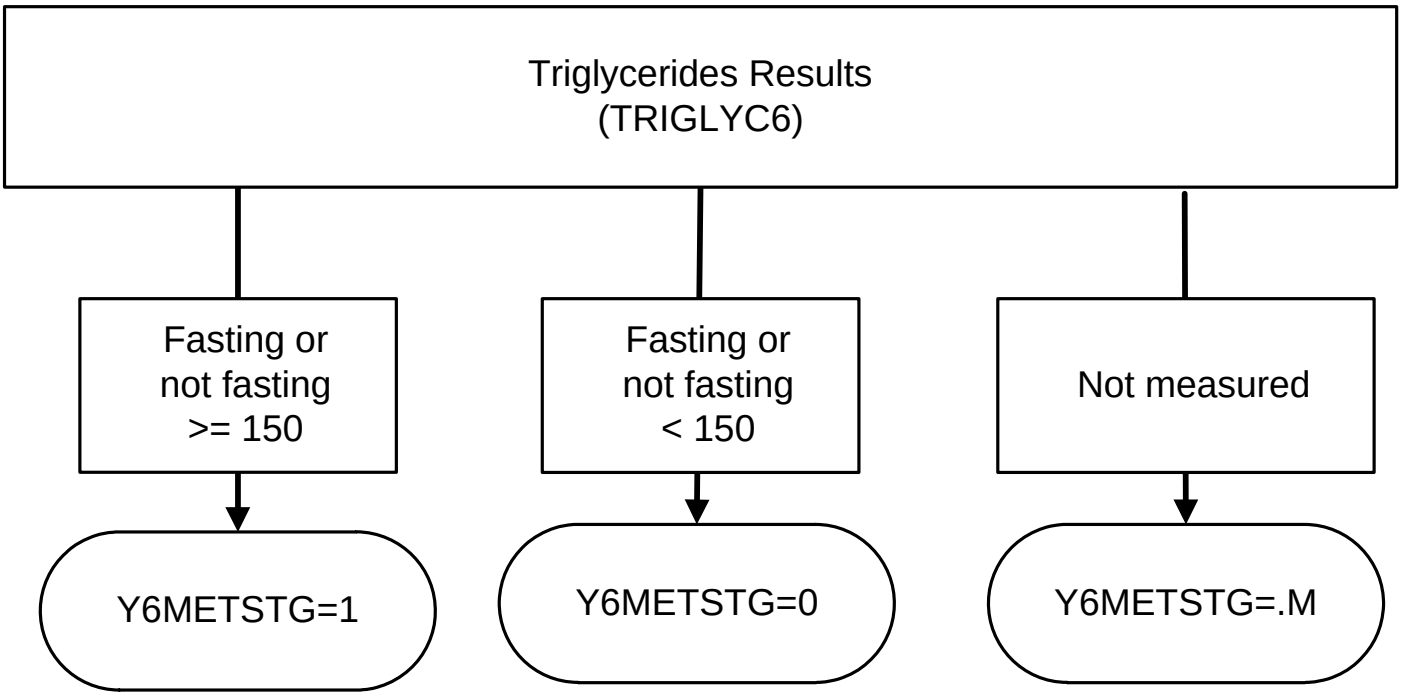


Revised 6/16/10

Year 6 Metabolic Syndrome HDL Criterion

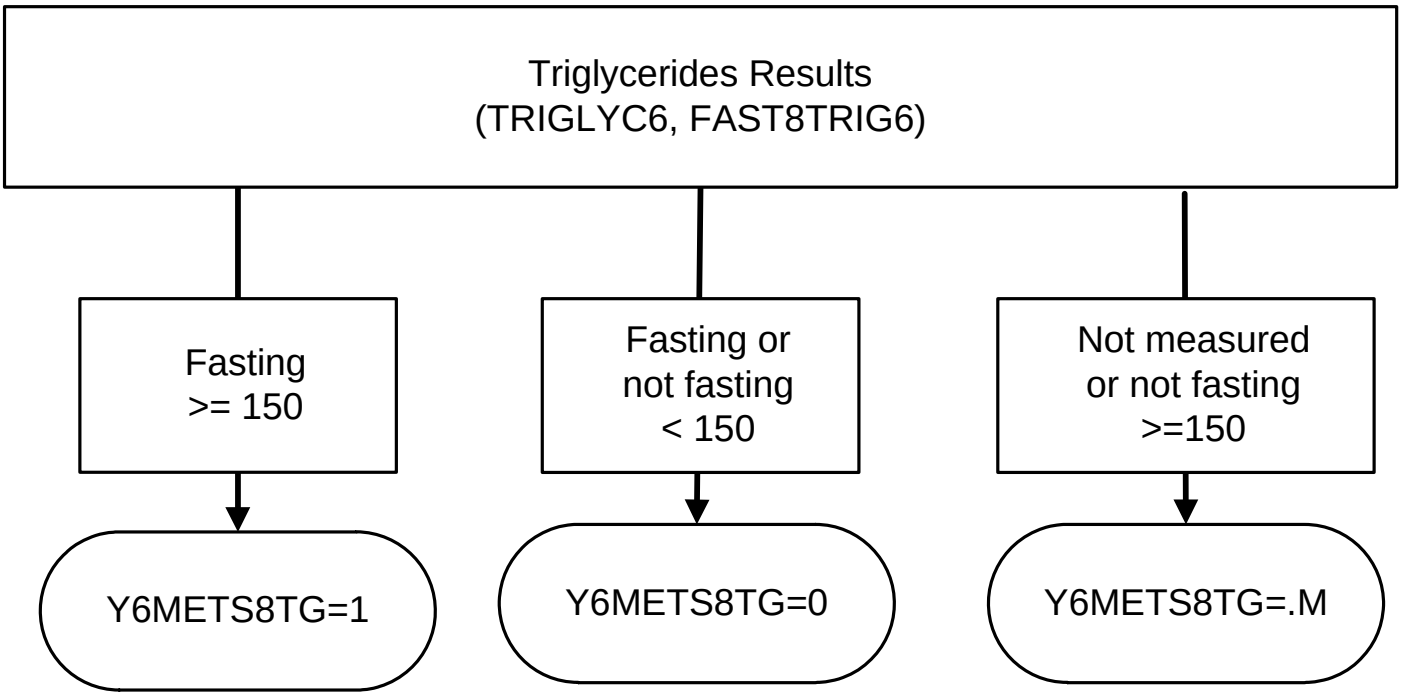


Year 6: Metabolic Syndrome
Triglyceride Criterion



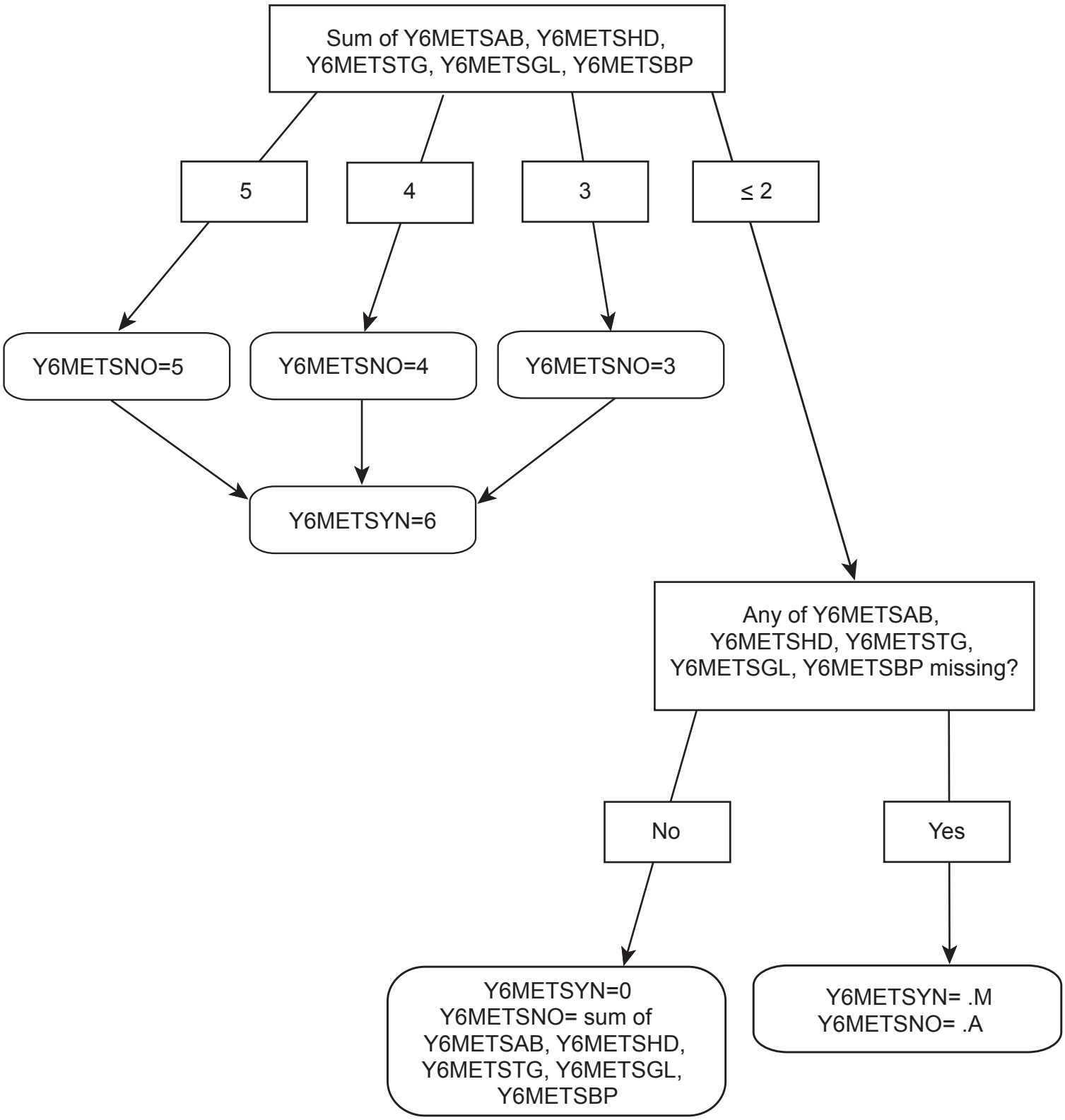
Revised 6/16/10

Year 6: Metabolic Syndrome
Fasting Triglyceride Criterion



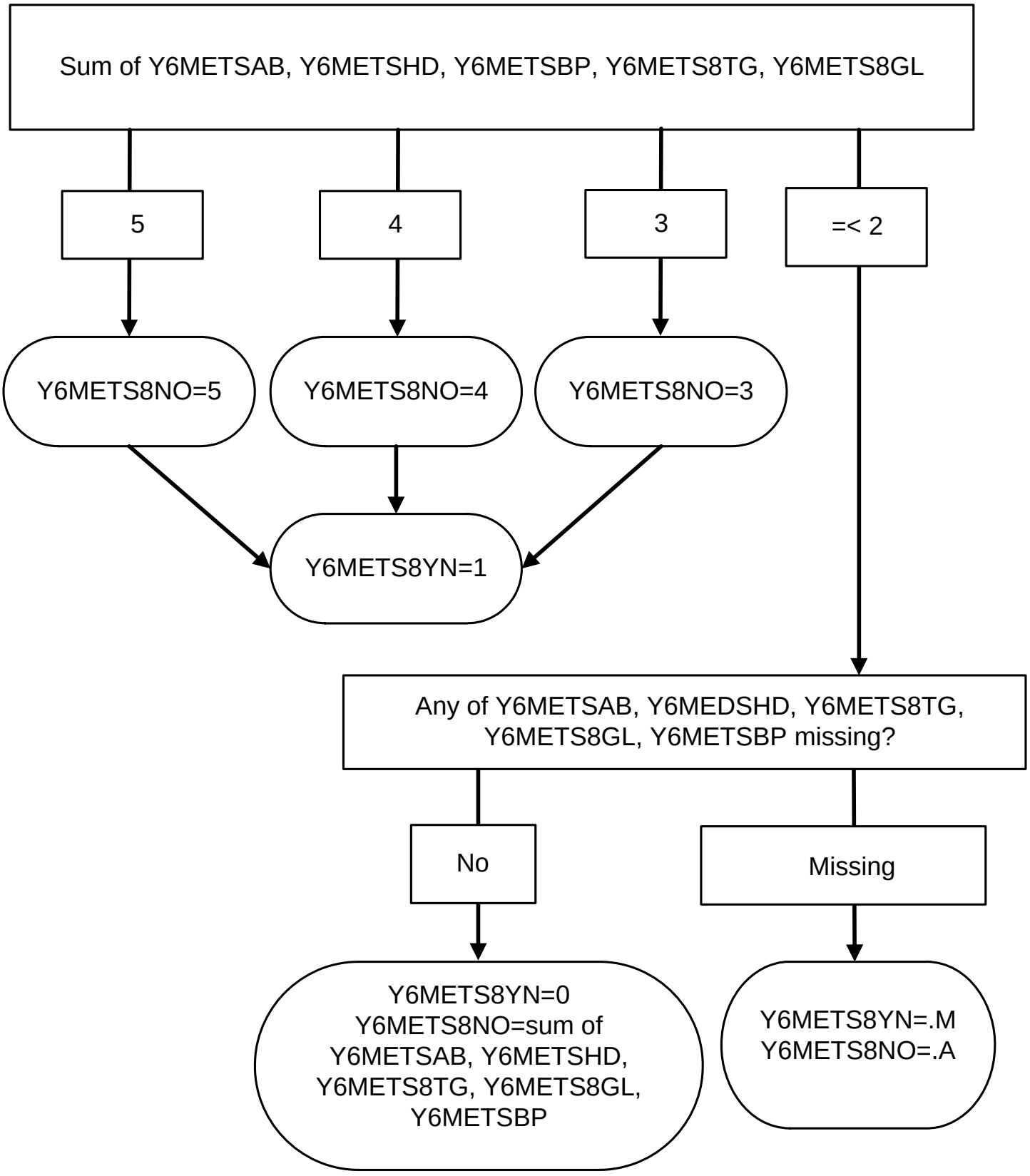
Revised 6/16/10

Year 6 Metabolic Syndrome



Health ABC

Year 6: Fasting Metabolic Syndrome



Revised 6/16/10
Documentation date: 2012-09-01

```
*---
  INCIDENT DISEASES: Calculates incident disease variables for:
    - Cancer
    - Diabetes
    - Depression
    - CHD and CVD
    - Metabolic syndrome
    - Hypertension

  FHarris - 12/20/2004

  *---
  Program: PrevDzCode.sas

  Update program to use new biospecimens file.
  Change prevalent diabetes indicators.
  Update hypertension indicators to use corrected yxhbpdrg vars.
  Use cesd10 depression vars from their files rather that recreate in program.


  Todd Glasser - 2012/07/05.

  End of HABC study - Final version.

  Add quarterly interview data for Years 15, 16, and 17.

  Todd Glasser - 2015/12/04.
;
proc sort data=habcff.wg out=deaths nodupkey;
  by habcid;
run;
proc sort data=habcff.wf out=events;
  by habcid;
run;
*--- Incident cancer - any.;
data wa;
  *--- Cancer adjudication.;
  set habcff.wa(keep=HABCID WADIAGDT WACANCER WACONF );
  *--- Keep only confirmed or possible;
  if waconf in (1,8) and 1<=wacancer<=44;
run;
proc sort data=wa;
  by habcid wadiagdt;
run;
data wa morethan1;
  set wa;
  by habcid wadiagdt;
  if not(first.habcid and last.habcid) then output morethan1;
```

```
  if first.habcid then output wa;
run;
*--- Set up dataset of cancers other than first, keeping only confirmed ones.
  These will be used to check if uncertain cancers are later confirmed.;
data morethan1;
  set morethan1;
  by habcid;
  if first.habcid then delete;
run;
*--- Confirmed events after the first event.;
data morethan1(keep=habcid wacancer wadiagdt);
  set morethan1;
  if waconf=1;
run;
*--- Keep first confirmed of each cancer type, after first event.;
proc sort nodupkey data=morethan1(keep=habcid wacancer);
  by habcid wacancer;
run;
data any;
  merge y1prevdz(in=inbl keep=habcid y1pcanany)
        wa      (in=inwa keep=habcid wacancer wadiagdt waconf)
        habc.ph(keep=habcid dtlastct cv1date);
  by habcid;
  if 1<=wacancer<=44 then new=1;
  else new=0;
  if y1pcanany=1      then old=1;
  else old=0;
       if new=0 and old=0 then cananyi=0;  *--- No cancer.;
  else if new=0 and old=1 then cananyi=1;  *--- Cancer survivor, no recurrence.;

  else if new=1 and old=0 then cananyi=2;  *--- Incident cancer.;
  else if new=1 and old=1 then cananyi=3;  *--- Recurrent event or second primary.;

  format cananyi ican1f.;
  *--- No cancer during followup.;
  if cananyi in (0,1) then do;
     cananyad=.A;
         cananyds=.A;
         cananydt=.A;
  end;
  *--- Cancer during followup.;
  else if cananyi in (2,3) then do;
          if waconf=1 then cananyad=1;
     else if waconf=8 then cananyad=2;
         cananyds=wadiagdt-cv1date;
         cananydt=wadiagdt;
  end;
  label cananyi='Incid cancer, any type'
```

```
        cananyad='Incid cancer, any, confirmation'
                cananyds='Incid cancer, any, days to event'
        cananydt='Incid cancer, any, event date';
  format cananyad adjfmt. cananyds 5. cananydt mmddyy10.;
run;
*--- If first cancer is unconfirmed, check to see if it is later confirmed.
