

## SUPPORTING MATERIALS

The general SAS coding procedure for PROC MI using FCS statement is included. Tables 4 and 5 for FFP and Platelet utilization by Diagnosis (ICD category), Age and Gender are also included.

Supporting materials for “Multiple Imputation by Fully Conditional Specification for Dealing with Missing Data in a Large Epidemiologic Study” by authors Liu and De.

### EXAMPLE SAS CODE FOR PROC MI USING FCS STATEMENT

```
PROC MI      DATA=DATAIN MINIMUM=MINVALUE MAXIMUM=MAXVALUE ROUND=1
            NIMPUTE=m OUT=DATAOUT;
            CLASS Y1 Y2 Y3 Y4;
            FCS PLOTS=TRACE
                REG(X1/details)
                LOGISTIC(Y1/details);
            VAR X1-X3 Y1-Y4;

RUN;
```

MINIMUM or MAXIMUM is the command for specifying the bound value to be imputed for the variables, where you can specify a number for all the variables being imputed or only for certain ones. ROUND is to round the imputed values. NIMPUTE is to select the number of imputations ( $m$ ). X1-X3 and Y1-Y4 represent the continuous and categorical variables correspondingly. The FCS approach indicates what specific model to be used given the type of variable imputed. PLOTS=TRACE will display trace plots for worst linear function, variable means, variable variances, and covariances of variables. VAR statement shows the desired variables used in the imputation model.

**Table 4: FFP Utilization by Diagnosis (ICD Category), Age and Gender: A. FCS MI; B. CCA.**

A. FCS MI ICD category	Male						Female						Totals	
	0-14 years		15-49 years		50+ years		0-14 years		15-49 years		50+ years			
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI	n (units)	%
K. Gastrointestinal (K20-K93)	0.4	(0.2,0.6)	7.3	(6.4,8.2)	5.7	(4.6,6.8)	0.3	(0.1,0.4)	5.9	(4.8,7.1)	3.5	(2.9,4)	2,251	23.1
D. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	1.1	(0.9,1.4)	4.1	(3.6,4.6)	1.7	(1.3,2.1)	0.8	(0.5,1.1)	5.7	(5.1,6.3)	1.8	(1.5,2.2)	1,493	15.3
O. Pregnancy (O00-O99)	0	(0,0)	0	(0,0)	0	(0,0)	0.4	(0.2,0.6)	10.8	(10.1,11.5)	0.4	(0.2,0.6)	1,130	11.6
Surgical <sup>a</sup>	0.3	(0.1,0.5)	3.4	(2.5,4.3)	2.3	(1.7,3)	0.3	(0.2,0.5)	3.4	(2.7,4.1)	1.5	(1.1,2)	1,099	11.3
All others	3	(2.6,3.4)	12.2	(11.1,13.4)	5.9	(5,6.9)	1.8	(1.4,2.2)	12.4	(11.3,13.5)	3.4	(2.7,4)	3,778	38.7
													9,751	100.0

B. CCA	Male			Female			Totals	
	0-14 years	15-49 years	50+ years	0-14 years	15-49 years	50+ years	n (units)	%
	%	%	%	%	%	%		
K. Gastrointestinal (K20-K93)	0.3	6.0	4.1	0.3	4.3	2.5	1,016	17.5
D. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	1.2	4.2	1.7	0.5	6.1	2.0	959	15.7
O. Pregnancy (O00-O99)	0	0	0	0.0	15.1	0.2	932	15.3
Surgical <sup>a</sup>	0.3	3.0	2.0	0.4	3.1	1.3	614	10.0
All others	3.1	13.4	6.5	1.6	13.4	3.3	2,512	41.3
							6,082	100.0

<sup>a</sup> The "Surgical" category includes ICD-09CM codes: 01.0-05.9; 08.0-16.99; 28.0-28.99; 31.0-31.99; 41.1-41.5; 43.0-46.99; 51.0-51.99; 53.0-55.99; 57.0-57.99; 60.0-60.99; 65.0-71.9; 76.0-84.99; 86.0-86.99.

**Table 5: Platelet Utilization by Diagnosis (ICD Category), Age and Gender: A. FCS MI; B. CCA**

A. FCS MI	Male						Female						Totals	
	0-14 years		15-49 years		50+ years		0-14 years		15-49 years		50+ years		n (units)	%
	%	95%CI	%	95%CI	%	95%CI	%	95%CI	%	95%CI				
C. Malignant Neoplasms (C00-C97)	10.8	(9.6,11.9)	8.0	(6.9,9.1)	2.9	(2.2,3.6)	6.6	(5.7,7.6)	7.6	(6.4,8.8)	2.2	(1.6,2.8)	1,135	38.1
D. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	3.2	(2.4,3.9)	8.8	(7.7,9.8)	2	(1.5,2.6)	3.7	(2.9,4.4)	9.6	(8.4,10.7)	1.9	(1.4,2.5)	868	29.1
O. Pregnancy (O00-O99)	0	(0,0)	0	(0,0)	0	(0,0)	0.3	(0,0.6)	8.3	(7.3,9.3)	0.1	(0,0.3)	260	8.7
A/B. Infectious Disease (A00-B99)	0.6	(0.3,0.9)	1.9	(1.4,2.4)	0.5	(0.2,0.8)	0.7	(0.4,1)	1.8	(1.3,2.3)	0.2	(0,0.4)	170	5.7
All Others	2.8	(2.2,3.4)	4.3	(3.6,5.1)	2.6	(1.9,3.2)	2.1	(1.5,2.6)	4.6	(3.8,5.4)	2	(1.4,2.5)	545	18.3
													2,978	100.0

  

B. CCA	Male			Female			Totals	
	0-14 years	15-49 years	50+ years	0-14 years	15-49 years	50+ years	n (units)	%
	%	%	%	%	%	%		
C. Malignant Neoplasms (C00-C97)	11.4	6.0	2.5	6.5	5.3	1.7	759	33.4
D. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)	3.0	9.6	2.3	3.8	10.5	2.1	709	31.2
O. Pregnancy (O00-O99)	0	0	0	0.0	10.2	0.1	233	10.2
A/B. Infectious Disease (A00-B99)	0.4	1.9	0.5	0.7	1.9	0.2	128	5.6
All Others	3.0	4.5	2.8	1.9	4.8	2.2	437	19.2
							2,266	100.0