PERCUTANEOUS CORONARY INTERVENTIONS (PCI) in New York State

2001-2003

New York State Department of Health May 2005

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# **MESSAGE FROM COMMISSIONER**

I am pleased to provide the information contained in this booklet for use by health care providers, patients and families of patients who are considering treatment options for cardiovascular disease. The report provides data on risk factors associated with in-hospital mortality following percutaneous coronary intervention (also known as angioplasty) and lists hospital and physician-specific mortality rates that have been risk-adjusted to account for differences in patient severity of illness.

The Percutaneous Coronary Interventions (PCI) Reporting System (the data set upon which these analyses are based) represents the largest collection of data available in which all patients undergoing PCI have been reported. Hospitals and doctors involved in cardiac care have worked cooperatively with the Department of Health and the Cardiac Advisory Committee to compile accurate and meaningful data that can and have been used to enhance quality of care. As part of that process, we have included comprehensive information on non-emergency and emergency cases in our PCI analyses. In addition, we provide physician specific analysis of outcomes.

I encourage doctors to discuss this information with their patients and colleagues as they develop treatment plans. While these statistics are an important tool in making informed health care choices, doctors and patients must make individual treatment plans together after careful consideration of all pertinent factors. It is also important to keep in mind that the information in this booklet does not include data after 2003. Important changes may have taken place in some hospitals since that time.

I would also ask that patients and physicians alike give careful consideration to the importance of healthy lifestyles for all those affected by heart disease. Controllable risk factors that contribute to a higher likelihood of developing coronary artery disease are high cholesterol levels, cigarette smoking, high blood pressure, obesity and lack of exercise. Limiting these risk factors will continue to be important in minimizing the occurrence of new blockages.

I extend my appreciation to the providers in this state and to the Cardiac Advisory Committee for their efforts in developing and refining this remarkable system. The Department of Health will continue to work in partnership with hospitals and physicians to ensure high quality of care for patients with heart disease. We look forward to providing reports such as this and the Adult Cardiac Surgery Report on an annual basis and to the continuing high quality of care available from our New York State health care providers.

# INTRODUCTION

Heart disease is, by far, the leading cause of death in New York State, and the most common form of heart disease is atherosclerotic coronary artery disease. Various treatments are recommended for patients with coronary artery disease. For some people, changes in lifestyle, such as dietary changes, not smoking and regular exercise can result in great improvements in health. In other cases, medication prescribed for high blood pressure or other conditions can make a significant difference.

Sometimes, however, an interventional procedure is recommended. The two most common procedures performed on patients with coronary artery disease are percutaneous coronary intervention (PCI), also known as percutaneous transluminal coronary angioplasty (PTCA), and coronary artery bypass graft surgery (CABG).

During a PCI procedure, a catheter is threaded up to the site of the blockage in a coronary artery. In conjunction with the catheter, devices are used to reopen the blockage. In some cases, PCI is used as an emergency treatment for patients who are experiencing a heart attack or who may be in shock. Most cases, however, are not done on an emergency basis.

Those who have a PCI procedure are not cured of coronary artery disease; the disease can still occur in the treated blood vessels or other coronary arteries. In order to minimize new blockages, patients should continue to reduce their risk factors for heart disease.

The analyses contained in this report are based on the information collected on each of the 139,042 patients who underwent PCI and were discharged between January 1, 2001 and December 31, 2003. The number of PCI cases per year has increased during that period from 42,906 in 2001 to 50,046 in 2003. Analyses of risk- adjusted mortality rates and associated risk factors are provided for 2003 and for the three-year period from 2001 through 2003. Analysis of all cases, non-emergency cases (which represent the majority of procedures) and emergency cases are included.

# HEALTH DEPARTMENT PROGRAM

The New York State Department of Health has been studying the effects of patient and treatment characteristics on outcomes for patients with heart disease for several years. Detailed statistical analyses of the information received from the study have been conducted under the guidance of the New York State Cardiac Advisory Committee, a group of independent practicing cardiac surgeons, cardiologists, and other professionals in related fields.

The results have been used to create a cardiac profile system that assesses the performance of hospitals and doctors over time, taking into account the severity of individual patient's pre–operative conditions. Coronary artery bypass surgery results have been assessed since 1989; PCI results were released in 1996 for the first time.

Designed to improve health in people with heart disease, this program is aimed at:

- understanding the health risks of patients that adversely affect how they will fare during and after PCI;
- improving the results of different treatments of heart disease;
- improving cardiac care; and
- providing information to help patients make better decisions about their own care.

# PATIENT POPULATION

All adult patients undergoing PCI in New York State hospitals who were discharged during 2003 are included in the oneyear results presented in this report. Similarly, all patients undergoing PCI who were discharged between January 1, 2001 and December 31, 2003 are included in the three-year results. Observed and risk-adjusted mortality rates are reported for patients undergoing PCI in each of the 45 New York State hospitals with approval to perform the procedure.