  If so, use original date but change confirmation to definite.;
data any;
  merge     any(in=in1 keep=habcid wacancer cananyi cananyad cananyds cananydt)
      morethan1(in=in2 keep=habcid wacancer );
  by habcid wacancer;
  if in1;
  if in2 then cananyad=1;
  keep habcid cananyi cananyad cananyds cananydt;
run;
data any;
  set any;
  rename
   cananyi  = CANANYi
   cananyad = CANANYad
   cananyds = CANANYds
   cananydt = CANANYdt ;
run;
*--- Incident cancer - prostate.;
data wa;
  *--- Cancer adjudication.;
  set habcff.wa(keep=HABCID WADIAGDT WACANCER WACONF );
  *--- Keep only confirmed or possible.;
  if waconf in (1,8) and wacancer=32;
run;
proc sort data=wa;
  by habcid wadiagdt;
run;
data wa morethan1;
  set wa;
  by habcid wadiagdt;
  if not(first.habcid and last.habcid) then output morethan1;
  if first.habcid then output wa;
run;
*--- Set up dataset of prostate cancers other than first, keeping only confirmed
ones.
  These will be used to check if uncertain cancers are later confirmed.;
data morethan1;
  set morethan1;
  by habcid;
  if first.habcid then delete;
run;
*--- Confirmed events after the first event.;
```

```
data morethan1(keep=habcid wacancer wadiagdt);
  set morethan1;
  if waconf=1;
run;
*-- Keep first confirmed prostate cancer, after first event.;
proc sort nodupkey data=morethan1(keep=habcid wacancer);
  by habcid wacancer;
run;
data prs;
  merge y1prevdz(in=inbl keep=habcid y1pcanprs)
        wa      (in=inwa keep=habcid wacancer wadiagdt waconf)
        habc.ph(keep=habcid dtlastct cv1date hcgender);
  by habcid;
  if wacancer=32 then new=1;
  else new=0;
  if y1pcanprs=1 then old=1;
  else old=0;
       if new=0 and old=0 then canprsi=0;  *--- No cancer.;
  else if new=0 and old=1 then canprsi=1;  *--- Cancer survivor, no recurrence.;

  else if new=1 and old=0 then canprsi=2;  *--- Incident cancer.;
  else if new=1 and old=1 then canprsi=3;  *--- Recurrent event or second primary.;

  *--- No cancer during followup.;
  if canprsi in (0,1) then do;
     canprsad=.A;
         canprsds=.A;
         canprsdt=.A;
  end;
  *--- cancer during followup.;
  else if canprsi in (2,3) then do;
     if waconf=1 then canprsad=1; else
         if waconf=8 then canprsad=2;
         canprsds=wadiagdt-cv1date;
         canprsdt=wadiagdt;
  end;
  *--- N/A for females.;
  if hcgender=2 then do;
     canprsi=.A; canprsad=.A; canprsds=.A; canprsdt=.A;
  end;
  label canprsi ='Incid prostate cancer'
        canprsad='Incid prostate cancer, confirmation'
                canprsds='Incid prostate cancer, days to event'
                canprsdt='Incid prostate cancer, event date';
  format canprsi ican1f. canprsad adjfmt. canprsds 5. canprsdt mmddyy10.;
run;
*--- If first cancer is unconfirmed, check to see if it is later confirmed.
  If so, use original date but change confirmation to definite.;
```

```
data prs;
  merge     prs(in=in1 keep=habcid wacancer canprsi canprsad canprsds canprsdt)
      morethan1(in=in2 keep=habcid wacancer );
  by habcid wacancer;
  if in1;
  if in2 then canprsad=1;
  keep habcid canprsi canprsad canprsds canprsdt;
run;
data prs;
  set prs;
  rename
   canprsi  = CANPRSi
   canprsad = CANPRSad
   canprsds = CANPRSds
   canprsdt = CANPRSdt ;
run;
*--- Incident cancer - breast.;
data wa;
  *--- Cancer adjudication.;
  set habcff.wa(keep=HABCID WADIAGDT WACANCER WACONF );
  *--- Keep only confirmed or possible.;
  if waconf in (1,8) and wacancer=7;
run;
proc sort data=wa;
  by habcid wadiagdt;
run;
data wa morethan1;
  set wa;
  by habcid wadiagdt;
  if not(first.habcid and last.habcid) then output morethan1;
  if first.habcid then output wa;
run;
*--- Set up dataset of breast cancers other than first, keeping only confirmed
ones.
  These will be used to check if uncertain cancers are later confirmed.;
data morethan1;
  set morethan1;
  by habcid;
  if first.habcid then delete;
run;
*--- Confirmed events after the first event.;
data morethan1(keep=habcid wacancer wadiagdt);
  set morethan1;
  if waconf=1;
run;
*--- Keep first confirmed breast cancer, after first event.;
proc sort nodupkey data=morethan1(keep=habcid wacancer);
  by habcid wacancer;
```

```
run;
data brst;
  merge y1prevdz(in=inbl keep=habcid y1pcanbrst)
        wa      (in=inwa keep=habcid wacancer wadiagdt waconf)
        habc.ph(keep=habcid dtlastct cv1date);
  by habcid;
  if wacancer=7 then new=1;
  else new=0;
  if y1pcanbrst=1 then old=1;
  else old=0;
       if new=0 and old=0 then canbrsti=0;  *--- No cancer.;
  else if new=0 and old=1 then canbrsti=1;  *--- Cancer survivor, no recurrence.;

  else if new=1 and old=0 then canbrsti=2;  *--- Incident cancer.;
  else if new=1 and old=1 then canbrsti=3;  *--- Recurrent event or second
primary.;
  *--- No cancer during followup.;
  if canbrsti in (0,1) then do;
    canbrstad=.A;
        canbrstds=.A;
        canbrstdt=.A;
  end;
  *--- Cancer during followup.;
  else if canbrsti in (2,3) then do;
         if waconf=1 then canbrstad=1;
    else if waconf=8 then canbrstad=2;
        canbrstds=wadiagdt-cv1date;
        canbrstdt=wadiagdt;
  end;
  label canbrsti ='Incid breast cancer'
        canbrstad='Incid breast cancer, confirmation'
                canbrstds='Incid breast cancer, days to event'
                canbrstdt='Incid breast cancer, event date'
    ;
  format canbrsti ican1f. canbrstad adjfmt. canbrstds 5. canbrstdt mmddyy10.;
run;
*--- If first cancer is unconfirmed, check to see if it is later confirmed.
  If so, use original date but change confirmation to definite.;
data brst;
  merge     brst(in=in1 keep=habcid wacancer canbrsti canbrstad canbrstds
canbrstdt)
       morethan1(in=in2 keep=habcid wacancer );
  by habcid wacancer;
  if in1;
  if in2 then canbrstad=1;
  keep habcid canbrsti canbrstad canbrstds canbrstdt;
run;
data brst;
```

```
  set brst;
  rename
   canbrsti  = CANBRSTi
   canbrstad = CANBRSTad
   canbrstds = CANBRSTds
   canbrstdt = CANBRSTdt ;
run;
*--- Incident cancer - lung.;
data wa;
  *--- Cancer adjudication.;
  set habcff.wa(keep=HABCID WADIAGDT WACANCER WACONF );
  *--- Keep only confirmed or possible.;
  if waconf in (1,8) and wacancer=20;
run;
proc sort data=wa;
  by habcid wadiagdt;
run;
data wa morethan1;
  set wa;
  by habcid wadiagdt;
  if not(first.habcid and last.habcid) then output morethan1;
  if first.habcid then output wa;
  run;
*--- Set up dataset of lung cancers other than first, keeping only confirmed ones.
  These will be used to check if uncertain cancers are later confirmed.;
data morethan1;
  set morethan1;
  by habcid;
  if first.habcid then delete;
run;
*--- Confirmed events after the first event.;
data morethan1(keep=habcid wacancer wadiagdt);
  set morethan1;
  if waconf=1;
run;
*--- Keep first confirmed lung cancer, after first event.;
proc sort nodupkey data=morethan1(keep=habcid wacancer);
  by habcid wacancer;
run;
data lung;
  merge y1prevdz(in=inbl keep=habcid y1pcanlung)
        wa      (in=inwa keep=habcid wacancer wadiagdt waconf)
        habc.ph(keep=habcid dtlastct cv1date);
  by habcid;
  if wacancer=20 then new=1;
  else new=0;
  if y1pcanlung=1 then old=1;
  else old=0;
```

```
       if new=0 and old=0 then canlungi=0;  *--- No cancer.;
  else if new=0 and old=1 then canlungi=1;  *--- Cancer survivor, no recurrence.;
  else if new=1 and old=0 then canlungi=2;  *--- Incident cancer.;
  else if new=1 and old=1 then canlungi=3;  *--- Recurrent event or second
primary.;
  *--- No cancer during followup.;
  if canlungi in (0,1) then do;
     canlungad=.A;
         canlungds=.A;
         canlungdt=.A;
  end;
  *--- Cancer during followup.;
  else if canlungi in (2,3) then do;
     if waconf=1 then canlungad=1; else
         if waconf=8 then canlungad=2;
         canlungds=wadiagdt-cv1date;
         canlungdt=wadiagdt;
  end;
  label canlungi='Incid lung cancer'
        canlungad='Incid lung cancer, confirmation'
                canlungds='Incid lung cancer, days to event'
                canlungdt='Incid lung cancer, event date';
  format canlungi ican1f. canlungad adjfmt. canlungds 5. canlungdt mmddyy10.;
  run;
*--- If first cancer is unconfirmed, check to see if it is later confirmed.
  If so, use original date but change confirmation to definite.;
data lung;
  merge     lung(in=in1 keep=habcid wacancer canlungi canlungad canlungds
canlungdt)
       morethan1(in=in2 keep=habcid wacancer );
  by habcid wacancer;
  if in1;
  if in2 then canlungad=1;
  keep habcid canlungi canlungad canlungds canlungdt;
run;
data lung;
  set lung;
  rename
   canlungi  = CANLUNGi
   canlungad = CANLUNGad
   canlungds = CANLUNGds
   canlungdt = CANLUNGdt ;
run;
*--- Incident cancer - colon.;
data wa;
  *--- Cancer adjudication.;
  set habcff.wa(keep=HABCID WADIAGDT WACANCER WACONF );
  *--- Keep only confirmed or possible.;
```

```
  if waconf in (1,8) and wacancer=9;
run;
proc sort data=wa;
  by habcid wadiagdt;
run;
data wa morethan1;
  set wa;
  by habcid wadiagdt;
  if not(first.habcid and last.habcid) then output morethan1;
  if first.habcid then output wa;
  run;
*--- Set up dataset of colon cancers other than first, keeping only confirmed ones.
  These will be used to check if uncertain cancers are later confirmed.;
data morethan1;
  set morethan1;
  by habcid;
  if first.habcid then delete;
run;
*--- Confirmed events after the first event.;
data morethan1(keep=habcid wacancer wadiagdt);
  set morethan1;
  if waconf=1;
run;
*--- Keep first confirmed colon cancer, after first event.;
proc sort nodupkey data=morethan1(keep=habcid wacancer);
  by habcid wacancer;
run;
data coln;
  merge y1prevdz(in=inbl keep=habcid y1pcancoln)
        wa      (in=inwa keep=habcid wacancer wadiagdt waconf)
        habc.ph(keep=habcid dtlastct cv1date);
  by habcid;
  if wacancer=9 then new=1;
  else new=0;
  if y1pcancoln=1 then old=1;
  else old=0;
       if new=0 and old=0 then cancolni=0;  *--- No cancer.;
  else if new=0 and old=1 then cancolni=1;  *--- Cancer survivor, no recurrence.;
  else if new=1 and old=0 then cancolni=2;  *--- Incident cancer.;
  else if new=1 and old=1 then cancolni=3;  *--- Recurrent event or second
primary.;
  *--- No cancer during followup.;
  if cancolni in (0,1) then do;
     cancolnad=.A;
         cancolnds=.A;
         cancolndt=.A;
  end;
  *--- cancer during followup.;
```

```
  else if cancolni in (2,3) then do;
     if waconf=1 then cancolnad=1; else
         if waconf=8 then cancolnad=2;
         cancolnds=wadiagdt-cv1date;
         cancolndt=wadiagdt;
  end;
  label cancolni ='Incid colon cancer'
        cancolnad='Incid colon cancer, confirmation'
                cancolnds='Incid colon cancer, days to event'
                cancolndt='Incid colon cancer, event date';
  format cancolni ican1f. cancolnad adjfmt. cancolnds 5. cancolndt mmddyy10.;
  run;
*--- If first cancer is unconfirmed, check to see if it is later confirmed.
  If so, use original date but change confirmation to definite.;
data coln;
  merge     coln(in=in1 keep=habcid wacancer cancolni cancolnad cancolnds
cancolndt)
      morethan1(in=in2 keep=habcid wacancer );
  by habcid wacancer;
  if in1;
  if in2 then cancolnad=1;
  keep habcid cancolni cancolnad cancolnds cancolndt;
run;
data coln;
  set coln;
  rename
   cancolni  = CANCOLNi
   cancolnad = CANCOLNad
   cancolnds = CANCOLNds
   cancolndt = CANCOLNdt ;
run;
*--- Year 6 hypertension.;
*--- this is the same as Frans ingcode and drugname method, Emily K., 2010/06/08.;
proc sort data=current.y6rxcalc(keep=habcid y6hbpdrg where=(y6hbpdrg=1))
out=hbpconf6 nodupkey;
  by habcid;
run;
data hbpconf6;
  merge hbpconf6(in=h) current.y6mifcod;
  by habcid;
  if h;
run;
proc print data=hbpconf6(where=(habcid=5055));
run;
*--- This separates out those that specifically mention hypertension as a reason
for use
  from those who do not.;
data conf6;
```

```
  set hbpconf6;
  if ((((index(upcase(Mifreas), 'B.P') > 0) or (index(upcase(Mifreas), 'B. P.') >
0)
   or (index(upcase(Mifreas), 'B/P') > 0) or (index(upcase(Mifreas), 'PRESSURE') >
0)
   or (index(upcase(Mifreas), 'PRSSURE') > 0) or (index(upcase(Mifreas), 'PRESSUE')
> 0)
   or (index(upcase(Mifreas), 'RPESSURE') > 0) or (index(upcase(Mifreas), 'BP') >
0)
   or (index(upcase(Mifreas), 'PRESURE') > 0) or (index(upcase(Mifreas),
'PRERSSURE') > 0)
   or (index(upcase(Mifreas), 'ORESSURE') > 0) or (index(upcase(Mifreas), 'BLOOD
P-RESSURE') > 0)
   or (index(upcase(Mifreas), 'BLOOD ESSURE') > 0) or (index(upcase(Mifreas),
'BLOOD PREESURE') > 0)
   or (index(upcase(Mifreas), 'BLOOD PREASSURE') > 0)
   or (index(upcase(Mifreas), 'PERSSURE') > 0) or (index(upcase(Mifreas), 'HIGH
BLOOD') > 0)
   or (index(upcase(Mifreas), 'HYPERTEN') > 0) or (index(upcase(Mifreas),
'HYPPERTENSION') > 0)
   or (index(upcase(Mifreas), 'HYPRTENSION') > 0) or (index(upcase(Mifreas), 'BLOOD
PRES') > 0)
   or (index(upcase(Mifreas), 'HTN') > 0)) and not (index(upcase(MIFREAS),
'EYE')>0))
   and (index(upcase(Mifreas),'BENIGN PROSTATIC HYPERTROPHY') le 0));
run;
proc print data=conf6(where=(habcid=5055));
run;
*--- reduce to one record per ppt.;
proc sort nodupkey data=conf6;
  by habcid;
run;
*--- Year 6 metabolic syndrome (only year available other than baseline).;
data METSYN6
  (rename=(
           metsyn6 =Y6METSYN
                   metsnum6=Y6METSNO
                   mets8yn6 =Y6METS8YN
                   mets8num6=Y6METS8NO
                   metshd  =Y6METSHD
                   metstg  =Y6METSTG
                   metsgl  =Y6METSGL
                   mets8tg  =Y6METS8TG
                   mets8gl  =Y6METS8GL
                   metsab  =Y6METSAB
                   metsbp  =Y6METSBP));
  merge current.Y6calc (keep=habcid f3ab sysbp diabp)
                current.biospecimens(keep=habcid hdl6 triglyc6 fast8trig6 glucose6
```

```
fast8glu6)
                current.Y6rxcalc (keep=habcid y6dibdrg y6hbpdrg)
                current.Y6clnvis (keep=habcid f5fast f6fast)
                current.ph(keep=habcid gender)
                conf6(keep=habcid in=FranHbpDrg);
  by habcid;
  *--- Fix for high HDL values.;
  *--- These are known to be high, but exact value is unknown.;
  if hdl6=-555 then hdl6=.H;

  *--- abdominal circumference criteria.;
  *--- for now use unimputed value, change to imputed when calculated.;
  if f3ab > 0 then metsab=0;
  if gender=1 and f3ab > 102 then metsab=1;
  if gender=2 and f3ab > 88 then metsab=1;
  if f3ab<0 then metsab=.M;

  *--- hdl criteria. Error in this commented out code.
