

Table X(?): Assessing statistical interactions for binary variables included in the linear regression model

	Regression Coefficient	95% CI	p-value
Use of Analgosedation Protocol (Year 2011 vs. 2013)	3.20	-90.02-96.43	0.95
Type of Admission			
Medical	82.48	15.13-149.82	0.02
Emergency Surgery	166.83	73.60-260.06	0.001
Statistical Interactions			
Use of Analgosedation Protocol (Year 2011 vs. 2013) and Medical Admission	-50.34	-151.42-50.74	0.33
Use of Analgosedation Protocol (Year 2011 vs. 2013) and Emergency Surgery Admission	-126.00	-265.56-13.55	0.08

Table X(?): Shapiro-Wilk test for normality of continuous data

Variable	p-value
Age	0.15
SAPS II score	0.88

Accept null hypothesis for both variables of normal distribution

Table X(?): Assessing heteroscedasticity for linear regression model

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity

$\chi^2$	50.77
p-value	<0.001

There is evidence of heteroscedasticity in the linear regression model



```
. ****model used in the paper****
. reg venthoursfromchart sedationprotocoluse age sapsiiscore priorcopd priorasthma priorotherlungdiseaselungca chf - medi
```

```
Linear regression                Number of obs   =      142
                                F(12, 129)     =      1.72
                                Prob > F            =     0.0696
                                R-squared           =     0.1845
                                Root MSE        =     101.02
```

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
venthoursfromchart						
sedationprotocoluse	-26.62026	9.278381	-2.87	0.005	-44.97776	-8.262751
age	-.822198	.7644968	-1.08	0.284	-2.334774	.6903777
sapsiiscore	.5385724	.5487137	0.98	0.328	-.5470711	1.624216
priorcopd	-.2331992	29.57133	-0.01	0.994	-58.7408	58.2744
priorasthma	60.71068	46.21139	1.31	0.191	-30.7197	152.141
priorotherlungdiseaselungca	31.5445	22.16636	1.42	0.157	-12.31219	75.40118
chf	13.10405	36.49837	0.36	0.720	-59.10887	85.31697
pneumonia	37.3588	24.03862	1.55	0.123	-10.2022	84.9198
aspriation	-19.49369	31.5902	-0.62	0.538	-81.99568	43.0083
copdexac	-7.15108	30.68831	-0.23	0.816	-67.86866	53.5665
medicaladmission	44.16947	22.22553	1.99	0.049	.195711	88.14323
unplannedsurgeryadmission	105.0657	47.26986	2.22	0.028	11.54113	198.5903
_cons	53631.12	18671.19	2.87	0.005	16689.72	90572.53

```
. ****Checking for inteactions: per stats editor***
. regress venthoursfromchart i.sedationprotocoluse i.medicaladmission i.unplannedsurgeryadmission year#medicaladmission y
```

```
Source |                SS          df           MS       Number of obs   =      142
-----|-----
Model |      214142.045            5      42828.409       F(5, 136)     =      4.16
Residual |      1400011            136     10294.1986       Prob > F      =     0.0015
-----|-----
Total |      1614153.05          141     11447.894       R-squared     =     0.1327
                                           Adj R-squared =     0.1008
                                           Root MSE     =     101.46
```

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
venthoursfromchart						
sedationprotocoluse						
yes	3.204545	47.14458	0.07	0.946	-90.02672	96.43581
1.medicaladmission	82.47628	34.05324	2.42	0.017	15.13393	149.8186
1.unplannedsurgeryadmission	166.8295	47.14458	3.54	0.001	73.59828	260.0608
year#medicaladmission						
2013 1	-50.33919	51.11197	-0.98	0.326	-151.4162	50.73784
year#unplannedsurgeryadmission						
2013 1	-126.0081	70.56901	-1.79	0.076	-265.5626	13.5464
_cons	59.54545	30.59144	1.95	0.054	-.9509783	120.0419

```
. ****There is no interaction demonstrated****
. reg venthoursfromchart sedationprotocoluse age sapsiiscore priorcopd priorasthma priorotherlungdiseaselungca chf -
note: plannedsurgeryadmission omitted because of collinearity
```

```
Source |                SS          df           MS       Number of obs   =      142
-----|-----
Model |      297800.316           12      24816.693       F(12, 129)     =      2.43
Residual |      1316352.73          129     10204.2848       Prob > F      =     0.0070
-----|-----
Total |      1614153.05          141     11447.894       R-squared     =     0.1845
                                           Adj R-squared =     0.1086
                                           Root MSE     =     101.02
```

