

Bazil LaBomascus Example Code
7.18.23

EXAMPLE ONE - For Publication:

```
Meanht = (ht_1_cm + ht_2_cm)/2;
Heightm = Meanht/100;
PPBMI = prepregwt / (Heightm**2);

/*creating PP BMI groups*/
If PPBMI < 30.0 then PPBMIGroup=0; else PPBMIGroup=1;

If PPBMI < 30.0 then PPBMIGrp2 = 0;
else If 30.0 <= PPBMI < 35.0 then PPBMIGrp2=1;
else if PPBMI >= 35.0 then PPBMIGrp2=2;

RateofGWGwk = ((Medrecordlastwt -
medrecordfirstwt)/(Medrecordlastwttega - medrecordfirstwttega));

MaternalBMI3rdT = Medrecordlastwt/(Heightm**2);

/*creating maternal ferritin groups*/
If vllabmaternalferritin < 12 then Matfergrpv1 =0; else Matfergrpv1
=1;

If v3labmaternalferritin < 12 then Matfergrpv3 =0; else Matfergrpv3
=1;

If vllabmaternalferritin < 20 then Matfergrpv120 =0; else
Matfergrpv120 =1;

If v3labmaternalferritin < 20 then Matfergrpv320 =0; else
Matfergrpv320 =1;

DietaryFe = Food_Iron_mg + Supp_Iron__mg_;

FoodFeper1000k = Food_Iron_mg/( Energy_kcal/1000);

/*Maternal TBI v1*/
Tfrchangeunitv1 = vllabmaternaltfr * 0.0738;
TfrunitmicroLV1 = TfrchangeunitV1 * 1000;
RFRatioV1 = TfrunitmicroLV1/ vllabmaternalferritin;
TBIV1 = (- (log10 (RFRatioV1) - 2.8229)/0.1207);

/*Maternal TBI v3*/
Tfrchangeunitv3 = v3labmaternaltfr * 0.0738;
TfrunitmicroLV3 = TfrchangeunitV3 * 1000;
RFRatioV3 = TfrunitmicroLV3/ v3labmaternalferritin;
TBIV3 = (- (log10 (RFRatioV3) - 2.8229)/0.1207);

/*TBI Cord*/
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Tfrchangeunitbaby = v3labcordtfr * 0.0738;
TfrunitmicroLcord = Tfrchangeunitbaby * 1000;
Rfratiocord = TfrunitmicroLcord/v3labcordferritin;
TBIcord = (- (log10 (Rfratiocord) - 2.8229)/0.1207);

Fpntfrrpratio = ferroportin/transferrinreceptor;
Fpntfrrnaratio = qpcrfpn1/ qpcrtfrc;

/*collapsing sociodemographic vars*/

If hhq37maritalstatus = 1 then martial = 1; else if
hhq37maritalstatus = 2 then marital =1; else marital = 0;

If hhq38employmentstatus = 0 then work = 1; else if
hhq38employmentstatus = 1 then work =1; else work = 0;

If hhq39education < 5 then educ = 0; else educ =1;

If race = 1 then racenew=1;
If race =2 then racenew =2;
If race =3 then racenew =3;
If race =4 then racenew =3;
If race =5 then racenew=3;

If medrecorddeliverymode < 6 then delivery = 0;else delivery=1;

/*obese vs. non-obese and IS and ID groups at V1 and V3*/
If PPBMIGroup=0 and Matfergrpv1 = 0 then BMIIRON = 0;
If PPBMIGroup=0 and Matfergrpv1 = 1 then BMIIRON =1;
If PPBMIGroup=1 and Matfergrpv1 = 0 then BMIIRON =2;
If PPBMIGroup=1 and Matfergrpv1 = 1 then BMIIRON =3;

If PPBMIGroup=0 and Matfergrpv3 = 0 then BMIIRON2 = 0;
If PPBMIGroup=0 and Matfergrpv3 = 1 then BMIIRON2 =1;
If PPBMIGroup=1 and Matfergrpv3 = 0 then BMIIRON2 =2;
If PPBMIGroup=1 and Matfergrpv3 = 1 then BMIIRON2 =3;

/*non-obese obese and extreme obese IS and ID groups at V1 and V3*/

If PPBMIGrp2 = 0 and Matfergrpv1 = 0 then BMIIRON3=0;
If PPBMIGrp2 = 0 and Matfergrpv1 = 1 then BMIIRON3=1;
If PPBMIGrp2 = 1 and Matfergrpv1 = 0 then BMIIRON3=2;
If PPBMIGrp2 = 1 and Matfergrpv1 = 1 then BMIIRON3=3;
If PPBMIGrp2 = 2 and Matfergrpv1 = 0 then BMIIRON3=4;
If PPBMIGrp2 = 2 and Matfergrpv1 = 1 then BMIIRON3=5;

If PPBMIGrp2 = 0 and Matfergrpv3 = 0 then BMIIRON4=0;
If PPBMIGrp2 = 0 and Matfergrpv3 = 1 then BMIIRON4=1;
If PPBMIGrp2 = 1 and Matfergrpv3 = 0 then BMIIRON4=2;
If PPBMIGrp2 = 1 and Matfergrpv3 = 1 then BMIIRON4=3;
If PPBMIGrp2 = 2 and Matfergrpv3 = 0 then BMIIRON4=4;
If PPBMIGrp2 = 2 and Matfergrpv3 = 1 then BMIIRON4=5;