     .H should be set to missing as new code below.*;
  *if hdl6 > 0 then metshd=0;
  *if gender = 1 and (0 < hdl6 < 40 or hdl6=.H) then metshd=1;
  *if gender = 2 and (0 < hdl6 < 50 or hdl6=.H) then metshd=1;
  *if hdl6<0 and hdl6 ne .H then metshd=.M;

   if hdl6<0 or hdl6=.H then metshd=.M;
   else if hdl6 > 0 then metshd=0;
   if gender = 1 and (0 < hdl6 < 40) then metshd=1;
   if gender = 2 and (0 < hdl6 < 50) then metshd=1;

  *--- not fasting triglyceride criteria.;
  if 0<=triglyc6<=149  then metstg=0;
  else if triglyc6>=150 then metstg=1;
  else if triglyc6<0    then metstg=.M;

  *--- 8 hour fasting triglyceride criteria.;
  if 0<=fast8trig6<=149 or 0<=triglyc6<=149  then mets8tg=0;
  else if fast8trig6>=150 then mets8tg=1;
  else if fast8trig6<0    then mets8tg=.M;

  *--- not fasting glucose criteria.;
  if Y6dibdrg=1 then metsgl=1;
  else if Y6dibdrg <= 0 then do;
    if glucose6 >= 110 then metsgl=1;
        else if 0<=glucose6<=109 then metsgl=0;
        else metsgl=.M;
  end;

  *--- 8 hour fasting glucose criteria.;
```

```
  if Y6dibdrg=1 then mets8gl=1;
  else if Y6dibdrg <= 0 then do;
    if fast8glu6 >= 110 then mets8gl=1;
        else if 0<=fast8glu6<=109 or 0<=glucose6<=109 then mets8gl=0;
        else mets8gl=.M;
  end;

  *--- blood pressure criteria*;
  *--- Use Fran method of identifying medications used to treat
    hypertension rather than self report Y1HBPDRG for blood pressure
    component of metabolic syndrome, per Steve K email, 2010/06/08.;
  if sysbp > 0 and diabp > 0 then metsbp=0;
  if sysbp ge 130 then metsbp=1;
  if diabp ge 85 then metsbp = 1;
  if y6hbpdrg=1 and FranHbpDrg=1 then metsbp=1;
  if metsbp ne 1 and (sysbp<0 or diabp<0) then metsbp=.M;

  x = nmiss(metshd,metstg,metsgl,metsbp,metsab);
  y = sum(metshd,metstg,metsgl,metsbp,metsab);

  x8 = nmiss(metshd,mets8tg,mets8gl,metsbp,metsab);
  y8 = sum(metshd,mets8tg,mets8gl,metsbp,metsab);

  *--- define metabolic syndrome. If a person has a missing value then they are not
scored for
    metabolic syndrome, unless they are positive on 3 or more non-missing criteria
    in which case they do have metabolic syndrome.;
  metsyn6=0;
  if y > 2 then metsyn6=1;
  if x = 0 then metsnum6 = y;
  if metsyn6=0 and x > 0 then do;
    metsyn6=.M;
    metsno=.A;
  end;
  *--- give a number to those with a missing component but still qualify for the
syndrome.;
  if x > 0 and metsyn6=1 then metsnum6 = y;

  *--- define metabolic syndrome. If a person has a missing value then they are not
scored for
    metabolic syndrome, unless they are positive on 3 or more non-missing criteria
    in which case they do have metabolic syndrome.;
  mets8yn6=0;
  if y8 > 2 then mets8yn6=1;
  if x8 = 0 then mets8num6 = y8;
  if mets8yn6=0 and x8 > 0 then do;
    mets8yn6=.M;
    mets8no=.A;
```

```
  end;
  *--- give a number to those with a missing component but still qualify for the
syndrome.;
  if x8 > 0 and mets8yn6=1 then mets8num6 = y8;
run;
data metsyn6(keep=habcid Y6metsyn Y6mets8yn Y6metsab Y6metshd
                   Y6metstg Y6metsgl Y6mets8tg Y6mets8gl Y6metsbp Y6metsno
Y6mets8no);
  set metsyn6;
  label
      Y6metsyn='YR6:Metabolic syndrome'
          Y6metsno='YR6:# of metabolic syndrome criteria met'
          Y6mets8yn='YR6:Fasting Metabolic syndrome'
          Y6mets8no='YR6:# of Fasting metabolic syndrome criteria met'
          Y6metsab='YR6:Met abdominal circumference criterion'
          Y6metshd='YR6:Met HDL criterion'
          Y6metstg='YR6:Met triglyceride criterion'
          Y6metsgl='YR6:Met glucose criterion'
          Y6mets8tg='YR6:Met fasting triglyceride criterion'
          Y6mets8gl='YR6:Met fasting glucose criterion'
          Y6metsbp='YR6:Met blood pressure criterion';
        format Y6metsyn Y6mets8yn Y6metsab Y6metshd Y6metstg Y6metsgl Y6mets8tg
Y6mets8gl Y6metsbp ynb.
               Y6metsno Y6mets8no 1.;
run;
proc format;
  value glu
        000-099='000-099'
        100-125='100-125'
        126-high='126+';
  ;
  value hglu
        000-139='000-139'
        140-199='140-199'
        200-high='200+';
  ;
  value hgac
   0-5.6   ='NotImpaired'
   5.7-6.4 ='Impaired'
   6.5-high='Diabetic'
   ;
run;
title2 "Self Report, Drug Use, Y1pdiab1 = YR1:PREV CLIN DIABETES, SELF-RPT OR
MEDS";
proc freq data=prevdz;
  tables lbsgdiab*Y1dibdrg*Y1pdiab1 / list missing;
  format fast8glu1 glu. Y1adaepi DMEPIFMT. Y1ada2h  DM2HFMT. Y1pdiab1 YNFMT. ;
  label      Y1pdiab1    = "YR1:PREV CLIN DIABETES, SELF-RPT OR MEDS"
```

```
        Y1adaepi    = "YR1:PREV GLUCOSE INTOLERANCE (FG CRITER)"
        Y1ada2h     = "YR1:PREV GLUCOSE INTOLERANCE(FG+OGTT CR)" ;
run;
title2 "Y1pdiab1 = YR1:PREV CLIN DIABETES, All Glucose, Fasting Glucose, YR1:PREV
GLUCOSE INTOLERANCE (FG CRITER)";
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=prevdz;
  tables Y1pdiab1*glucose1*fast8glu1*y1adaepi / list missing;
  format glucose1 fast8glu1 glu. Y1adaepi DMEPIFMT. Y1ada2h  DM2HFMT. Y1pdiab1
YNFMT. ;
  label      Y1pdiab1    = "YR1:PREV CLIN DIABETES, SELF-RPT OR MEDS"
        Y1adaepi    = "YR1:PREV GLUCOSE INTOLERANCE (FG CRITER)"
        Y1ada2h     = "YR1:PREV GLUCOSE INTOLERANCE(FG+OGTT CR)" ;
run;
proc sort data=prevdz out=freq;
  by y1pdiab1;
run;
title2 "Y1pdiab1 = YR1:PREV CLIN DIABETES, All Gluc, 8hr Fasting Gluc, All 2hr
Gluc, 8hr Fasting 2hr Gluc, YR1:PREV GLUCOSE INTOLERANCE(FG+OGTT CR)";
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=freq;
  by y1pdiab1;
  tables glucose1*fast8glu1*hr_gluc1*h2gluc1*y1ada2h / list missing;
  format glucose1 fast8glu1 glu. h2gluc1 hr_gluc1 hglu. Y1adaepi DMEPIFMT. Y1ada2h
DM2HFMT. Y1pdiab1 YNFMT. ;
  label      Y1pdiab1    = "YR1:PREV CLIN DIABETES, SELF-RPT OR MEDS"
        Y1adaepi    = "YR1:PREV GLUCOSE INTOLERANCE (FG CRITER)"
        Y1ada2h     = "YR1:PREV GLUCOSE INTOLERANCE(FG+OGTT CR)" ;
run;
title2 "HG_A1C1_CAT = Diabetic by HGA1C1";
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=prevdz;
  *tables HG_A1C1 / list missing;
  tables y1ada2h*HG_A1C1 / missing;
  format glucose1 fast8glu1 glu. h2gluc1 hr_gluc1 hglu. Y1adaepi DMEPIFMT. Y1ada2h
DM2HFMT. Y1pdiab1 YNFMT. HG_A1C1  hgac. ;
  label      Y1pdiab1    = "YR1:PREV CLIN DIABETES, SELF-RPT OR MEDS"
        Y1adaepi    = "YR1:PREV GLUCOSE INTOLERANCE (FG CRITER)"
        Y1ada2h     = "YR1:PREV GLUCOSE INTOLERANCE(FG+OGTT CR)" ;
run;
*--- Y2-Y11 diabetes/glucose intolerance.;
data DMY2 ;
  merge current.ph(keep=habcid gender race vtype12 in=a)
        current.y2rxcalc(keep=habcid y2dibdrg)
        current.y2clnvis(keep=habcid BHFAST B5FAST cv2age BZSGDIAB)
        current.biospecimens(keep=habcid fast8glu2 glucose2 drawflag2)
        current.Y2COREHV(in=inchv keep=habcid Z1FAST ZASGDIAB )
        y1prevdz(keep=habcid y1adaepi y1ada2h);
```

```
  by habcid;
  if a;
  *--- HA1037,1155,1367, and 1422 had bogus year 2 med info (no visit).;
  if habcid in (1037,1155,1367,1422) then y2dibdrg=.A;
  *--- fill in from home visit.;
  *Todd, not necessary?; if b5fast<=.z and z1fast>.z then b5fast=z1fast ;
  if BZSGDIAB<=.z and ZASGDIAB>.z then  BZSGDIAB=ZASGDIAB ;
  *--- set to missing * ;
  if fast8glu2 in (-777,-999) then fast8glu2=.M;

  *--- Y2ADAEPI.;
  if y1adaepi in (2,3)              then y2adaepi=4;  *--- Baseline prevalent
diabetic.;
  *--- self report diabetic or diabetic drug use.;
  else if BZSGDIAB=1 or y2dibdrg=1   then y2adaepi=3;  *--- New dx diabetic.;
  *--- self report of not diabetic.;
  else if BZSGDIAB=0 then do;
    *--- diabetic drug use.;
    if y2dibdrg=1                   then y2adaepi=3;  *--- New dx diabetic.;
        *--- missing or no diabetic drug use.;
        else if y2dibdrg<=0 then do;
      if fast8glu2>=126             then y2adaepi=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu2<126    then y2adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu2<100
           or 0<=glucose2<100       then y2adaepi=0;  *--- Not impaired.;
      else if fast8glu2<0           then y2adaepi=0.5;  *--- self report of not
diabetic, no fasting glucose.;
    end;
  end;
  *--- self report of no, dont know, refused or missing.;
  else if BZSGDIAB in (7,8) or BZSGDIAB<0 then do;
    *--- diabetic drug use.;
    if y2dibdrg=1                   then y2adaepi=3;  *--- New dx diabetic.;
        *--- missing or no diabetic drug use.;
        else if y2dibdrg<=0 then do;
      if fast8glu2>=126             then y2adaepi=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu2<126    then y2adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu2<100
           or 0<=glucose2<100       then y2adaepi=0;  *--- Not impaired.;
      else if fast8glu2<0           then y2adaepi=.M; *--- Not measured or not
fasting.;
    end;
  end;
```

```
  *--- Y2ada2h.;
  if y1ada2h in (3,4)               then y2ada2h=4;  *--- Baseline prevalent
diabetic.;
  *--- self report diabetic or diabetic drug use.;
  else if BZSGDIAB=1 or y2dibdrg=1   then y2ada2h=3;  *--- New dx diabetic.;
  *--- self report of not diabetic.;
  else if BZSGDIAB=0 then do;
    *--- diabetic drug use.;
    if y2dibdrg=1                    then y2ada2h=3;  *--- New dx diabetic.;
        *--- missing or no diabetic drug use.;
        else if y2dibdrg<=0 then do;
      if fast8glu2>=126              then y2ada2h=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu2<126     then y2ada2h=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu2<100
           or 0<=glucose2<100        then y2ada2h=0;  *--- Not impaired.;
      else if fast8glu2<0            then y2ada2h=0.5;  *--- self report of not
diabetic, no fasting glucose.;
    end;
  end;
  *--- self report of no, dont know, refused or missing.;
  else if BZSGDIAB in (7,8) or BZSGDIAB<0 then do;
    *--- diabetic drug use.;
    if y2dibdrg=1                    then y2ada2h=3;  *--- New dx diabetic.;
        *--- missing or no diabetic drug use.;
        else if y2dibdrg<=0 then do;
      if fast8glu2>=126              then y2ada2h=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu2<126     then y2ada2h=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu2<100
           or 0<=glucose2<100        then y2ada2h=0;  *--- Not impaired.;
      else if fast8glu2<0            then y2ada2h=.M; *--- Not measured or not
fasting.;
    end;
  end;

  *--- Create labels.;
  label y2adaepi  = "Y2:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y2ada2h   = "Y2:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y2adaepi y2ada2h DMADAf. ;
run;
title2 'y2adaepi = Y2:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy2;
  tables y1adaepi*bzsgdiab*y2dibdrg*glucose2*fast8glu2*y2adaepi / list missing;
```

```
  format glucose2 fast8glu2 glu.;
run;
data dmy2 ;
  set dmy2 (keep=habcid y2adaepi y2ada2h) ;
  rename y2adaepi=Y2ADAEPI
         y2ada2h =Y2ADA2H;
run ;
data  DMY3 ;
  merge current.ph(keep=habcid gender race vtype24 in=a)
        current.y3rxcalc(keep=habcid y3dibdrg)
        current.y3clnvis(keep=habcid CLSGDIAB )
        current.Y3COREHV(keep=habcid ZCSGDIAB )
        current.y3proxy (keep=habcid YASGDIAB )
        dmy2    (keep=habcid y2adaepi y2ada2h );
  by habcid;
  if a;
  *--- HA2208 has bogus year 3 med info (was already deceased).;
  if habcid=2208 then y3dibdrg=.A;
  *--- fill in from home visit.;
  if CLSGDIAB<=.z and ZCSGDIAB>.z then  CLSGDIAB=ZCSGDIAB ;
  *--- fill in from proxy visit.;
  if CLSGDIAB<=.z and YASGDIAB>.z then  CLSGDIAB=YASGDIAB ;
  *--- Y3ADAEPI ***;
  if y2adaepi in (2,3,4)             then y3adaepi=4; *--- Previously diagnosed
diabetic.;
  else if (CLSGDIAB=1 or y3dibdrg=1) then y3adaepi=3; *--- New dxed diabetic.;
  else if CLSGDIAB=0 then do;
    *--- diabetic drug use.;
    if y3dibdrg=1                    then y3adaepi=3;  *--- New dx diabetic.;
    else if y3dibdrg<=0              then y3adaepi=0.5;  *--- Self report of Not
diabetic.;
  end;
  else if CLSGDIAB in (7,8) or CLSGDIAB<0 then do;
    *--- diabetic drug use.;
    if y3dibdrg=1                    then y3adaepi=3;  *--- New dx diabetic.;
    else if y3dibdrg<=0              then y3adaepi=.M; *--- Missing.;
  end;
  *--- y3ada2h.;
  if y2ada2h in (2,3,4)              then y3ada2h=4; *--- Previously diagnosed
diabetic.;
  else y3ada2h=y3adaepi;
    *--- Create labels.;
  label y3adaepi  = "Y3:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y3ada2h   = "Y3:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y3adaepi y3ada2h DMADA2f. ;
run;
title2 'y3adaepi = Y3:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
```

```
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy3;
  tables y2adaepi*CLSGDIAB*y3dibdrg*y3adaepi / list missing;
run;
data dmy3 ;
  set dmy3 (keep=habcid y3adaepi y3ada2h) ;
  rename y3adaepi=Y3ADAEPI
         y3ada2h =Y3ADA2H;
run ;
data DMY4 ;
  merge current.ph(keep=habcid vtype36 in=a)
        current.y4clnvis(keep=habcid d4FAST d5FAST daSGDIAB)
        current.biospecimens(keep=habcid fast8glu4 glucose4 drawflag4)
        current.Y4COREHV(in=inchv keep=habcid zcSGDIAB d5FAST