	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
venthoursfromchart						
sedationprotocoluse	-26.62026	9.011916	-2.95	0.004	-44.45055	-8.789959
age	-.822198	.603136	-1.36	0.175	-2.015517	.3711214
sapsiiscore	.5385724	.6095803	0.88	0.379	-.6674972	1.744642
priorcopd	-.2331992	30.6461	-0.01	0.994	-60.86725	60.40086
priorasthma	60.71068	54.99586	1.10	0.272	-48.09997	169.5213
priorotherlungdiseaselungca	31.5445	20.70126	1.52	0.130	-9.413452	72.50245
chf	13.10405	29.1765	0.45	0.654	-44.62238	70.83048
pneumonia	37.3588	24.36769	1.53	0.128	-10.85326	85.57086
aspriation	-19.49369	34.80317	-0.56	0.576	-88.35262	49.36524
copdexac	-7.15108	40.79083	-0.18	0.861	-87.85673	73.55457
medicaladmission	44.16947	27.93996	1.58	0.116	-11.11043	99.44936
plannedsurgeryadmission	0	(omitted)				
unplannedsurgeryadmission	105.0657	37.02487	2.84	0.005	31.8111	178.3203
_cons	53631.12	18133.75	2.96	0.004	17753.05	89509.19

```
. ****Test for heteroscedasticity***
. estat hettest
```

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of venthoursfromchart

chi2(1) = 50.77
Prob > chi2 = 0.0000
```

```
. ****There is presence of heteroscedasticity****
```

```

. ****Model expressed as an ANOVA****
. anova venthoursfromchart age sapsiiscore priorasthma priorotherlungdiseaselungca chf pneumonia aspriation

```

```

          Number of obs =      142    R-squared      = 0.8399
          Root MSE      =    101.658    Adj R-squared = 0.0973

```

Source	Partial SS	df	MS	F	Prob>F
Model	1355795	116	11687.888	1.13	0.3743
age	497759.72	58	8582.0642	0.83	0.7247
sapsiiscore	676718.16	50	13534.363	1.31	0.2351
priorasthma	12577.934	1	12577.934	1.22	0.2804
priorothe~a	22342.415	1	22342.415	2.16	0.1539
chf	1136.841	1	1136.841	0.11	0.7429
pneumonia	810.05192	1	810.05192	0.08	0.7818
aspriation	3881.99	1	3881.99	0.38	0.5455
copdexac	501.35449	1	501.35449	0.05	0.8275
medicalad~n	38934.592	1	38934.592	3.77	0.0636
unplanned~n	31601.927	1	31601.927	3.06	0.0926
Residual	258358.08	25	10334.323		
Total	1614153	141	11447.894		

```

. ****Inferential test for normality of ANOVA****
. test age sapsiiscore priorasthma priorotherlungdiseaselungca chf pneumonia aspriation copdexac medicaladmi

```

Source	Partial SS	df	MS	F	Prob>F
age sapsiiscore priorasthma priorothe~a chf pneumonia aspriation etc.	1355795	116	11687.888	1.13	0.3743
Residual	258358.08	25	10334.323		

```

. ****accept the null of normality of ANOVA distribution
. ****since the linear regression model did not meet the assumption for homoscedasticity we will present a
> ed estimates****
. ****Model with robust standard errors****
. reg venthoursfromchart year age sapsiiscore priorcopd priorasthma priorotherlungdiseaselungca chf - medica

```

```

. ****accept the null of normality of ANOVA distribution
. ****since the linear regression model did not meet the assumption for homoscedasticity we will preser
> ed estimates****
. ****Model with robust standard errors****
. reg venthoursfromchart year age sapsiiscore priorcopd priorasthma priorotherlungdiseaselungca chf - me

```

```

Linear regression          Number of obs   =      142
                          F(12, 129)         =       1.72
                          Prob > F           =     0.0696
                          R-squared          =     0.1845
                          Root MSE        =    101.02

```

venthoursfromchart	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
sedationprotocoluse	-26.62026	9.278381	-2.87	0.005	-44.97776	-8.262751
age	-.822198	.7644968	-1.08	0.284	-2.334774	.6903777
sapsiiscore	.5385724	.5487137	0.98	0.328	-.5470711	1.624216
priorcopd	-.2331992	29.57133	-0.01	0.994	-58.7408	58.2744
priorasthma	60.71068	46.21139	1.31	0.191	-30.7197	152.141
priorotherlungdiseaselungca	31.5445	22.16636	1.42	0.157	-12.31219	75.40118
chf	13.10405	36.49837	0.36	0.720	-59.10887	85.31697
pneumonia	37.3588	24.03862	1.55	0.123	-10.2022	84.9198
aspriation	-19.49369	31.5902	-0.62	0.538	-81.99568	43.0083
copdexac	-7.15108	30.68831	-0.23	0.816	-67.86866	53.5665
medicaladmission	44.16947	22.22553	1.99	0.049	.195711	88.14323
unplannedsurgeryadmission	105.0657	47.26986	2.22	0.028	11.54113	198.5903
_cons	53631.12	18671.19	2.87	0.005	16689.72	90572.53

```

. end of do-file

```

# THD Intensive Care Unit Sedation and Analgesia Protocol (Expected Duration of Intubation > 24 hours)

**ONLY FOR USE IN PATIENTS ON MECHANICAL VENTILATION – See Order Set in EPIC**

**Exclusions to protocol include:** Therapeutic Hypothermia, Prone Positioning, Neuromuscular Blockade, Pressure Control Ventilation