```

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/*Smoke variable*/
If HHq34 = 4 then smoke=1; else smoke=0;

/* maternal stfr/log10 ferritin ratio at v1 and v3*/

stfrferratioV1 = v1labmaternalstfr / (log10(v1labmaternalferritin));
stfrferratioV3 = v3labmaternalstfr / (log10(v3labmaternalferritin));

/*maternal anemia at v1*/
If dosing_hgb < 11.0 then anemia =1; else anemia=0;

/*cord ferritin cut-off*/
    If v3labcordferritin <= 34 then cordferrgrp=1; else
        cordferrgrp=0;

/*natural log transformation*/;

lnPPBMI = log(PPBMI);
lnRateofGWGwk = log(RateofGWGwk + 2);
lnDietaryFe = log(DietaryFe);
lnFoodFeper1000k = log(FoodFeper1000k);
lnV3labmaternaliron = log(V3labmaternaliron);
lnV3labmaternaltsat = log(V3labmaternaltsat);
lnV3labmaternalferritin = log(V3labmaternalferritin);
lnV1labmaternalferritin = log(V1labmaternalferritin);
lnV3labmaternalhepcidin = log(V3labmaternalhepcidin + 1);
lnV1labmaternalhepcidin = log(V1labmaternalhepcidin + 1);
lnPlacentaht = log(Placentaht);
lnTBIV3 = log(TBIV3 + 10);
lnTBIV1 = log(TBIV1 + 10);
lnv1labmaternalstfr = log (v1labmaternalstfr);
lnv3labcordferritin = log (v3labcordferritin);
lnv3labcordhepcidin = log (v3labcordhepcidin);
lnv3labcordepo = log (v3labcordepo);
lnv3labcordtfr = log(v3labcordtfr);
lncordbloodhgb1 = log (cordbloodhgb1);
lnv3labmaternalepo = log(v3labmaternalepo);
lnv1labmaternalepo = log(v1labmaternalepo);
lnv3labmaternalil6 = log(v3labmaternalil6 + 1);
lnv1labmaternalil6 = log(v1labmaternalil6 + 1);
lnv1labmaternalhscrp = log (v1labmaternalhscrp);
lnmatexcessfe57= log(maternalassumedpercent +2);
lncordpercentexcess = log(cordpercentexcess+2);

```

****took the natural log because we wanted it to be more normally distributed**

EXAMPLE TWO:

```
libname WB4 "C:\Users\bbrain2\Documents\My SAS Files\BT 505\505";
```

```

data WB4.strsurv_baseline;
set WB4.strsurv_baseline;

/*create the MMSE variable as binary (low/high)*/
if MMSE0 le 25 then MMSE=0;
if MMSE0 gt 25 then MMSE=1;

/*combine coordinating months and years into date formats*/
start=mdy(month0,1,year0);
    format start mmddyy10.;
last=mdy(last0,1,lastyr);
    format last mmddyy10.;
death=mdy(deathmo,1,deathyr);
    format death mmddyy10.;

/*calculate survival time using death date and start date*/
survtime=INTCK('MONTH',start,death);

run;

proc contents varnum data=WB4.strsurv_baseline; run;

/*Q1-4*/
proc lifetest data= WB 4.strsurv_baseline plots=(s, lls)
outsurv= WB 4.wb4a; /*outsurv needs to be a different name since this creates a
different dataset*/
time survtime*status (0);
strata MMSE; /*this will stratify by MMSE=0 (low) vs MMSE=1 (high)*/
run;

    proc phreg;

    model MMSE0=survtime;

    run;

    proc phreg;

    model MMSE0=dementia survtime;

    run;

    proc phreg;

    model survtime=MMSE0 dementia;