RENAME=(d5FAST=zcFAST))
        current.y4proxy (in=inproxy keep=habcid YASGDIAB d5fast
RENAME=(d5FAST=yaFAST))
        dmy3(keep=habcid y3adaepi y3ada2h );
  by habcid;
  if a;
  *--- fill in from home visit.;
  if daSGDIAB<=.z and zcSGDIAB>.z then  daSGDIAB=zcSGDIAB ;
  *--- fill in from proxy visit.;
  if daSGDIAB<=.z and yaSGDIAB>.z then  daSGDIAB=yaSGDIAB ;
  *--- set to missing.;
  if fast8glu4 in (-777,-999) then fast8glu4=.M;

  *--- Y4ADAEPI.;
  if y3adaepi in (2,3,4)         then y4adaepi=4;  *--- Baseline prevalent
diabetic.;
  else if daSGDIAB=1             then y4adaepi=3;  *--- New dxed diabetic.;
  *--- self report not diabetic.;
  else if daSGDIAB=0 then do;
    if fast8glu4>=126            then y4adaepi=2;  *--- Diabetic fasting glucose.;
      else if 100<=fast8glu4<126 then y4adaepi=1;  *--- Impaired fasting glucose.;
      else if 0<=fast8glu4<100
        or 0<=glucose4<100      then y4adaepi=0;  *--- Not impaired.;
      else if fast8glu4<0        then y4adaepi=0.5;  *--- Self report of not
diabetic, no fasting glucose.;
  end;
  else if dasgdiab<0 or dasgdiab in (7,8) then do;
    if fast8glu4>=126            then y4adaepi=2;  *--- Diabetic fasting glucose.;
      else if 100<=fast8glu4<126 then y4adaepi=1;  *--- Impaired fasting glucose.;
      else if 0<=fast8glu4<100
        or 0<=glucose4<100      then y4adaepi=0;  *--- Not impaired.;
      else if fast8glu4<0        then y4adaepi=.M; *--- Not measured or not
fasting.;
  end;
```

```
  *--- Y4ADA2H.;
  if y3ada2h in (2,3,4)          then y4ada2h=4; *--- Previously diagnosed
diabetic.;
  else y4ada2h=y4adaepi;
  *--- Create labels.;
  label y4adaepi  = "Y4:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y4ada2h   = "Y4:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y4adaepi y4ada2h DMADAf. ;
run;
title2 'y4adaepi = Y4:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy4;
  tables y3adaepi*daSGDIAB*glucose4*fast8glu4*y4adaepi / list missing;
  format glucose4 fast8glu4 glu.;
run;
data dmy4 ;
  set dmy4 (keep=habcid y4adaepi y4ada2h) ;
  rename y4adaepi=Y4ADAEPI
         y4ada2h =Y4ADA2H;
run ;
data  DMY5 ;
  merge current.ph      (keep=habcid vtype48 in=a)
        current.y5rxcalc(keep=habcid y5dibdrg)
        current.y5clnvis(keep=habcid ebSGDIAB)
        current.Y5COREHV(keep=habcid zcSGDIAB)
        current.y5proxy (keep=habcid YASGDIAB)
        dmy4        (keep=habcid y4adaepi y4ada2h );
  by habcid;
  if a;
  *--- fill in from home visit.;
  if ebSGDIAB<=.z and zcSGDIAB>.z then  ebSGDIAB=zcSGDIAB ;
  *--- fill in from proxy visit.;
  if ebSGDIAB<=.z and yaSGDIAB>.z then  ebSGDIAB=yaSGDIAB ;
  *--- Y5ADAEPI ***;
  if y4adaepi in (2,3,4)            then y5adaepi=4; *--- Previously diagnosed
diabetic.;
  else if (ebSGDIAB=1 or y5dibdrg=1) then y5adaepi=3; *--- New dxed diabetic.;
  else if ebSGDIAB=0 then do;
    *--- diabetic drug use.;
    if y5dibdrg=1                   then y5adaepi=3;  *--- New dx diabetic.;
    else if y5dibdrg<=0             then y5adaepi=0.5;  *--- Self report of Not
diabetic.;
  end;
  else if ebSGDIAB in (7,8) or ebSGDIAB<0 then do;
    *--- diabetic drug use.;
    if y5dibdrg=1                   then y5adaepi=3;  *--- New dx diabetic.;
    else if y5dibdrg<=0             then y5adaepi=.M; *--- Missing.;
```

```
  end;
  *--- y5ada2h.;
  if y4ada2h in (2,3,4)              then y5ada2h=4; *--- Previously diagnosed
diabetic.;
  else y5ada2h=y5adaepi;
    *--- Create labels.;
  label y5adaepi  = "Y5:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y5ada2h   = "Y5:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y5adaepi y5ada2h DMADA2f. ;
run;
title2 'y5adaepi = Y5:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy5;
  tables y4adaepi*ebSGDIAB*y5dibdrg*y5adaepi / list missing;
run;
data dmy5 ;
  set dmy5 (keep=habcid y5adaepi y5ada2h) ;
  rename y5adaepi=Y5ADAEPI
         y5ada2h =Y5ADA2H;
run ;
data  DMY6 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.y6rxcalc(keep=habcid y6dibdrg)
        current.y6clnvis(keep=habcid F5FAST F6FAST FBSGDIAB)
        current.biospecimens(keep=habcid fast8glu6 glucose6)
        current.Y6COREHV(in=inchv keep=habcid zcSGDIAB f6FAST
RENAME=(f6FAST=zcFAST))
        current.y6proxy (in=inproxy keep=habcid YASGDIAB f6fast
RENAME=(f6FAST=yaFAST))
        dmy5(keep=habcid y5adaepi y5ada2h);
  by habcid;
  if a;
  *--- fill in from home visit.;
  if FBSGDIAB<=.z and ZCSGDIAB>.z then  FBSGDIAB=ZCSGDIAB ;
  if FBSGDIAB<=.z and YASGDIAB>.z then  FBSGDIAB=YASGDIAB ;
  *--- set to missing.;
  if fast8glu6 in (-777,-999) then fast8glu6=.M;

  *--- Y6ADAEPI.;
  if y5adaepi in (3,4)           then y6adaepi=4;  *--- Baseline prevalent
diabetic.;
  else if FBSGDIAB=1 or y6dibdrg=1 then y6adaepi=3;  *--- New dxed diabetic.;
  *--- self report not diabetic.;
  else if FBSGDIAB=0 then do;
    if fast8glu6>=126            then y6adaepi=2;  *--- Diabetic fasting glucose.;
      else if 100<=fast8glu6<126 then y6adaepi=1;  *--- Impaired fasting glucose.;
      else if 0<=fast8glu6<100
```

```
       or 0<=glucose6<100      then y6adaepi=0;  *--- Not impaired.;
      else if fast8glu6<0       then y6adaepi=0.5;  *--- Self report of not
diabetic, no fasting glucose.;
  end;
  else if FBSGDIAB<0 or FBSGDIAB in (7,8) then do;
    if fast8glu6>=126           then y6adaepi=2;  *--- Diabetic fasting glucose.;
      else if 100<=fast8glu6<126 then y6adaepi=1;  *--- Impaired fasting glucose.;
      else if 0<=fast8glu6<100
        or 0<=glucose6<100      then y6adaepi=0;  *--- Not impaired.;
      else if fast8glu6<0       then y6adaepi=.M; *--- Not measured or not
fasting.;
  end;
  *--- Y6ADA2H.;
  if y5ada2h in (2,3,4)         then y6ada2h=4; *--- Previously diagnosed
diabetic.;
  else y6ada2h=y6adaepi;
  *--- Create labels.;
  label y6adaepi  = "Y6:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y6ada2h   = "Y6:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y6adaepi y6ada2h DMADAf. ;
run;
title2 'y6adaepi = Y6:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy6;
  tables y5adaepi*FBSGDIAB*glucose6*fast8glu6*y6dibdrg*y6adaepi / list missing;
  format glucose6 fast8glu6 glu.;
run;
data dmy6 ;
  set dmy6 (keep=habcid y6adaepi y6ada2h) ;
  rename y6adaepi=Y6ADAEPI
         y6ada2h =Y6ADA2H;
run ;
data  DMY7 ;
  merge current.ph(keep=habcid gender race vtype72 in=a)
        current.y7phone(keep=habcid GASGDIAB )
        current.y7proxy (keep=habcid YASGDIAB )
        dmy6    (keep=habcid y6adaepi y6ada2h );
  by habcid;
  if a;
  *--- fill in from proxy visit.;
  if GASGDIAB<=.z and YASGDIAB>.z then  GASGDIAB=YASGDIAB ;
  *--- Y7ADAEPI.;
  if y6adaepi in (2,3,4)     then y7adaepi=4;  *--- Previously diagnosed diabetic.;
  else if (GASGDIAB=1)       then y7adaepi=3;  *--- New dxed diabetic.;
  else if (GASGDIAB=0)       then y7adaepi=0.5;  *--- Not diabetic.;
  else                            y7adaepi=.M; *--- Unknown: No fasting glucose, no
Rx data.;
```

```
  *--- Y7ADA2H.;
  if y6ada2h in (2,3,4)      then y7ada2h=4; *--- Previously diagnosed diabetic.;
  else y7ada2h=y7adaepi;
  *--- Create labels.;
  label y7adaepi  = "Y7:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y7ada2h   = "Y7:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y7adaepi y7ada2h DMADA2f. ;
run;
title2 'y7adaepi = Y7:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy7;
  tables y6adaepi*GASGDIAB*y7adaepi / list missing;
run;
data dmy7 ;
  set dmy7 (keep=habcid y7adaepi y7ada2h) ;
  rename y7adaepi=Y7ADAEPI
         y7ada2h =Y7ADA2H;
run ;
data  DMY8 ;
  merge current.ph(keep=habcid vtype72 in=a)
        current.y8rxcalc(keep=habcid y8dibdrg)
        current.y8visit(keep=habcid rhSGDIAB)
        current.y8proxy (in=inproxy keep=habcid yaSGDIAB )
        dmy7(keep=habcid y7adaepi y7ada2h );
  by habcid;
  if a;
  *--- fill in from proxy visit.;
  if rhSGDIAB<=.z and yaSGDIAB>.z then  rhSGDIAB=yaSGDIAB ;
  *--- Y8ADAEPI.;
  if y7adaepi in (3,4)              then y8adaepi=4 ; *--- Baseline prevalent
diabetic.;
  else if (rhSGDIAB=1 or y8dibdrg=1) then y8adaepi=3; *--- New dxed diabetic.;
  else if rhSGDIAB=0 then do;
    *--- diabetic drug use.;
    if y8dibdrg=1                   then y8adaepi=3;  *--- New dx diabetic.;
    else if y8dibdrg<=0             then y8adaepi=0.5;  *--- Self report of Not
diabetic.;
  end;
  else if rhSGDIAB in (7,8) or rhSGDIAB<0 then do;
    *--- diabetic drug use.;
    if y8dibdrg=1                   then y8adaepi=3;  *--- New dx diabetic.;
    else if y8dibdrg<=0             then y8adaepi=.M; *--- Missing.;
  end;
  *--- y8ada2h.;
  if y7ada2h in (2,3,4)             then y8ada2h=4; *--- Previously diagnosed
diabetic.;
  else y8ada2h=y8adaepi;
```

```
  *--- Create labels.;
  label y8adaepi  = "Y8:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y8ada2h   = "Y8:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y8adaepi y8ada2h DMADA2f. ;
run;
title2 'y8adaepi = Y8:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy8;
  tables y7adaepi*rhSGDIAB*y8dibdrg*y8adaepi / list missing;
run;
data dmy8 ;
  set dmy8 (keep=habcid y8adaepi y8ada2h) ;
  rename y8adaepi=Y8ADAEPI
         y8ada2h =Y8ADA2H;
run ;
data  DMY9 ;
  merge current.ph(keep=habcid gender race vtype96 in=a)
        current.y9phone(keep=habcid rhSGDIAB )
        current.y9proxy (keep=habcid YASGDIAB )
        dmy8    (keep=habcid y8adaepi y8ada2h );
  by habcid;
  if a;
  *---fill in from proxy visit.;
  if rhSGDIAB<=.z and YASGDIAB>.z then  rhSGDIAB=YASGDIAB ;
  *--- Y9ADAEPI.;
  if y8adaepi in (3,4)     then y9adaepi=4;   *--- Previously diagnosed diabetic.;
  else if (rhSGDIAB=1)     then y9adaepi=3;   *--- New dxed diabetic.;
  else if (rhSGDIAB=0)     then y9adaepi=0.5; *--- Not diabetic.;
  else                          y9adaepi=.M;  *--- Unknown: No fasting glucose, no
Rx data.;
  *--- Y9ADA2H.;
  if y8ada2h in (2,3,4)              then y9ada2h=4; *--- Previously diagnosed
diabetic.;
  else y9ada2h=y9adaepi;
  *--- Create labels.;
  label y9adaepi  = "Y9:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y9ada2h   = "Y9:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y9adaepi y9ada2h DMADA2f. ;
run;
title2 'y9adaepi = Y9:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy9;
  tables y8adaepi*rhSGDIAB*y9adaepi / list missing;
run;
data dmy9 ;
  set dmy9 (keep=habcid y9adaepi y9ada2h) ;
```

```
  rename y9adaepi=Y9ADAEPI
         y9ada2h =Y9ADA2H;
run ;
data DMY10 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.y10rxcalc(keep=habcid y10dibdrg)
        current.y10visit(keep=habcid RHSGDIAB)
        current.biospecimens(keep=habcid fast8glu10 glucose10)
        current.y10proxy (in=inproxy keep=habcid YASGDIAB)
        dmy9(keep=habcid y9adaepi y9ada2h);
  by habcid;
  if a;
  *--- fill in from home visit.;
  if rhSGDIAB<=.z and yaSGDIAB>.z then  rhSGDIAB=yaSGDIAB ;
  *--- set to missing.;
  if fast8glu10 in (-777,-999) then fast8glu10=.M;

  *--- Y10ADAEPI.;
  if y9adaepi in (3,4)              then y10adaepi=4;   *--- Baseline prevalent
diabetic.;
  else if rhSGDIAB=1 or y10dibdrg=1 then y10adaepi=3;  *--- New dxed diabetic.;
  *--- self report not diabetic.;
  else if rhSGDIAB=0 then do;
    if fast8glu10>=126            then y10adaepi=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu10<126 then y10adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu10<100
        or 0<=glucose10<100       then y10adaepi=0;  *--- Not impaired.;
      else if fast8glu10<0        then y10adaepi=0.5;  *--- Self report of not
diabetic, no fasting glucose.;
  end;
  else if rhSGDIAB<0 or rhSGDIAB in (7,8) then do;
    if fast8glu10>=126            then y10adaepi=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu10<126 then y10adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu10<100
        or 0<=glucose10<100       then y10adaepi=0;  *--- Not impaired.;
      else if fast8glu10<0        then y10adaepi=.M; *--- Not measured or not
fasting.;
  end;
  *--- Y10ADA2H.;
  if y9ada2h in (2,3,4)           then y10ada2h=4; *--- Previously diagnosed
diabetic.;
  else y10ada2h=y10adaepi;
  *--- Create labels.;
  label y10adaepi  = "Y10:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
```

```
       y10ada2h   = "Y10:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y10adaepi y10ada2h DMADAf. ;
run;
title2 'y10adaepi = Y10:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy10;
  tables y9adaepi*rhSGDIAB*y10dibdrg*glucose10*fast8glu10*y10adaepi / list missing;
  format glucose10 fast8glu10 glu.;
run;
data dmy10 ;
  set dmy10 (keep=habcid y10adaepi y10ada2h) ;
  rename y10adaepi=Y10ADAEPI
         y10ada2h =Y10ADA2H;
run ;
data DMY11 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.y11rxcalc(keep=habcid y11dibdrg)
        current.y11visit(keep=habcid y11SGDIAB y11DIABET)
        current.biospecimens(keep=habcid fast8glu11 glucose11)
        current.y11proxy (in=inproxy keep=habcid YASGDIAB)
        dmy10(keep=habcid y10adaepi y10ada2h);
  by habcid;
  if a;