In New York State, PCI is limited to centers with cardiac surgery on-site. However, beginning in the year 2000, a process was put in place to allow time-limited waivers to this policy for centers participating in a special study for heart attack patients. After extensive training and review, hospitals meeting specific conditions may now be allowed to perform PCI on acute myocardial infarction (heart attack) patients. One hospital began performing PCI under these conditions in 2000, two additional centers began in 2001, one more was added in 2002, and three others were added in 2003. We will continue to study the impact of the new programs over the next several years.

# **RISK ADJUSTMENT FOR ASSESSING PROVIDER PERFORMANCE**

Hospital or physician performance is an important factor that directly relates to patient outcomes. Whether patients recover quickly, experience complications, or die following a procedure is in part a result of the kind of medical care they receive. It is difficult, however, to compare outcomes among hospitals when assessing performance, because different hospitals treat different types of patients. Hospitals with sicker patients may have higher rates of complications and death than other hospitals in the state. The following describes how the New York State Department of Health adjusts for patient risk in assessing outcomes of care in different hospitals.

# Data Collection, Data Validation and Identifying In-Hospital Deaths

As part of the risk-adjustment process, hospitals in New York State where PCI is performed provide information to the Department of Health for each patient undergoing those procedures. Data concerning patients' demographic and clinical characteristics are collected by hospitals' cardiac catheterization laboratories. Approximately 40 of these characteristics (or risk factors) are collected for each patient. Along with information about the hospital, physician, and the patient's status at discharge, these data are entered into a computer, and sent to the Department of Health for analysis.

Data are verified through review of unusual reporting frequencies, cross-matching of PCI data with other Department of Health databases and a review of medical records for a selected sample of cases. These activities are extremely helpful in ensuring consistent interpretation of data elements across hospitals.

The analysis bases mortality on deaths occurring during the same hospital stay in which a patient underwent PCI. In this report, an in-hospital death is defined as a patient who died subsequent to PCI during the same acute care admission or was discharged to hospice care. Please note that in 2003, patients who were still alive 30 days after discharge to hospice care are not considered mortalities. All other 2003 hospice discharges are counted as mortalities.

# **Assessing Patient Risk**

Each person who develops coronary artery disease has a unique health history. A cardiac profile system has been developed to evaluate the risk of treatment for each individual patient based on his or her history, weighing the important health facts for that person based on the experiences of thousands of patients who have undergone the same procedures in recent years. All important risk factors for each patient are combined to create his or her risk profile.

An 80-year-old patient with a heart attack in the past six hours, for example, has a very different risk profile than a 40-year-old who has never suffered a heart attack.

The statistical analyses conducted by the New York State Department of Health consist of determining which of the risk factors collected are significantly related to in-hospital death, and determining how to weight the significant risk factors to predict the chance each patient will have of dying in the hospital given his or her specific characteristics.

# **Predicting Patient Mortality Rates for Providers**

The statistical methods used to predict mortality on the basis of the significant risk factors are tested to determine if they are sufficiently accurate in predicting mortality for patients who are extremely ill prior to undergoing the procedure as well as for patients who are relatively healthy. These tests have confirmed that the models are reasonably accurate in predicting how patients of all different risk levels will fare when undergoing PCI.

The mortality rate for each hospital and cardiologist is also predicted using the statistical model. This is accomplished by adding the predicted probabilities of death for each of the provider's patients and dividing by the number of patients. The resulting rate is an estimate of what the provider's mortality rate would have been if the hospital's performance was identical to the state performance. The percentage is called the predicted or expected mortality rate (EMR). A hospital's expected mortality rate is contrasted with its observed mortality rate (OMR), which is the number of PCI patients who died divided by the total number of PCI patients.

# Computing the Risk-Adjusted Rate

The risk-adjusted mortality rate (RAMR) represents the best estimate, based on the associated statistical model, of what the provider's mortality rate would have been if the provider had a mix of patients identical to the statewide mix. Thus, the risk-adjusted mortality rate has, to the extent possible, ironed out differences among providers in patient severity of illness, since it arrives at a mortality rate for each provider based on an identical group of patients.

To get the risk-adjusted mortality rate, the observed mortality rate is first divided by the provider's expected mortality rate. If the resulting ratio is larger than one, the provider has a higher mortality rate than expected on the basis of its patient mix; if it is smaller than one, the provider has a lower mortality rate than expected from its patient mix. The ratio is then multiplied by the overall statewide rate (0.58% for all cases in 2003) to obtain the provider's risk-adjusted rate.

# Interpreting the Risk-Adjusted Mortality Rate

If the risk-adjusted mortality rate is lower than the statewide mortality rate, the hospital has a better performance than the state as a whole; if the risk-adjusted mortality rate is higher than the statewide mortality rate, the hospital has a worse performance than the state as a whole.

