



Iteration 0: log likelihood = **-2636.4041**  
 Iteration 1: log likelihood = **-2636.3992**  
 Iteration 2: log likelihood = **-2636.3992**

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
<b>casecov</b> _cons	<b>15.88442</b>	<b>2.155772</b>	<b>7.37</b>	<b>0.000</b>	<b>11.65918</b>	<b>20.10965</b>
<b>casesd</b> _cons	<b>16.00798</b>	<b>1.499284</b>	<b>10.68</b>	<b>0.000</b>	<b>13.06944</b>	<b>18.94652</b>
<b>ctrlcov</b> _cons	<b>16.02786</b>	<b>.389415</b>	<b>41.16</b>	<b>0.000</b>	<b>15.26462</b>	<b>16.7911</b>
<b>ctrlsd</b> _cons	<b>9.897579</b>	<b>.275358</b>	<b>35.94</b>	<b>0.000</b>	<b>9.357887</b>	<b>10.43727</b>

Classifier : **niss**

Covariate control adjustment model:

Iteration 0: log likelihood = **-2854.4942**  
 Iteration 1: log likelihood = **-2854.4894**  
 Iteration 2: log likelihood = **-2854.4894**

	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
<b>casecov</b> _cons	<b>29.97368</b>	<b>2.368585</b>	<b>12.65</b>	<b>0.000</b>	<b>25.33134</b>	<b>34.61603</b>
<b>casesd</b> _cons	<b>17.40835</b>	<b>1.630441</b>	<b>10.68</b>	<b>0.000</b>	<b>14.21275</b>	<b>20.60396</b>
<b>ctrlcov</b> _cons	<b>22.44737</b>	<b>.5417729</b>	<b>41.43</b>	<b>0.000</b>	<b>21.38551</b>	<b>23.50922</b>
<b>ctrlsd</b> _cons	<b>13.76999</b>	<b>.3830913</b>	<b>35.94</b>	<b>0.000</b>	<b>13.01914</b>	<b>14.52083</b>

Status : **mortality**

ROC Model :

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
<b>iss</b>						
i_cons	<b>.9922812</b>	<b>.1057858</b>	<b>9.38</b>	<b>0.000</b>	<b>.7849448</b>	<b>1.199618</b>
s_cons	<b>.6182903</b>	<b>.0883031</b>	<b>7.00</b>	<b>0.000</b>	<b>.4452194</b>	<b>.7913612</b>
auc	<b>.8006619</b>	<b>.0249655</b>	<b>32.07</b>	<b>0.000</b>	<b>.7517305</b>	<b>.8495934</b>
<b>niss</b>						
i_cons	<b>1.721799</b>	<b>.2350689</b>	<b>7.32</b>	<b>0.000</b>	<b>1.261073</b>	<b>2.182526</b>
s_cons	<b>.7909989</b>	<b>.0744549</b>	<b>10.62</b>	<b>0.000</b>	<b>.6450699</b>	<b>.9369279</b>
auc	<b>.9115574</b>	<b>.0243633</b>	<b>37.42</b>	<b>0.000</b>	<b>.8638062</b>	<b>.9593087</b>

Ho: All classifiers have equal AUC values.

Ha: At least one classifier has a different AUC value.

P-value: **3.06e-12**

```

11 .
12 .
13 .
14 . *Comparing two independent ROCs

15 .
16 .
17 .
18 . logistic mortality niss if agegrp==1

```

```

Logistic regression              Number of obs      =           571
                                LR chi2(    1)        =          104.64
                                Prob > chi2           =           0.0000
Log likelihood = -79.307088      Pseudo R2         =           0.3975

```

mortality	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
niss	1.106899	.0137518	8.17	0.000	1.080272	1.134183
_cons	.0014084	.0008874	-10.42	0.000	.0004096	.0048421

```

19 .
20 . predict p1 if e(sample), p
    (133 missing values generated)

21 .
22 . lroc, nograph

```

Logistic model for mortality

```

number of observations =           571
area under ROC curve   =           0.9324

```

```

23 .
24 .
25 .
26 .
27 .
28 . logistic mortality niss if agegrp==0

```

```

Logistic regression              Number of obs      =           132
                                LR chi2(    1)        =           41.88
                                Prob > chi2           =           0.0000
Log likelihood = -38.534644      Pseudo R2         =           0.3521