  *--- fill in from home visit.;
  if y11SGDIAB<=.z and yaSGDIAB>.z then  y11SGDIAB=yaSGDIAB ;
  *--- set to missing.;
  if fast8glu11 in (-777,-999) then fast8glu11=.M;

  *--- Y11ADAEPI.;
  if y10adaepi in (2,3,4)           then y11adaepi=4;   *--- Baseline prevalent
diabetic.;
  else if y11SGDIAB=1 or y11dibdrg=1 or y11DIABET =1 then y11adaepi=3;  *--- New
dxed diabetic.;
  *--- self report not diabetic.;
  else if y11SGDIAB=0 then do;
    if fast8glu11>=126            then y11adaepi=2;  *--- Diabetic fasting
glucose.;
      else if 100<=fast8glu11<126 then y11adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu11<100
        or 0<=glucose11<100       then y11adaepi=0;  *--- Not impaired.;
      else if fast8glu11<0        then y11adaepi=0.5;  *--- Self report of not
diabetic, no fasting glucose.;
  end;
  else if y11SGDIAB<0 or y11SGDIAB in (7,8) then do;
    if fast8glu11>=126            then y11adaepi=2;  *--- Diabetic fasting
glucose.;
```

```
      else if 100<=fast8glu11<126 then y11adaepi=1;  *--- Impaired fasting
glucose.;
      else if 0<=fast8glu11<100
        or 0<=glucose11<100       then y11adaepi=0;  *--- Not impaired.;
      else if fast8glu11<0        then y11adaepi=.M; *--- Not measured or not
fasting.;
  end;
  *--- Y11ADA2H.;
  if y10ada2h in (2,3,4)          then y11ada2h=4; *--- Previously diagnosed
diabetic.;
  else y11ada2h=y11adaepi;
  *--- Create labels.;
  label y11adaepi  = "Y11:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y11ada2h   = "Y11:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y11adaepi y11ada2h DMADAf. ;
run;
title2 'y11adaepi = Y11:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy11;
  tables y10adaepi*y11SGDIAB*y11DIABET*y11dibdrg*glucose11*fast8glu11*y11adaepi /
list missing;
  tables y11sgdiab*y11diabet / list missing;
  format glucose11 fast8glu11 glu.;
run;
data dmy11 ;
  set dmy11 (keep=habcid y11adaepi y11ada2h) ;
  rename y11adaepi=Y11ADAEPI
         y11ada2h =Y11ADA2H;
run ;
data DMY12 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.y12phone(keep=habcid y12SGDIAB)
        current.y12proxy (in=inproxy keep=habcid YASGDIAB)
        dmy11(keep=habcid y11adaepi y11ada2h);
  by habcid;

  if a;
  *--- fill in from proxy visit.;
  if y12SGDIAB<=.z and YASGDIAB>.z then  y12SGDIAB=YASGDIAB ;
  *--- Y12ADAEPI.;
  if y11adaepi in (2,3,4)     then Y12adaepi=4;  *--- Previously diagnosed
diabetic.;
  else if (y12SGDIAB=1)       then Y12adaepi=3;  *--- New dxed diabetic.;
  else if (y12SGDIAB=0)       then Y12adaepi=0.5;  *--- Not diabetic.;
  else                             Y12adaepi=.M; *--- Unknown: No fasting glucose,
no Rx data.;
  *--- Y12ADA2H.;
```

```
  if y11ada2h in (2,3,4)      then Y12ada2h=4; *--- Previously diagnosed diabetic.;
  else Y12ada2h=Y12adaepi;
  *--- Create labels.;
  label Y12adaepi  = "Y12:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        Y12ada2h   = "Y12:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format Y12adaepi Y12ada2h DMADA2f. ;
run;
title2 'y12adaepi = Y12:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy12;
  tables y11adaepi*y12SGDIAB*y12adaepi / list missing;
run;
data dmy12 ;
  set dmy12 (keep=habcid y12adaepi y12ada2h) ;
  rename y12adaepi=Y12ADAEPI
         y12ada2h =Y12ADA2H;
run ;
data DMY13 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.y13phone(keep=habcid y13SGDIAB)
        current.y13proxy (in=inproxy keep=habcid YASGDIAB)
        dmy12(keep=habcid y12adaepi y12ada2h);
  by habcid;
  if a;
  *--- fill in from proxy visit.;
  if y13SGDIAB<=.z and YASGDIAB>.z then  y13SGDIAB=YASGDIAB ;
  *--- y13ADAEPI.;
  if y12adaepi in (2,3,4)     then y13adaepi=4;  *--- Previously diagnosed
diabetic.;
  else if (y13SGDIAB=1)       then y13adaepi=3;  *--- New dxed diabetic.;
  else if (y13SGDIAB=0)       then y13adaepi=0.5;  *--- Not diabetic.;
  else                             y13adaepi=.M; *--- Unknown: No fasting glucose,
no Rx data.;
  *--- y13ADA2H.;
  if y12ada2h in (2,3,4)      then y13ada2h=4; *--- Previously diagnosed diabetic.;
  else y13ada2h=y13adaepi;
  *--- Create labels.;
  label y13adaepi  = "Y13:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        y13ada2h   = "Y13:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format y13adaepi y13ada2h DMADA2f. ;
run;
title2 'y13adaepi = y13:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmy13;
  tables y12adaepi*y13SGDIAB*y13adaepi / list missing;
run;
```

```
data dmy13 ;
  set dmy13 (keep=habcid y13adaepi y13ada2h) ;
  rename y13adaepi=Y13ADAEPI
         y13ada2h =Y13ADA2H;
run ;
data DMY14 ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.Y14phone(keep=habcid Y14SGDIAB)
        current.Y14proxy (in=inproxy keep=habcid YASGDIAB)
        dmy13(keep=habcid y13adaepi y13ada2h);
  by habcid;
  if a;
  *--- fill in from proxy visit.;
  if Y14SGDIAB<=.z and YASGDIAB>.z then  Y14SGDIAB=YASGDIAB ;
  *--- Y14ADAEPI.;
  if y13adaepi in (2,3,4)     then Y14adaepi=4;  *--- Previously diagnosed
diabetic.;
  else if (Y14SGDIAB=1)       then Y14adaepi=3;  *--- New dxed diabetic.;
  else if (Y14SGDIAB=0)       then Y14adaepi=0.5;  *--- Not diabetic.;
  else                             Y14adaepi=.M; *--- Unknown: No fasting glucose,
no Rx data.;
  *--- Y14ADA2H.;
  if y13ada2h in (2,3,4)      then Y14ada2h=4; *--- Previously diagnosed diabetic.;
  else Y14ada2h=Y14adaepi;
  *--- Create labels.;
  label Y14adaepi  = "Y14:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        Y14ada2h   = "Y14:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format Y14adaepi Y14ada2h DMADA2f. ;
run;
title2 'Y14adaepi = Y14:GLUCOSE STATUS (ADAEPI def of Y1 DM)';
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dmY14;
  tables y13adaepi*Y14SGDIAB*Y14adaepi / list missing;
run;
data dmY14 ;
  set dmY14 (keep=habcid Y14adaepi Y14ada2h) ;
  rename Y14adaepi=Y14ADAEPI
         Y14ada2h =Y14ADA2H;
run ;
%macro dm15plus(yq=,prior=);
%let yq_up=%upcase(&yq);
data DM&yq ;
  merge current.ph(keep=habcid vtype60 in=a)
        current.&yq._ppt (keep=habcid &yq._AUSGDIAB)
        current.&yq._proxy (in=inproxy keep=habcid &yq._V4SGDIAB)
                %if &yq=Y16Q1 %then %do;
                  current.y16rxcalc(keep=habcid y16dibdrg)
```

```
              %end;
       dm&prior(keep=habcid &prior.adaepi &prior.ada2h);
  by habcid;
  if a;
  *--- fill in from proxy visit.;
  if &yq._AUSGDIAB<=.z and &yq._V4SGDIAB>.z then  &yq._AUSGDIAB=&yq._V4SGDIAB ;
  *--- YQADAEPI.;
  if &prior.adaepi in (2,3,4)     then &yq.adaepi=4;  *--- Previously diagnosed
diabetic.;
  else if (&yq._AUSGDIAB=1)       then &yq.adaepi=3;  *--- New dxed diabetic.;
  %if &yq=Y16Q1 %then %do;
       else if y16dibdrg=1           then &yq.adaepi=3;  *--- New dxed diabetic.;
  %end;
  else if (&yq._AUSGDIAB=0)       then &yq.adaepi=0.5; *--- Not diabetic.;
  else                                  &yq.adaepi=.M; *--- Unknown: No fasting
glucose, no Rx data.;
  *--- YQADA2H.;
  if &prior.ada2h in (2,3,4)      then &yq.ada2h=4; *--- Previously diagnosed
diabetic.;
  else &yq.ada2h=&yq.adaepi;
  *--- Create labels.;
  label &yq.adaepi  = "&yq.:GLUCOSE STATUS (ADAEPI def of Y1 DM)"
        &yq.ada2h   = "&yq.:GLUCOSE STATUS (ADAEPI+OGTT def of Y1 DM)" ;
  *--- Add formats.;
  format &yq.adaepi &yq.ada2h DMADA2f. ;
run;
title2 "&yq.adaepi = &yq.:GLUCOSE STATUS (ADAEPI def of Y1 DM)";
title3 "0.5 = Self Reported Not Diabetic, No Fasting Glucose";
proc freq data=dm&yq;
  %if &yq=Y16Q1 %then %do;
       tables &prior.adaepi*&yq._AUSGDIAB*y16dibdrg*&yq.adaepi / list missing;
  %end;
  %else %do;
    tables &prior.adaepi*&yq._AUSGDIAB*&yq.adaepi / list missing;
  %end;
run;
data dm&yq ;
  set dm&yq (keep=habcid &yq.adaepi &yq.ada2h) ;
  rename &yq.adaepi=&yq_up.ADAEPI
         &yq.ada2h =&yq_up.ADA2H;
run ;
%mend dm15plus;
%dm15plus(yq=Y15Q1,prior=Y14);
%dm15plus(yq=Y15Q3,prior=Y15Q1);
%dm15plus(yq=Y16Q1,prior=Y15Q3);
%dm15plus(yq=Y16Q3,prior=Y16Q1);
%dm15plus(yq=Y17Q1,prior=Y16Q3);
%dm15plus(yq=Y17Q3,prior=Y17Q1);
```

```
*---
  Incident hypertension
  Calculated variables:
  YxHBP1: Reported hypertension
  YxHBP2: Physiological hypertension
  YxSHBP: Isolated systolic hypertension
  ;

*--- Year 2 hypertension.;
data htnY2;
  merge y1prevdz(keep=habcid y1phbp1 y1phbp2)
        current.y2calc(keep=habcid sysbp diabp)
        current.y2clnvis(keep=habcid bzhchbp)
        current.y2corehv(keep=habcid zahchbp)
        current.y2rxcalc(keep=habcid y2hbpdrg)
  ;
  by habcid;
  format y2hbp1 htn1f. y2hbp2 htn2f. y2shbp ynfmt.;
  *--- HA1037,1155,1367, and 1422 had bogus year 2 med info (no visit).;
  if habcid in (1037,1155,1367,1422) then y2hbpdrg=.A;
  *--- Y2 Incident Reported hypertension - Y2HBP1.;
       if y1phbp1 in (1,2) then y2hbp1=4;  *--- 4:History of HTN*;
  else if y1phbp1 le 0 then do;
    if bzhchbp=1 or zahchbp=1 then do;
      if y2hbpdrg=1          then y2hbp1=1;  *--- 1:Confirmed Y2 incident HTN.;
      else                        y2hbp1=2;  *--- 2:Possible Y2 incident HTN.;
    end;
    else                          y2hbp1=0;  *--- 0:No Y2 incident HTN.;
  end;
  if y2hbp1=0 and bzhchbp not in (0,1) and zahchbp not in (0,1)
                              then y2hbp1=.M; *--- Add code for missing data.;
  *--- Y2 Incident Hypertension (Physiological) - Y2HBP2;
  if y1phbp2=2                            then y2hbp2=3;  *--- 3:Baseline prevalent
HTN.;
  else if y1phbp2 ne 2 then do;
    if .z<sysbp<130 and .z<diabp<85      then y2hbp2=0;  *--- 0:Normal Y2 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y2hbp2=1;  *--- 1:High normal Y2 BP.;
    else if sysbp<=.z and diabp<=.z      then y2hbp2=.M; *--- .:Not measured.;
    else do;
                                              y2hbp2=2;  *--- 2:Incident Y2
physiological HTN.;
    end;
  end;
  if y2hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90        then y2shbp=1;  *--- isolated systolic
elevation.;
    else y2shbp=0;
  end;
```

```
  else do;
    y2shbp=.A;
  end;
  format y2hbp1 htn1f. y2hbp2 htn2f. y2shbp ynfmt.;
run;
*--- Year 3 hypertension.;
data htnY3;
  *--- EK added proxy data.;
  merge htnY2(keep=habcid y2hbp1 y2hbp2 y2shbp)
        current.y3calc(keep=habcid sysbp diabp)
        current.y3clnvis(keep=habcid clhchbp)
        current.y3corehv(keep=habcid zchchbp)
        current.y3rxcalc(keep=habcid y3hbpdrg)
        current.y3proxy (keep=habcid yahchbp)
  ;
  by habcid;
  *--- HA2208 has bogus year 3 med info (was already deceased).;
  if habcid=2208 then y3hbpdrg=.A;
  *--- Y3 Incident Reported Hypertension - Y2HBP1.;
  if y2hbp1 >=1 then y3hbp1=4;     *--- 4:History of HTN.;
  else do;
    *--- EK added proxy data;
    if clhchbp=1 or zchchbp=1 or yahchbp=1 then do;
      if y3hbpdrg=1  then y3hbp1=1; *--- 1:Confirmed Y3 incident HTN.;
      else                y3hbp1=2; *--- 2:Possible Y3 incident HTN.;
    end;
    else                  y3hbp1=0; *--- 0:No Y3 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y3hbp1=0 and clhchbp not in (0,1) and zchchbp not in (0,1) and yahchbp not in
(0,1) then y3hbp1=.M;

  *--- Y3 Incident hypertension (Physiological) - Y3HBP2.;
  if y2hbp2 in (2,3)                    then y3hbp2=3; *--- 3:Confirmed history of
physiological HTN.;
  else do;
    if .z<sysbp<130 and .z<diabp<85      then y3hbp2=0; *--- 0:Normal Y3 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y3hbp2=1; *--- 1:High normal Y3 BP.;
    else if sysbp<=.z and diabp<=.z      then y3hbp2=.M;*--- .:Not measured.;
    else do;
                                              y3hbp2=2; *--- 2:Incident Y3
physiological HTN.;
    end;
  end;
  if y3hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y3shbp=1;   *--- isolated systolic
elevation.;
    else y3shbp=0;
```

```
  end;
  else do;
    y3shbp=.A;
  end;
  format y3hbp1 htn1f. y3hbp2 htn2f. y3shbp ynfmt.;
run;
title 'htny3 - 1549';
proc print data=htny3(where=(habcid=1549));
run;
/*
data mhtn3;
  merge current.previncdz(keep=habcid y2hbp2 y3hbp2 Y3SHBP
rename=(y2hbp2=old_y2hbp2 y3hbp2=old_y3hbp2 y3shbp=old_y3shbp) in=c)
    htny3(keep=habcid y2hbp2 y3hbp2 y3shbp sysbp diabp clhchbp zchchbp yahchbp
in=h3);
        by habcid;
        if y3hbp2^=old_y3hbp2 or y3shbp^=old_y3shbp;
run;
title2 'Hypertension Y3HBP1 Differences';
proc print data=mhtn3;
  by habcid; id habcid;
  var _all_;
run;
*/
*--- Year 4 hypertension.;
*--- No med data in Year 4.;
data htnY4;
  merge htnY3(keep=habcid y3hbp1 y3hbp2 y3shbp)
        current.y4calc(keep=habcid sysbp diabp)
        current.y4clnvis(keep=habcid dahchbp)
        current.y4corehv(keep=habcid zchchbp)
        current.y4proxy (keep=habcid yahchbp);
  by habcid;
  if y3hbp1>=1 then y4hbp1=4; *--- Y4 Incident Reported hypertension - Y4HBP1 *;
  else do;
    if dahchbp=1 or zchchbp=1 or yahchbp=1 then do;
                  y4hbp1=2; *--- 2:Possible Y4 incident HTN.;
    end;
    else          y4hbp1=0; *--- 0:No Y4 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y4hbp1=0 and dahchbp not in (0,1) and zchchbp not in (0,1) and yahchbp not in