    run;

```

The SAS System

The CONTENTS Procedure

Data Set Name	WB4.STRSURV_BASELINE	Observations	108
Member Type	DATA	Variables	15
Engine	V9	Indexes	0
Created	11/05/2018 13:40:47	Observation Length	120
Last Modified	11/05/2018 13:40:47	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label			
Data Representation	WINDOWS_64		
Encoding	wlatin1 Western (Windows)		

Engine/Host Dependent Information	
Data Set Page Size	65536
Number of Data Set Pages	1
First Data Page	1
Max Obs per Page	545

Obs in First Data Page	108
Number of Data Set Repairs	0
ExtendObsCounter	YES
Filename	C:\Users\bbrain2\Documents\My SAS Files\BT 505\505\strsurv_baseline.sas7bdat
Release Created	9.0401M3
Host Created	X64_DSRV12

Variables in Creation Order				
#	Variable	Type	Len	Format
1	dementia	Num	8	
2	status	Num	8	
3	lastmo	Num	8	
4	lastyr	Num	8	
5	deathmo	Num	8	
6	deathyr	Num	8	
7	month0	Num	8	
8	year0	Num	8	
9	mmse0	Num	8	

10	MMSE	Num	8	
11	start	Num	8	MMDDYY10.
12	last	Num	8	MMDDYY10.
13	last0	Num	8	
14	death	Num	8	MMDDYY10.
15	survtime	Num	8	

The SAS System

The LIFETEST Procedure

Stratum 1: MMSE = 0

Product-Limit Survival Estimates						
survtime		Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000		1.0000	0	0	0	23
12.0000		0.9565	0.0435	0.0425	1	22
13.0000		0.9130	0.0870	0.0588	2	21
14.0000		0.8696	0.1304	0.0702	3	20

15.0000		0.8261	0.1739	0.0790	4	19
17.0000		0.7826	0.2174	0.0860	5	18
32.0000		.	.	.	6	17
32.0000		.	.	.	7	16
32.0000		0.6522	0.3478	0.0993	8	15
34.0000		0.6087	0.3913	0.1018	9	14
37.0000		0.5652	0.4348	0.1034	10	13
38.0000		0.5217	0.4783	0.1042	11	12
39.0000		0.4783	0.5217	0.1042	12	11
40.0000		.	.	.	13	10
40.0000		0.3913	0.6087	0.1018	14	9
46.0000		0.3478	0.6522	0.0993	15	8
48.0000		0.3043	0.6957	0.0959	16	7
51.0000		0.2609	0.7391	0.0916	17	6
57.0000		.	.	.	18	5
57.0000		.	.	.	19	4
57.0000		0.1304	0.8696	0.0702	20	3
58.0000		0.0870	0.9130	0.0588	21	2
59.0000		0.0435	0.9565	0.0425	22	1

61.0000		0	1.0000	.	23	0
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Summary Statistics for Time Variable survtime

Quartile Estimates				
Percent	Point Estimate	95% Confidence Interval		
		Transform	[Lower	Upper)
75	57.0000	LOGLOG	40.0000	58.0000
50	39.0000	LOGLOG	32.0000	48.0000
25	32.0000	LOGLOG	12.0000	37.0000

Mean	Standard Error
38.6522	3.3731

The SAS System

The LIFETEST Procedure

Stratum 2: MMSE = 1

Product-Limit Survival Estimates						
survtime		Survival	Failure	Survival Standard Error	Number Failed	Number Left
0.0000		1.0000	0	0	0	15
16.0000		0.9333	0.0667	0.0644	1	14
17.0000		0.8667	0.1333	0.0878	2	13
24.0000		0.8000	0.2000	0.1033	3	12
25.0000		0.7333	0.2667	0.1142	4	11
27.0000		0.6667	0.3333	0.1217	5	10
32.0000		0.6000	0.4000	0.1265	6	9
34.0000		0.5333	0.4667	0.1288	7	8
42.0000		0.4667	0.5333	0.1288	8	7
45.0000		0.4000	0.6000	0.1265	9	6
49.0000		0.3333	0.6667	0.1217	10	5
59.0000		0.2667	0.7333	0.1142	11	4
60.0000		0.2000	0.8000	0.1033	12	3
61.0000		0.1333	0.8667	0.0878	13	2
65.0000		0.0667	0.9333	0.0644	14	1
66.0000		0	1.0000	.	15	0

Summary Statistics for Time Variable survtime

Quartile Estimates				
Percent	Point Estimate	95% Confidence Interval		
		Transform	[Lower	Upper)
75	60.0000	LOGLOG	42.0000	66.0000
50	42.0000	LOGLOG	24.0000	59.0000
25	25.0000	LOGLOG	16.0000	34.0000

Mean	Standard Error
41.4667	4.5959

Summary of the Number of Censored and Uncensored Values					
Stratum	MMSE	Total	Failed	Censored	Percent Censored
1	0	23	23	0	0.00
2	1	15	15	0	0.00
Total		38	38	0	0.00

Note: 70 observations with invalid time, censoring, or strata values were deleted.

The SAS System

The LIFETEST Procedure

Testing Homogeneity of Survival Curves for survtime over Strata

Rank Statistics		
MMSE	Log-Rank	Wilcoxon
0	3.6310	44.000
1	-3.6310	-44.000

Covariance Matrix for the Log-Rank Statistics		
MMSE	0	1
0	7.89028	-7.89028
1	-7.89028	7.89028

Covariance Matrix for		
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the Wilcoxon Statistics		
MMSE	0	1
0	4540.52	-4540.52
1	-4540.52	4540.52

Test of Equality over Strata			
Test	Chi-Square	DF	Pr > Chi-Square
Log-Rank	1.6710	1	0.1961
Wilcoxon	0.4264	1	0.5138
-2Log(LR)	0.0451	1	0.8319