```

mortality	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
niss	1.101938	.0210228	5.09	0.000	1.061495	1.143922
_cons	.0090503	.0067789	-6.28	0.000	.002085	.0392853

```

29 .
30 . predict p2 if e(sample), p
    (572 missing values generated)

```

```

31 .
32 . lroc, nograph

```

Logistic model for mortality

```

number of observations =      132
area under ROC curve   =      0.8587

```

```

33 .
34 .
35 .
36 .
37 .
38 . . gen newp=p1 if p1~= .
    (133 missing values generated)

```

```

39 .
40 . . replace newp=p2 if p2~= .
    (132 real changes made)

```

```

41 .
42 . . roccomp mortality newp, by(agegrp)

```

agegrp	Obs	ROC Area	Std. Err.	—Asymptotic Normal — [95% Conf. Interval]	
0	132	0.8587	0.0527	0.75534	0.96201
1	571	0.9324	0.0198	0.89358	0.97129

```

Ho: area( 0 ) = area( 1 )
    chi2( 1 ) =      1.71      Prob>chi2 =      0.1904

```

```

43 . *Partial AUCs (pauc) and Sn at fixed FPR values (roc)

```

```

44 . . rocreg mortality iss niss, roc(0.5, 0.6, 0.7, 0.75, 0.8, 0.9) pauc(0.10, 0.20, 0.30, 0.40, 0.50)
    (running rocregstat on estimation sample)

```

Bootstrap replications ( 1000)

— — 1 — — 2 — — 3 — — 4 — — 5	
.....	50
.....	100
.....	150
.....	200
.....	250
.....	300
.....	350
.....	400
.....	450
.....	500
.....	550
.....	600
.....	650
.....	700
.....	750
.....	800
.....	850
.....	900
.....	950
.....	1000



Ho: All classifiers have equal ROC values.

Ha: At least one classifier has a different ROC value.

Test based on bootstrap (N) assumptions.

P-values not adjusted for multiple comparisons.

ROC	P-value
.5	.0857711
.6	.5801733
.7	.2066636
.75	1
.8	1
.9	.3221553

Partial area under the ROC curve

Status : **mortality**  
Classifier: **iss**

pAUC	Observed Coef.	Bias	Bootstrap Std. Err.	[95% Conf. Interval]	
.1	.0282983	.0000639	.0053975	.0177194	.0388772 (N)
				.0180147	.0394358 (P)
				.0185891	.0399114 (BC)
.2	.0896638	.0003354	.0112837	.0675482	.1117793 (N)
				.0677931	.112471 (P)
				.0678428	.1126179 (BC)
.3	.1752539	-.0005008	.0147238	.1463959	.204112 (N)
				.1454187	.2037374 (P)
				.1473403	.2053374 (BC)
.4	.2615556	-.0004095	.0181506	.225981	.2971302 (N)
				.2242604	.2955656 (P)
				.2243028	.2959608 (BC)
.5	.3500353	-.0003472	.0215085	.3078794	.3921912 (N)
				.3057405	.3896712 (P)
				.3060115	.3898042 (BC)

Status : **mortality**  
Classifier: **niss**

pAUC	Observed Coef.	Bias	Bootstrap Std. Err.	[95% Conf. Interval]	
.1	.0480637	.000165	.0060725	.0361618	.0599655 (N)
				.0361373	.059821 (P)
				.0359035	.0595628 (BC)
.2	.1275107	.0004105	.0101515	.1076141	.1474073 (N)
				.1077531	.1472685 (P)
				.1071642	.1461518 (BC)
.3	.2130846	.000408	.0138926	.1858555	.2403136 (N)
				.185213	.2384654 (P)
				.1842264	.2375157 (BC)
.4	.3045353	.0004678	.0166502	.2719016	.337169 (N)
				.2713077	.334761 (P)
				.269202	.3329508 (BC)
.5	.3992722	.0005419	.0184662	.3630792	.4354652 (N)
				.3632631	.4335078 (P)
				.3588817	.4312559 (BC)

Ho: All classifiers have equal pAUC values.

Ha: At least one classifier has a different pAUC value.

Test based on bootstrap (N) assumptions.

P-values not adjusted for multiple comparisons.

pAUC	P-value
.1	.000949
.2	.0002126
.3	.0012304
.4	.0005949
.5	.0002361