(0,1) then y4hbp1=.M;
  *--- Y4 Incident hypertension (Physiological) - Y4HBP2.;
  if y3hbp2 in (2,3)                    then y4hbp2=3; *--- 3:History of
physiological HTN.;
  else do;
    if .z<sysbp<130 and .z<diabp<85      then y4hbp2=0; *--- 0:Normal Y4 BP.;
```

```
    else if .z<sysbp<140 and .z<diabp<90 then y4hbp2=1; *--- 1:High normal Y4 BP.;
    else if sysbp<=.z and diabp<=.z      then y4hbp2=.M;*--- .:Not measured.;
    else do;
                                              y4hbp2=2; *--- 2:Incident Y4
physiological BP.;
    end;
  end;
  if y4hbp2 in (2,3) then do;
    *--- isolated systolic elevation.;
    if sysbp>=140 and .z<diabp<90 then y4shbp=1;
    else y4shbp=0;
  end;
  else do;
    y4shbp=.A;
  end;
  format y4hbp1 htn1f. y4hbp2 htn2f. y4shbp ynfmt.;
run;
*--- Year 5 hypertension.;
data htnY5;
  merge htnY4           (keep=habcid Y4hbp1 y4hbp2 y4shbp)
        current.y5calc  (keep=habcid sysbp diabp)
        current.y5clnvis(keep=habcid ebhchbp)
        current.y5corehv(keep=habcid zchchbp)
        current.y5proxy (keep=habcid yahchbp)
        current.y5rxcalc(keep=habcid y5hbpdrg)
  ;
  by habcid;
  *--- Y5 Incident Reported hypertension - Y5HBP1.;
  if y4hbp1>=1      then y5hbp1=4; *4:History of HTN.;
  else do;
    if ebhchbp=1 or zchchbp=1 or yahchbp=1 then do;
      if y5hbpdrg=1 then y5hbp1=1;  *--- 1:Confirmed Y5 incident HTN.;
      else               y5hbp1=2;  *--- 2:Possible Y5 incident HTN.;
    end;
    else                 y5hbp1=0;  *--- 0:No Y5 incident HTN.;
  end;
  *--- Add code for missing data;
  if y5hbp1=0 and ebhchbp not in (0,1) and zchchbp not in (0,1) and yahchbp not in
(0,1) then y5hbp1=.M;
  *---  Y5 Incident hypertension (Physiological) - Y5HBP2.;
  if y4hbp2 in (2,3)                    then y5hbp2=3;  *--- 3:Confirmed history
of physiological HTN.;
  else do;
    if .z<sysbp<130 and .z<diabp<85      then y5hbp2=0;  *--- 0:Normal Y5 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y5hbp2=1;  *--- 1:High normal Y5 BP.;
    else if sysbp<=.z and diabp<=.z      then y5hbp2=.M; *--- .:Not measured.;
    else                                      y5hbp2=2;  *--- 2:Incident Y5
physiological BP.;
```

```
  end;
  if y5hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y5shbp=1; *--- isolated systolic elevation*;
    else y5shbp=0;
  end;
  else y5shbp=.A;
  format y5hbp1 htn1f. y5hbp2 htn2f. y5shbp ynfmt.;
run;
*--- Year 6 hypertension.;
data htnY6;
  merge htnY5           (keep=habcid y5hbp1 y5hbp2 y5shbp)
        current.y6calc  (keep=habcid sysbp diabp)
        current.y6clnvis(keep=habcid fbhchbp)
        current.y6corehv(keep=habcid zchchbp)
        current.y6proxy (keep=habcid yahchbp)
        current.y6rxcalc(keep=habcid y6hbpdrg)
  ;
  by habcid;
  *--- Y6 Incident Reported hypertension - Y6HBP1.;
  if y5hbp1>=1      then y6hbp1=4;        *--- 4:History of HTN.;
  else do;
    if fbhchbp=1 or zchchbp=1 or yahchbp=1 then do;
      if y6hbpdrg=1 then y6hbp1=1;     *--- 1:Confirmed Y6 incident HTN.;
      else y6hbp1=2;                   *--- 2:Possible Y6 incident HTN.;
    end;
    else y6hbp1=0;                     *--- 0:No Y6 incident HTN;
  end;
  *--- Add code for missing data;
  if y6hbp1=0 and fbhchbp not in (0,1)
              and zchchbp not in (0,1)
              and yahchbp not in (0,1) then y6hbp1=.M;   *--- Missing data;
   *--- Y6 Incident hypertension (Physiological) - Y6HBP2 .;
   if y5hbp2 in (2,3)                    then y6hbp2=3;      *--- 3:Confirmed
history of physiological HTN.;
   else do;
     if .z<sysbp<130 and .z<diabp<85      then y6hbp2=0;      *--- 0:Normal Y6 BP.;

     else if .z<sysbp<140 and .z<diabp<90 then y6hbp2=1;      *--- 1:High normal Y6
BP.;
     else if sysbp<=.z and diabp<=.z      then y6hbp2=.M;     *--- .:Not measured.;
     else do;
                                               y6hbp2=2;      *--- 2:Incident Y6
physiological BP.;
     end;
   end;
   if y6hbp2 in (2,3) then do;
     if sysbp>=140 and .z<diabp<90 then y6shbp=1;   *--- isolated systolic
elevation.;
```

```
    else y6shbp=0;
   end;
   else do;
     y6shbp=.A;
   end;
   format y6hbp1 htn1f. y6hbp2 htn2f. y6shbp ynfmt.;
run;
*--- Year 7 hypertension.;
data htnY7;
  merge htnY6(keep=habcid y6hbp1 y6hbp2 y6shbp)
        current.y7phone(keep=habcid gahchbp)
        current.y7proxy (keep=habcid yahchbp);
  by habcid;
  *--- Y7 Incident Reported hypertension - Y7HBP1.;
  if y6hbp1>=1 then y7hbp1=4; *--- 4:History of HTN.;
  else do;
    if gahchbp=1 or yahchbp=1 then do;
          *--- NOTE: Cannot confirm since no MIF.;
      y7hbp1=2;               *--- 2:Possible Y7 incident HTN.;
    end;
    else y7hbp1=0;            *--- 0:No Y7 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y7hbp1=0 and gahchbp not in (0,1)
              and yahchbp not in (0,1) then y7hbp1=.M;   *--- Missing data.;
  format y7hbp1 htn1f.;
run;
*--- Year 8 hypertension.;
data htnY8;
  merge htnY7           (keep=habcid y7hbp1 y6hbp2 y6shbp)
        current.y8calc  (keep=habcid sysbp diabp)
        current.y8visit (keep=habcid rhhchbp)
        current.y8proxy (keep=habcid yahchbp)
        current.y8rxcalc(keep=habcid y8hbpdrg y8alphablock y8alphamale)
  ;
  by habcid;

  *--- Y8 Incident Reported hypertension - Y8HBP1.;
  if y7hbp1>=1               then y8hbp1=4; *--- 4:History of HTN.;
  else do;
    *--- ppt reports hypertension.;
    if rhhchbp=1 or yahchbp=1 then do;
          *--- ppt reports has hypertension, so ok to use alphamale drug
indicator.;
      if y8hbpdrg=1
        or y8alphablock=1
        or y8alphamale=1     then y8hbp1=1; *--- 1:Confirmed Y8 incident HTN.;
      else                        y8hbp1=2; *--- 2:Possible Y8 incident HTN.;
```

```
    end;
    else                          y8hbp1=0; *--- 0:No Y8 incident HTN;
  end;
  *--- Add code for missing data;
  if y8hbp1=0
    and rhhchbp not in (0,1)
    and yahchbp not in (0,1) then y8hbp1=.M; *--- Missing data;
  *---  Y8 Incident hypertension (Physiological) - Y8HBP2 .;
  if y6hbp2 in (2,3) then y8hbp2=3;                    *--- 3:Confirmed history of
physiological HTN.;
  else do;
  if .z<sysbp<130 and .z<diabp<85 then y8hbp2=0;       *--- 0:Normal Y8 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y8hbp2=1; *--- 1:High normal Y8 BP.;
    else if sysbp<=.z and diabp<=.z then y8hbp2=.M;     *--- .:Not measured.;
    else do;
      y8hbp2=2;                                        *--- 2:Incident Y8
physiological BP.;
    end;
  end;
  if y8hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y8shbp=1; *--- isolated systolic elevation.;
    else y8shbp=0;
  end;
  else do;
    y8shbp=.A;
  end;
  format y8hbp1 htn1f. y8hbp2 htn2f. y8shbp ynfmt.;
run;

/*
data mhtn8;
  merge current.previncdz(keep=habcid y8hbp1 rename=(y8hbp1=old_y8hbp1) in=c)
    htny8(keep=habcid y8hbp1 y7hbp1 y6hbp2 y6shbp sysbp diabp rhhchbp yahchbp
y8hbpdrg y8alphablock y8alphamale in=h8);
        by habcid;
        if y8hbp1^=old_y8hbp1;
run;
title2 'Hypertension Y8HBP1 Differences';
proc print data=mhtn8;
  by habcid; id habcid;
  var _all_;
run;
proc freq data=mhtn8;
  tables rhhchbp*yahchbp*y8hbpdrg*y8alphablock*y8alphamale*y8hbp1 / list missing;
  tables y8hbp1*old_y8hbp1 / list missing;
run;
*/
*--- Year 9 hypertension.;
```

```
data htnY9;
  merge htnY8           (keep=habcid y8hbp1 y8hbp2 y8shbp)
        current.y9phone(keep=habcid rhhchbp)
        current.y9proxy (keep=habcid yahchbp);
  by habcid;
  *---  Y9 Incident Reported hypertension - Y9HBP1.;
  if y8hbp1>=1 then y9hbp1=4; *--- 4:History of HTN.;
  else do;
    if rhhchbp=1 or yahchbp=1 then do;
        *--- NOTE: Cannot confirm since no MIF.;
      y9hbp1=2;               *--- 2:Possible Y9 incident HTN.;
    end;
    else y9hbp1=0;            *--- 0:No Y9 incident HTN;
  end;
  *--- Add code for missing data;
  if y9hbp1=0 and rhhchbp not in (0,1)
              and yahchbp not in (0,1) then y9hbp1=.M;   *--- Missing data;
  format y9hbp1 htn1f.;
run;
/*
data mhtn9;
  merge current.previncdz(keep=habcid y9hbp1 rename=(y9hbp1=old_y9hbp1) in=c)
    htny9(keep=habcid y9hbp1 y8hbp1 rhhchbp yahchbp in=h9);
        by habcid;
        if y9hbp1^=old_y9hbp1;
run;
title2 'Hypertension Y9HBP1 Differences';
proc freq data=mhtn9;
  tables rhhchbp*yahchbp*y8hbp1*y9hbp1 / list missing;
  tables y9hbp1*old_y9hbp1 / list missing;
run;
*/
*--- Year 10 hypertension.;
data htnY10;
  merge htnY9           (keep=habcid y9hbp1 y8hbp2 y8shbp)
        current.y10calc  (keep=habcid sysbp diabp)
        current.y10visit (keep=habcid rhhchbp)
        current.y10proxy (keep=habcid yahchbp)
        current.y10rxcalc(keep=habcid y10hbpdrg y10alphablock y10alphamale)
  ;
  by habcid;
  *--- --- Y10 Incident Reported hypertension - Y10HBP1.;
  if y9hbp1>=1               then y10hbp1=4; *--- 4:History of HTN.;
  else do;
    *--- ppt reports hypertension.;
    if rhhchbp=1 or yahchbp=1 then do;
          *--- ppt reports has hypertension, so ok to use alphamale drug
indicator.;
```

```
      if y10hbpdrg=1
        or y10alphablock=1
        or y10alphamale=1     then y10hbp1=1; *--- 1:Confirmed Y10 incident HTN.;
      else                        y10hbp1=2; *--- 2:Possible Y10 incident HTN.;
    end;
    else                          y10hbp1=0; *--- 0:No Y10 incident HTN;
  end;
  *--- Add code for missing data;
  if y10hbp1=0
    and rhhchbp not in (0,1)
    and yahchbp not in (0,1) then y10hbp1=.M; *--- Missing data;
  *---  Y10 Incident hypertension (Physiological) - Y10HBP2 .;
  if y8hbp2 in (2,3) then y10hbp2=3;                    *--- 3:Confirmed history
of physiological HTN.;
  else do;
  if .z<sysbp<130 and .z<diabp<85 then y10hbp2=0;        *--- 0:Normal Y10 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y10hbp2=1; *--- 1:High normal Y10
BP.;
    else if sysbp<=.z and diabp<=.z then y10hbp2=.M;     *--- .:Not measured.;
    else do;
      y10hbp2=2;                                        *--- 2:Incident Y10
physiological BP.;
    end;
  end;
  if y10hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y10shbp=1; *--- isolated systolic
elevation.;
    else y10shbp=0;
  end;
  else do;
    y10shbp=.A;
  end;
  format y10hbp1 htn1f. y10hbp2 htn2f. y10shbp ynfmt.;
run;
*--- Year 11 hypertension.;
data htnY11;
  merge htnY10           (keep=habcid y10hbp1 y10hbp2 y10shbp)
        current.y11calc  (keep=habcid sysbp diabp)
        current.y11visit (keep=habcid y11hchbp)
        current.y11proxy (keep=habcid yahchbp)
        current.y11rxcalc(keep=habcid y11hbpdrg y11alphablock y11alphamale)
  ;
  by habcid;
  *--- --- Y11 Incident Reported hypertension - Y11HBP1.;
  if y10hbp1>=1               then y11hbp1=4; *--- 4:History of HTN.;
  else do;
    *--- ppt reports hypertension.;
    if y11hchbp=1 or yahchbp=1 then do;
```

```
         *--- ppt reports has hypertension, so ok to use alphamale drug
indicator.;
      if y11hbpdrg=1
        or y11alphablock=1
        or y11alphamale=1     then y11hbp1=1; *--- 1:Confirmed Y11 incident HTN.;
      else                        y11hbp1=2; *--- 2:Possible Y11 incident HTN.;
    end;
    else                          y11hbp1=0; *--- 0:No Y11 incident HTN;
  end;
  *--- Add code for missing data;
  if y11hbp1=0
    and y11hchbp not in (0,1)
    and yahchbp not in (0,1) then y11hbp1=.M; *--- Missing data;
  *---  Y11 Incident hypertension (Physiological) - Y11HBP2 .;
  if y10hbp2 in (2,3) then y11hbp2=3;                     *--- 3:Confirmed history
of physiological HTN.;
  else do;
  if .z<sysbp<130 and .z<diabp<85 then y11hbp2=0;        *--- 0:Normal Y11 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y11hbp2=1; *--- 1:High normal Y11
BP.;
    else if sysbp<=.z and diabp<=.z then y11hbp2=.M;     *--- .:Not measured.;
    else do;
      y11hbp2=2;                                         *--- 2:Incident Y11
physiological BP.;
    end;
  end;
  if y11hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y11shbp=1; *--- isolated systolic
elevation.;
    else y11shbp=0;
  end;
  else do;
    y11shbp=.A;
  end;
  format y11hbp1 htn1f. y11hbp2 htn2f. y11shbp ynfmt.;
run;
*--- Year 12 hypertension.;
data htnY12;
  merge htnY11           (keep=habcid y11hbp1 y11hbp2 y11shbp)
        current.y12phone (keep=habcid y12hchbp)
        current.y12proxy (keep=habcid yahchbp)
  ;
  by habcid;
  *--- y12 Incident Reported hypertension - y12HBP1.;
  if y11hbp1>=1 then y12hbp1=4; *--- 4:History of HTN.;
  else do;
    if y12hchbp=1 or yahchbp=1 then do;
          *--- NOTE: Cannot confirm since no MIF.;
```

```
      y12hbp1=2;              *--- 2:Possible y12 incident HTN.;
    end;
    else y12hbp1=0;           *--- 0:No y12 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y12hbp1=0 and y12hchbp not in (0,1)
              and yahchbp not in (0,1) then y12hbp1=.M;   *--- Missing data.;
  format y12hbp1 htn1f.;
run;
title2 "htn y12";
proc freq data=htny12;
  tables y11hbp1*y12hchbp*yahchbp*y12hbp1 / missing list;
run;
*--- Year 13 hypertension.;
data htnY13;
  merge htnY12           (keep=habcid y12hbp1)
        current.y13phone (keep=habcid y13hchbp)
        current.y13proxy (keep=habcid yahchbp)
  ;
  by habcid;
  *--- y13 Incident Reported hypertension - y13HBP1.;
  if y12hbp1>=1 then y13hbp1=4; *--- 4:History of HTN.;
  else do;
    if y13hchbp=1 or yahchbp=1 then do;
          *--- NOTE: Cannot confirm since no MIF.;
      y13hbp1=2;              *--- 2:Possible y13 incident HTN.;
    end;
    else y13hbp1=0;           *--- 0:No y13 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y13hbp1=0 and y13hchbp not in (0,1)
              and yahchbp not in (0,1) then y13hbp1=.M;   *--- Missing data.;
  format y13hbp1 htn1f.;
run;
title2 "htn y13";
proc freq data=htny13;
  tables y12hbp1*y13hchbp*yahchbp*y13hbp1 / missing list;
run;
*--- Year 14 hypertension.;
data htnY14;
  merge htnY13           (keep=habcid y13hbp1)
        current.y14phone (keep=habcid y14hchbp)
        current.y14proxy (keep=habcid yahchbp)
  ;
  by habcid;
  *--- y14 Incident Reported hypertension - y14HBP1.;
  if y13hbp1>=1 then y14hbp1=4; *--- 4:History of HTN.;
  else do;
```

```
    if y14hchbp=1 or yahchbp=1 then do;
          *--- NOTE: Cannot confirm since no MIF.;
      y14hbp1=2;               *--- 2:Possible y14 incident HTN.;
    end;
    else y14hbp1=0;            *--- 0:No y14 incident HTN.;
  end;
  *--- Add code for missing data.;
  if y14hbp1=0 and y14hchbp not in (0,1)
              and yahchbp not in (0,1) then y14hbp1=.M;   *--- Missing data.;
  format y14hbp1 htn1f.;
run;
title2 "htn y14";
proc freq data=htny14;
  tables y13hbp1*y14hchbp*yahchbp*y14hbp1 / missing list;
run;
*--- Year 16 hypertension.;
data htnY16;
  merge htny11(keep=habcid y11hbp2)
        current.y16cvcalc(keep=habcid sysbp diabp)
  ;
  by habcid;

  *---  Y16 Incident hypertension (Physiological) - Y16HBP2 .;
  if y11hbp2 in (2,3) then y16hbp2=3;                    *--- 3:Confirmed history
of physiological HTN.;
  else do;
  if .z<sysbp<130 and .z<diabp<85 then y16hbp2=0;        *--- 0:Normal Y11 BP.;
    else if .z<sysbp<140 and .z<diabp<90 then y16hbp2=1; *--- 1:High normal Y11
BP.;
    else if sysbp<=.z and diabp<=.z then y16hbp2=.M;     *--- .:Not measured.;
    else do;
      y16hbp2=2;                                         *--- 2:Incident Y11
physiological BP.;
    end;
  end;
  if y16hbp2 in (2,3) then do;
    if sysbp>=140 and .z<diabp<90 then y16shbp=1; *--- isolated systolic
elevation.;
    else y16shbp=0;
  end;
  else do;
    y16shbp=.A;
  end;
  format y16hbp2 htn2f. y16shbp ynfmt.;
run;
title2 "htn y16";
proc freq data=htny16;
  tables y11hbp2*y16hbp2*y16shbp / missing list;
```

```
run;
%macro htn(yq=,prior=);
data htn&yq;
  merge htn&prior        (keep=habcid &prior.hbp1)
        current.&yq._ppt (keep=habcid &yq._AUHCHBP)
        current.&yq._proxy (keep=habcid &yq._V4HCHBP)
  ;
  by habcid;
  %*--- yq Incident Reported hypertension - yqHBP1.;
  if &prior.hbp1>=1 then &yq.hbp1=4; %*--- 4:History of HTN.;
  else do;
    if &yq._AUHCHBP=1 or &yq._V4HCHBP=1 then do;
          %*--- NOTE: Cannot confirm since no MIF.;
      &yq.hbp1=2;               %*--- 2:Possible yq incident HTN.;
    end;
    else &yq.hbp1=0;            %*--- 0:No yq incident HTN.;
  end;
  %*--- Add code for missing data.;
  if &yq.hbp1=0 and &yq._AUHCHBP not in (0,1)
              and &yq._V4HCHBP not in (0,1) then &yq.hbp1=.M;   %*--- Missing
data.;
  format &yq.hbp1 htn1f.;
run;
title2 "htn &yq";
proc freq data=htn&yq;
  tables &prior.hbp1*&yq._AUHCHBP*&yq._V4HCHBP*&yq.hbp1 / missing list;
run;
%mend htn;
%htn(yq=Y15Q1,prior=Y14);
%htn(yq=Y15Q3,prior=Y15Q1);
%htn(yq=Y16Q1,prior=Y15Q3);
%htn(yq=Y16Q3,prior=Y16Q1);
%htn(yq=Y17Q1,prior=Y16Q3);
%htn(yq=Y17Q3,prior=Y17Q1);
*--- Combines years 2 through y17q3.;
data IncHTN;
  merge htny2 htny3 htny4 htny5 htny6 htny7 htny8 htny9 htny10 htny11 htny12 htny13
htny14
    htnY15Q1 htnY15Q3 htnY16Q1 htnY16Q3 htnY17Q1 htnY17Q3 htnY16;
  by habcid;
  keep habcid  y2hbp1 y3hbp1 y4hbp1 y5hbp1 y6hbp1 y7hbp1 y8hbp1 y9hbp1 y10hbp1
y11hbp1
               y2hbp2 y3hbp2 y4hbp2 y5hbp2 y6hbp2        y8hbp2        y10hbp2
y11hbp2
               y2shbp y3shbp y4shbp y5shbp y6shbp        y8shbp        y10shbp
y11shbp
               y12hbp1 y13hbp1 y14hbp1 y15q1hbp1 y15q3hbp1 y16q1hbp1 y16q3hbp1
y17q1hbp1 y17q3hbp1
```

```
              y16hbp2 y16shbp;
  label y2hbp1 = 'Y2 Incid HTN reported'
        y3hbp1 = 'Y3 Incid HTN reported'
        y4hbp1 = 'Y4 Incid HTN reported'
        y5hbp1 = 'Y5 Incid HTN reported'
        y6hbp1 = 'Y6 Incid HTN reported'
        y7hbp1 = 'Y7 Incid HTN reported'
        y8hbp1 = 'Y8 Incid HTN reported'
        y9hbp1 = 'Y9 Incid HTN reported'
           y10hbp1 = 'Y10 Incid HTN reported'
           y11hbp1 = 'Y11 Incid HTN reported'
           y12hbp1 = 'Y12 Incid HTN reported'
           y13hbp1 = 'Y13 Incid HTN reported'
           y14hbp1 = 'Y14 Incid HTN reported'
           y15q1hbp1 = 'Y15Q1 Incid HTN reported'
           y15q3hbp1 = 'Y15Q3 Incid HTN reported'
           y16q1hbp1 = 'Y16Q1 Incid HTN reported'
           y16q3hbp1 = 'Y16Q3 Incid HTN reported'
           y17q1hbp1 = 'Y17Q1 Incid HTN reported'
           y17q3hbp1 = 'Y17Q3 Incid HTN reported'
        y2hbp2 = 'Y2 Incid HTN (Physiological)'
        y3hbp2 = 'Y3 Incid HTN (Physiological)'
        y4hbp2 = 'Y4 Incid HTN (Physiological)'
        y5hbp2 = 'Y5 Incid HTN (Physiological)'
        y6hbp2 = 'Y6 Incid HTN (Physiological)'
        y8hbp2 = 'Y8 Incid HTN (Physiological)'
           y10hbp2 = 'Y10 Incid HTN (Physiological)'
           y11hbp2 = 'Y11 Incid HTN (Physiological)'
           y16hbp2 = 'Y16 Incid HTN (Physiological)'
        y2shbp = 'Y2 Incid isolated Systolic HTN'
        y3shbp = 'Y3 Incid isolated Systolic HTN'
        y4shbp = 'Y4 Incid isolated Systolic HTN'
        y5shbp = 'Y5 Incid isolated Systolic HTN'
        y6shbp = 'Y6 Incid isolated Systolic HTN'
        y8shbp = 'Y8 Incid isolated Systolic HTN'
           y10shbp = 'Y10 Incid isolated Systolic HTN'
           y11shbp = 'Y11 Incid isolated Systolic HTN'
       y16shbp = 'Y16 Incid isolated Systolic HTN';
run;
data IncHTN;
  set IncHTN;
  rename y2hbp1 = Y2HBP1
         y3hbp1 = Y3HBP1
         y4hbp1 = Y4HBP1
         y5hbp1 = Y5HBP1
         y6hbp1 = Y6HBP1
         y7hbp1 = Y7HBP1
         y8hbp1 = Y8HBP1
```

```
          y9hbp1 = Y9HBP1
                   y10hbp1 = Y10HBP1
                   y11hbp1 = Y11HBP1
                   y12hbp1 = Y12HBP1
                   y13hbp1 = Y13HBP1
                   y14hbp1 = Y14HBP1
                   y15q1hbp1 = Y15Q1HBP1
                  y15q3hbp1 = Y15Q3HBP1
                  y16q1hbp1 = Y16Q1HBP1
                  y16q3hbp1 = Y16Q3HBP1
                  y17q1hbp1 = Y17Q1HBP1
                  y17q3hbp1 = Y17Q3HBP1
          y2hbp2 = Y2HBP2
          y3hbp2 = Y3HBP2
          y4hbp2 = Y4HBP2
          y5hbp2 = Y5HBP2
          y6hbp2 = Y6HBP2
          y8hbp2 = Y8HBP2
                   y10hbp2 = Y10HBP2
                   y11hbp2 = Y11HBP2
                   y16hbp2 = Y16HBP2
          y2shbp = Y2SHBP
          y3shbp = Y3SHBP
          y4shbp = Y4SHBP
          y5shbp = Y5SHBP
          y6shbp = Y6SHBP
          y8shbp = Y8SHBP
                   y10shbp = Y10SHBP
                   y11shbp = Y11SHBP
                   y16shbp = Y16SHBP
                   ;
RUN;
*---
  Incident depression
    Calculated variables:
    YxDEPR1: Incident treated depression
    YxDEPR4: Incident depression by short CES-D
;
*--- Year 2 incident treated depression.;
data y2dep;
  merge y1prevdz(keep=habcid y1pdepr1 y1pdepr4)
        current.y2rxcalc(keep=habcid y2depdrg)
        current.ph(keep=habcid gender race );
  by habcid;
  *--- HA1037,1155,1367, and 1422 had bogus year 2 med info (no visit);
  if habcid in (1037,1155,1367,1422) then y2depdrg=.A;
  if y1pdepr1 in (1,2,3) then do;
    if y2depdrg=1         then y2depr1=3;  *--- Ongoing or recurrent depression.;
```

```
    else if y2depdrg ne 1 then y2depr1=2;  *--- History of depression, not actively
treated.;
  end;
  else if y2depdrg=1      then y2depr1=1;  *--- Incident treated depression.;
  else if y2depdrg>.z     then y2depr1=0;  *--- No incident treated depression.;
  else                         y2depr1=.M; *--- Missing med data.;
run;
*--- Year 3 incident treated depression.;
data y3dep;
  merge y2dep
        current.y3rxcalc(keep=habcid y3depdrg)
        current.ph(keep=habcid gender race );
  by habcid;
  *--- HA2208 has bogus year 3 med info (was already deceased);
  if habcid=2208          then y3depdrg=.A;
  if y2depr1 in (1,2,3) then do;
    if y3depdrg=1         then y3depr1=3;  *--- Ongoing or recurrent depression.;
    else if y3depdrg ne 1 then y3depr1=2;  *--- History of depression, not actively
treated.;
  end;
  else if y3depdrg=1      then y3depr1=1;  *--- Incident treated depression.;
  else if y3depdrg>.z     then y3depr1=0;  *--- No incident treated depression.;
  else                         y3depr1=.M; *--- Missing med data.;
run;
*--- Year 5 incident treated depression.;
data y5dep;
  merge y3dep
        current.y5rxcalc(keep=habcid y5depdrg)
        current.ph(keep=habcid gender race vtype48);
  by habcid;
  if y3depr1 in (1,2,3) then do;
    if y5depdrg=1         then y5depr1=3;  *--- Ongoing or recurrent depression.;
    else if y5depdrg ne 1 then y5depr1=2;  *--- History or depression, not actively
treated.;
  end;
  else if y5depdrg=1      then y5depr1=1;  *--- Incident treated depression.;
  else if y5depdrg>.z     then y5depr1=0;  *--- No incident treated depression.;
  else                         y5depr1=.M; *--- Missing med data.;
run;
*--- Year 6 incident treated depression.;
data y6dep(keep=habcid y2depr1 y3depr1 y5depr1 y6depr1);
  merge y5dep
        current.y6rxcalc(keep=habcid y6depdrg)
        current.ph(keep=habcid gender race vtype48);
  by habcid;
  if y5depr1 in (1,2,3) then do;
    if y6depdrg=1         then y6depr1=3;  *--- Ongoing or recurrent depression.;
    else if y6depdrg ne 1 then y6depr1=2;  *--- History or depression, not actively
```

```
treated.;
  end;
  else if y6depdrg=1      then y6depr1=1;  *--- Incident treated depression.;
  else if y6depdrg>.z     then y6depr1=0;  *--- No incident treated depression.;
  else                         y6depr1=.M; *--- Missing med data.;
  label y2depr1='Y2 Incid depression (treated)'
        y3depr1='Y3 Incid depression (treated)'
        y5depr1='Y5 Incid depression (treated)'
        y6depr1='Y6 Incid depression (treated)';
  format y2depr1 y3depr1 y5depr1 y6depr1 depr1f.;
run;
data y6dep;
  set y6dep;
  rename y2depr1 = Y2DEPR1
         y3depr1 = Y3DEPR1
         y5depr1 = Y5DEPR1
         y6depr1 = Y6DEPR1;
run;
*--- Incident depression by CES_D10.;
data y3dep4;
  merge y1prevdz(keep=habcid y1pdepr4) current.y3calc(keep=habcid ces_d10
rename=(ces_d10=Y3CES_D10));
  by habcid;
  if y1pdepr4=1 then do;
    if Y3ces_d10>=10      then y3depr4=3;  *Ongoing or recurrent risk for
depression*;
    else if Y3ces_d10<10  then y3depr4=2;  *History of risk for depression;
  end;
  else if 0<=Y3ces_d10<10 then y3depr4=0;  *Not at risk*;
  else if Y3ces_d10>=10   then y3depr4=1;  *At risk for depression*;
  else if y3ces_d10<0     then y3depr4=.M; *Missing data.;
run;
title 'y3dep4';
proc freq data=y3dep4(where=(Y3CES_D10<0));
   tables y1pdepr4*y3ces_d10*y3depr4 / list missing nopct nocum;
   format y3depr4 depr4f.;
run;
data y4dep4;
  merge y3dep4 current.y4calc(keep=habcid ces_d10 rename=(ces_d10=Y4CES_D10));
  by habcid;
  if y3depr4 in (1,2,3) then do;
    if Y4ces_d10>=10      then y4depr4=3;  *Ongoing or recurrent risk for
depression;
    else if y4ces_d10<10  then y4depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y4ces_d10<10 then y4depr4=0;  *Not at risk*;
  else if y4ces_d10>=10   then y4depr4=1;  *At risk for depression*;
  else if y4ces_d10<0     then y4depr4=.M; *Missing data.;
```

```
run;
proc print data=y4dep4(where=(y4depr4=.M and y4ces_d10>.z));
run;
title 'Y4dep4 - Incident depression by ces_d10';
proc freq data=y4dep4;
  tables y3depr4*y4ces_d10*y4depr4 / list missing nopct nocum;
  format y3depr4 y4depr4 depr4f.;
run;
data y5dep4;
  merge y4dep4 current.y5calc(keep=habcid ces_d10 rename=(ces_d10=y5ces_d10));
  by habcid;
  if y4depr4 in (1,2,3) then do;
    if Y5ces_d10>=10      then y5depr4=3;  *Ongoing or recurrent risk for
depression;
    else if Y5ces_d10<10  then y5depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y5ces_d10<10 then y5depr4=0;  *Not at risk*;
  else if y5ces_d10>=10   then y5depr4=1;  *At risk for depression*;
  else if y5ces_d10<0     then y5depr4=.M; *Missing data.;
run;
proc print data=y5dep4(where=(y5depr4=.M and y5ces_d10>.z));
run;
data y6dep4(keep=habcid y3depr4   y4depr4   y5depr4   y6depr4
                        y3ces_d10 y4ces_d10 y5ces_d10 y6ces_d10 );
  merge y5dep4 current.y6calc(keep=habcid ces_d10 rename=(ces_d10=y6ces_d10));
  by habcid;
  if y5depr4 in (1,2,3) then do;
    if Y6ces_d10>=10      then y6depr4=3;  *Ongoing or recurrent risk for
depression;
    else if Y6ces_d10<10  then y6depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y6ces_d10<10 then y6depr4=0;  *Not at risk*;
  else if y6ces_d10>=10   then y6depr4=1;  *At risk for depression*;
  else if y6ces_d10<0     then y6depr4=.M; *Missing data;
run;
proc print data=y6dep4(where=(y6depr4=.M and y6ces_d10>.z));
run;
data y8dep4(keep=habcid y3depr4   y4depr4   y5depr4   y6depr4   y8depr4
                        y3ces_d10 y4ces_d10 y5ces_d10 y6ces_d10 y8ces_d10);
  merge y6dep4 current.y8calc(keep=habcid ces_d10 rename=(ces_d10=y8ces_d10));
  by habcid;
  if y6depr4 in (1,2,3) then do;
    if Y8ces_d10>=10      then y8depr4=3;  *Ongoing or recurrent risk for
depression;
    else if Y8ces_d10<10  then y8depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y8ces_d10<10 then y8depr4=0;  *Not at risk*;
  else if y8ces_d10>=10   then y8depr4=1;  *At risk for depression*;
```

```
  else if y8ces_d10<0     then y8depr4=.M; *Missing data;
run;
proc print data=y8dep4(where=(y8depr4=.M and y8ces_d10>.z));
run;
data y10dep4(keep=habcid y3depr4   y4depr4   y5depr4   y6depr4   y8depr4  y10depr4
                        y3ces_d10 y4ces_d10 y5ces_d10 y6ces_d10 y8ces_d10
y10ces_d10);
  merge y8dep4 current.y10calc(keep=habcid ces_d10 rename=(ces_d10=y10ces_d10));
  by habcid;
  if y8depr4 in (1,2,3) then do;
    if Y10ces_d10>=10      then y10depr4=3;  *Ongoing or recurrent risk for
depression;
    else if Y10ces_d10<10  then y10depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y10ces_d10<10 then y10depr4=0;  *Not at risk*;
  else if y10ces_d10>=10   then y10depr4=1;  *At risk for depression*;
  else if y10ces_d10<0     then y10depr4=.M; *Missing data;
run;
data y11dep4(keep=habcid y3depr4   y4depr4   y5depr4   y6depr4   y8depr4  y10depr4
y11depr4
  y3ces_d10 y4ces_d10 y5ces_d10 y6ces_d10 y8ces_d10 y10ces_d10 y11ces_d10 );
  merge y10dep4 current.y11calc(keep=habcid ces_d10 rename=(ces_d10=y11ces_d10));
  by habcid;
  if y10depr4 in (1,2,3) then do;
    if Y11ces_d10>=10      then y11depr4=3;  *Ongoing or recurrent risk for
depression;
    else if Y11ces_d10<10  then y11depr4=2;  *History of risk for depression*;
  end;
  else if 0<=y11ces_d10<10 then y11depr4=0;  *Not at risk*;
  else if y11ces_d10>=10   then y11depr4=1;  *At risk for depression*;
  else if y11ces_d10<0     then y11depr4=.M; *Missing data;
  label y3depr4='Y3 Incid depression (Short CES-D)'
        y4depr4='Y4 Incid depression (Short CES-D)'
        y5depr4='Y5 Incid depression (Short CES-D)'
        y6depr4='Y6 Incid depression (Short CES-D)'
        y8depr4='Y8 Incid depression (Short CES-D)'
               y10depr4='Y10 Incid depression (Short CES-D)'
               y11depr4='Y11 Incid depression (Short CES-D)'
    ;
  format y3depr4   y4depr4   y5depr4   y6depr4   y8depr4  y10depr4 y11depr4
depr4f.;
run;
data y11dep4;
  set y11dep4;
  rename y3depr4  =Y3DEPR4
         y4depr4  =Y4DEPR4
         y5depr4  =Y5DEPR4
         y6depr4  =Y6DEPR4
```

```
        y8depr4  =Y8DEPR4
                y10depr4  =Y10DEPR4
                y11depr4  =Y11DEPR4
  ;
RUN;
*--- NO DEPRESSION DATA YEARS 12, 13, 14.;
*--- Incident CHD/CVD
  Includes:  Incident MI
             CHD death during follow-up
             Incident coronary heart disease
             Incident stroke
             Incident cardiovascular disease
;
*--- Incident MI.;
data deaths1;
  set deaths(keep=habcid wgacd2);
  if wgacd2=1; *--- Definite fatal MI.;
run;
data MI;
  set events(keep=habcid wfdx01 wfadmdt);
  if wfdx01 in (1,2);
run;
proc sort data=MI;
  by habcid wfdx01 wfadmdt;
run;
*--- Keep first definite, or first possible if no definite.;
data MI;
  set MI;
  by habcid wfdx01 wfadmdt;
  if first.habcid;
run;
data incidMI;
  merge MI(in=inMI)
        deaths1(in=indeath)
        y1prevdz(keep=habcid y1pchd3)
        habc.ph(keep=habcid dod cv1date);
  by habcid;
  if wfdx01>0 or wgacd2=1 then do;
    if y1pchd3>0 then CHDMI=3; *--- Prev CHD with MI during f/u.;
    else              CHDMI=2; *--- Incident MI, no prev CHD.;
    if wfdx01=1 or wgacd2=1 then CHDMIAD=1; *--- Definite.;
    else if wfdx01=2        then CHDMIAD=2; *--- Possible.;
  end;
  else if wfdx01 not in (1,2) and wgacd2 ne 1 then do;
    if y1pchd3>0 then CHDMI=1; *--- Prev CHD, no MI during f/u.;
        else              CHDMI=0; *--- No prev CHD, no MI during f/u.;
        CHDMIds=.A; CHDMIdt=.A; CHDMIad=.A;
  end;
```

```
  if wfdx01=1      then CHDMIdt=wfadmdt; *--- Use dt of 1st definite event.;
  else if wgacd2=1 then CHDMIdt=dod;     *--- Use DOD if thats the 1st def MI.;
  else if wfdx01=2 then CHDMIdt=wfadmdt; *--- No def event - use poss event.;
  format CHDMIdt mmddyy10. CHDMIad adjfmt.;
  if CHDMI in (2,3) then CHDMIDS=CHDMIdt-CV1DATE;
  label CHDMI='Incid MI'
        CHDMIAD='Incid MI, confirmation'
                CHDMIDS='Incid MI, days to event'
                CHDMIDT='Incid MI, event date';
  format CHDmi cvdf. CHDMIad adjfmt. CHDMIdt mmddyy10.;
run;
title 'incidMI';
proc print data=incidMI(where=(habcid in (1049,1346,6199,1662,6483)));
run;
data incidMI;
  set incidMI;
  rename chdmi=CHDMI
         chdmiad=CHDMIad
         chdmids=CHDMIds
         chdmidt=CHDMIdt;
  keep habcid CHDMI CHDMIAD CHDMIDS CHDMIDT;
run;
data check;
  set incidMI;
  if CHDMI in (2,3) and (CHDMIds<0 or CHDMIdt<0);
run;
*--- CHD death during follow-up.;
data deaths2;
  set deaths(keep=habcid wgacd2 wgcause2);
  if wgcause2=1;
  *--- Fix for case where wgcause2=1, but wgacd2 is missing.;
  *--- Count as possible CHD.;
  if wgacd2<0 then wgacd2=3;
run;
data CHDdeath(keep=habcid chddth chddthad chddthds chddthdt);
  merge deaths2(in=in1)
      y1prevdz(in=in2 keep=habcid y1pchd3)
       habc.ph(keep=habcid dod dtlastct cv1date);
  by habcid;
  if wgcause2=1 then do;
     if y1pchd3>0 then CHDDTH=1; *--- CHD death, prevalent CHD,;
     else              CHDDTH=2; *--- Death from incident MI.;
     if wgacd2 in (1,2) then CHDDTHAD=1; *--- Definite.;
     else if wgacd2=3   then CHDDTHAD=2; *--- Possible.;
     else put wgcause2= wgacd2=;
  end;
  else CHDDTH=0; *--- No CHD death.;
  if CHDDTH ne 0 then do;
```

```
     CHDDTHDS=DOD-cv1date;
         CHDDTHdt=DOD;
  end;
  else do;
     CHDDTHDS=.A;
         CHDDTHdt=.A;
         CHDDTHad=.A;
  end;
  label CHDDTH  ='CHD death during follow-up'
        CHDDTHAD='CHD death, confirmation'
                CHDDTHDS='CHD death, days to event'
                CHDDTHDT='CHD death, event date';
  format CHDdth chddthf. CHDDTHad adjfmt. CHDDTHdt mmddyy10.;
run;
data chddeath;
  set chddeath;
  rename chddth=CHDDTH
         chddthad=CHDDTHad
         chddthds=CHDDTHds
         chddthdt=CHDDTHdt;
run;
*--- Coronary Heart Disease during follow-up.;
data chd(keep=habcid wfdx0102 wfadmdt);
  set events(keep=habcid wfdx01 wfdx02 wfadmdt);
  if wfdx01=1 or wfdx02=1 then wfdx0102=1; else
  if wfdx01=2 or wfdx02=2 then wfdx0102=2; else
     delete;
  run;
proc sort data=chd;
  by habcid wfdx0102 wfadmdt;
  run;
*--- Get first definite CHD hospitalization.;
data chd;
  set chd;
  by habcid wfdx0102 wfadmdt;
  if first.habcid;
  run;
data chd;
  merge chd(keep=habcid wfdx0102 wfadmdt)
        deaths2(keep=habcid wgacd2 wgcause2)
        habc.ph(keep=habcid dod cv1date)
        y1prevdz(keep=habcid y1pchd3);
  by habcid;
  if wfdx0102>0 or wgcause2=1 then do;
    if y1pchd3>0 then chdi=3; *--- Ongoing or recurrent CHD*;
    else              chdi=2; *--- Incident CHD*;
    if wfdx0102=1 then do;
      CHDdt=wfadmdt; *--- First definite CHD;
```

```
      CHDad=1;       *--- Definite;
        end;
        else if wfdx0102=2 and ((wgcause2 ne 1) or (wgcause2=1 and wgacd2 not in
(1,2))) then do;
      CHDdt=wfadmdt; *--- No definite, use 1st possible*;
          CHDad=2;       *--- Possible*;
    end;
    else if wgcause2=1 and wgacd2 in (1,2) then do;
      CHDdt=dod; *--- Death is 1st def CHD;
      CHDad=1;   *--- Definite CHD death*;
    end;
    else if wgcause2=1 and wgacd2 not in (1,2) then do;
      CHDdt=dod; *--- No def CHD pre-death;
      if wgacd2=3 then CHDad=2; *--- Possible CHD death*;
    end;
        CHDds=CHDdt-cv1date;
  end;
  else if wfdx0102 not in (1,2) and wgcause2 ne 1 then do;
    if y1pchd3>0 then chdi=1; *--- Prev CHD, not ongoing*;
    else chdi=0;              *--- No CHD*;
    chdds=.A; CHDdt=.A; CHDad=.A;
  end;
  label CHDI='Incid CHD'
        CHDAD='Incid CHD, confirmation'
                CHDDS='Incid CHD, days to event'
                CHDDT='Incid CHD, event date';
  format CHDi cvdf. CHDad adjfmt. CHDdt mmddyy10.;
run;
title 'CHD';
proc print data=chd(where=(habcid in (1124,1899,1660,1049,1063)));
run;
data chd;
  set chd;
  rename chdi =CHDi
         chdad=CHDad
         chdds=CHDds
         chddt=CHDdt;
  keep habcid CHDi CHDad CHDds CHDdt;
run;
*--- Incident stroke.;
data stroke;
  set events(keep=habcid wfdx06 wfadmdt);
  if wfdx06>0;
run;
proc sort data=stroke;
  by habcid wfdx06 wfadmdt;
run;
*--- Get first definite stroke hospitalization.;
```

```
data stroke;
  set stroke;
  by habcid wfdx06 wfadmdt;
  if first.habcid;
run;
data stroke(keep=habcid strokei strokead strokeds strokedt);
  merge stroke(keep=habcid wfdx06 wfadmdt)
        deaths(keep=habcid wgcause2)
        habc.ph(keep=habcid dod cv1date)
        y1prevdz(keep=habcid y1pcbvd)
        current.hprevdis(keep=habcid bstroke)
        current.oprevdis(keep=habcid pstroke);
  by habcid;
  if wfdx06>0 or wgcause2=2 then do;
    if y1pcbvd>0 or bstroke=1 or pstroke=1 then STROKEI=3; *--- Ongoing/recurrent.;
    else                                        STROKEI=2; *--- Incident.;
        if wfdx06=1 or wgcause2=2             then STROKEAD=1; *--- Definite.;
        else if wfdx06=2                      then STROKEAD=2; *--- Possible.;
  end;
  else do;
    if y1pcbvd>0 or bstroke=1 or pstroke=1 then STROKEI=1; *--- Prevalent.;
        else                                        STROKEI=0; *---None.;
  end;
  if wfdx06=1                         then STROKEdt=wfadmdt; *--- First definite
stroke.;
  else if wgcause2=2                     then STROKEdt=dod; *--- Death is 1st def
stroke.;
  else if wfdx06=2 and wgcause2 ne 2 then STROKEdt=wfadmdt; *--- No def stroke, use
possible.;
  else                                    STROKEdt=.A;      *--- No stroke.;
  STROKEds=STROKEdt-cv1date;
  if STROKEdt=.A then STROKEds=.A;
  if STROKEi in (0,1) then STROKEad=.A;
  label STROKEI='Incid stroke'
        STROKEAD='Incid stroke, confirmation'
                STROKEDS='Incid stroke, days to event'
                STROKEDT='Incid stroke, event date';
  format STROKEi cvdf. STROKEad adjfmt. STROKEdt mmddyy10.;
run;
data stroke;
  set stroke;
  rename strokei =STROKEi
         strokead =STROKEad
         strokeds=STROKEds
         strokedt=STROKEdt;
run;
*--- Incident cardiovascular disease.;
data cvd(keep=habcid CVDi CVDad CVDds CVDdt);
```

```
  merge stroke  (keep=habcid strokei strokeds strokedt strokead)
        chd     (keep=habcid chdi    chdds    chddt    chdad)
        y1prevdz(keep=habcid y1pcvd);
  by habcid;
  if strokei>1 or chdi>1 then do;
    if y1pcvd>0 then CVDI=3; *--- Ongoing/recurrent.;
        else             CVDI=2; *--- Incident.;
    if strokedt<0 then do;
          CVDds=CHDds; CVDdt=CHDdt; CVDad=CHDad;
        end;
    else if CHDdt<0 then do;
          CVDds=STROKEds; CVDdt=STROKEdt; CVDad=STROKEad;
        end;
    else if .z<strokedt<chddt or (strokead=1 and chdad=2) then do;
          CVDds=STROKEds; CVDdt=STROKEdt; CVDad=STROKEad;
        end;
    else if .z<chddt<strokedt or (strokead=2 and chdad=1) then do;
          CVDds=CHDds; CVDdt=CHDdt; CVDad=CHDad;
        end;
    else if chddt=strokedt then do;
          if chdad=1 and strokead ne 1 then do;
            CVDds=CHDds; CVDdt=CHDdt; CVDad=CHDad;
          end; else
          if strokead=1 then do;
            CVDds=STROKEds; CVDdt=STROKEdt; CVDad=STROKEad;
          end;
        end;
  end;
  else if strokei in (0,1) and chdi in (0,1) then do;
    if strokei=1 or chdi=1 then CVDI=1; *--- Prevalent.;
    else                        CVDI=0; *--- None.;
        CVDad=.A; CVDds=.A; CVDdt=.A;
  end;
  label CVDI ='Incid CVD'
        CVDAD='Incid CVD, confirmation'
        CVDDS='Incid CVD, days to event'
        CVDDT='Incid CVD, event date';
  format CVDdt mmddyy10. CVDi cvdf. CVDad adjfmt.;
run;
data cvd;
  set cvd;
  rename cvdi =CVDi
         cvdad=CVDad
         cvdds=CVDds
         cvddt=CVDdt ;
run;
data IncidDz;
  merge any prs brst lung coln
```

```
        metsyn6
        dmy2 dmy3 dmy4 dmy5 dmy6 dmy7 dmy8 dmy9 dmy10 dmy11 dmy12 dmy13 dmy14
                dmy15q1 dmy15q3 dmy16q1 dmy16q3 dmy17q1 dmy17q3
        inchtn
        y6dep y11dep4
        incidMI CHD CHDdeath stroke CVD
        habc.ph(keep=habcid dod cv1date dtlastct);
  by habcid;
run;
```