The risk-adjusted mortality rate is used in this report as a measure of quality of care provided by hospitals and cardiologists. However, there are reasons that a provider's risk-adjusted rate may not be indicative of its true quality.

For example, extreme outcome rates may occur due to chance alone. This is particularly true for low-volume providers, for whom very high or very low rates are more likely to occur than for high-volume providers. Another attempt to prevent misinterpretation of differences caused by chance variation is the use of expected ranges (confidence intervals) in the reported results.

Differences in hospital coding of risk factors could be an additional reason that a hospital's risk-adjusted rate may not be reflective of quality of care. The Department of Health monitors the quality of coded data by reviewing patients' medical records to ascertain the presence of key risk factors. When significant coding problems have been discovered, hospitals have been required to recode these data and have been subject to subsequent monitoring.

Some commentators have suggested that patient severity of illness may not be accurately estimated because some risk factors are not included in the data system, and this could lead to misleading risk-adjusted rates. This is not likely because the New York State data system has been reviewed by practicing physicians in the field and updated continually. It now contains virtually every risk factor that has ever been demonstrated to be related to patient mortality in national and international studies.

# How This Contributes to Quality Improvement

The goal of the Department of Health and the Cardiac Advisory Committee is to improve the quality of care in relation to coronary artery bypass graft surgery and angioplasty in New York State. Providing the hospitals, cardiac surgeons (who perform CABG surgery), and cardiologists (who perform PCI) in New York State with data about their own outcomes for these procedures allows them to examine the quality of their own care, and to identify opportunities to improve that care.

The data collected and analyzed in this program are reviewed by the Cardiac Advisory Committee, who assist with interpretation and advise the Department of Health regarding which hospitals and physicians may need special attention. Committee members have also conducted site visits to particular hospitals, and have recommended that some hospitals obtain the expertise of outside consultants to design improvements for their programs.

# 2003 HOSPITAL RISK-ADJUSTED MORTALITY FOR PCI

Table 1 presents the 2003 PCI mortality results for the 45 hospitals performing PCI in New York in 2003. The table contains, for each hospital, the number of PCIs resulting in 2003 discharges, the number of in-hospital deaths, the observed mortality rate, the expected mortality rate based on the statistical model presented in Appendix 1, the risk-adjusted mortality rate, and a 95% confidence interval for the risk-adjusted rate. Also, it contains each hospital's volume of cases and risk-adjusted mortality rate for non-emergency patients. Emergency patients are defined to be patients in shock, a state of hemodynamic instability (very low blood pressure), or patients who experienced a heart attack within 24 hours prior to undergoing PCI. The hospital risk-adjusted rates for non-emergency PCI patients are provided because many studies are confined to this group of patients, and because these patients comprise the majority of all PCI patients (89.03% in 2003).

The overall mortality rate for the 50,046 PCIs performed at the 45 hospitals was 0.58%. Observed mortality rates ranged from 0.00% to 3.39%. The range in expected mortality rates, which measure patient severity of illness, was between 0.28% and 11.12%. The risk-adjusted rates, which measure hospital performance, range from 0.00% to 2.61%. Based on confidence intervals for risk-adjusted rates, two hospitals (Mary Imogene Bassett Hospital and University Hospital - Stony Brook) had risk-adjusted mortality rates that were higher than the statewide average. No hospitals had risk-adjusted mortality rates that were significantly lower than the statewide average.

The last column of Table 1 presents the hospital risk-adjusted mortality rates for non-emergency cases only (based on the statistical model presented in Appendix 2.) As presented in the last row, the statewide mortality rate for non-emergency cases is 0.32%. The range of risk-adjusted rates was from 0.00% to 1.20%. One hospital (University Hospital - Stony Brook) had a risk-adjusted mortality rate that was significantly higher than the statewide rate. No hospitals had risk-adjusted mortality rates that were significantly lower than the statewide rate.

# 2001-2003 HOSPITAL DATA FOR PCI

Table 2 provides the number of PCIs, the observed mortality rate, and the risk-adjusted mortality rate for 2001-2003 for each of three types of PCI patients in the 45 hospitals performing PCI during the time period. The three types of patients are: all patients, non-emergency patients, and emergency patients (patients in shock, a state of hemodynamic instability (very low blood pressure), or patients who experienced a heart attack within 24 hours prior to undergoing PCI). The statistical models that are the basis for all patients, non-emergency patients, and emergency patients, and emergency patients in 2001-2003 are presented in Appendices 3-5, respectively.

As indicated in Table 2, the three-year observed mortality rates for all PCI patients ranged from 0.00% to 3.19%, and the risk-adjusted mortality rates ranged from 0.00% to 2.61%. Two hospitals (Albany Medical Center and Mary Imogene Bassett Hospital) had risk-adjusted mortality rates that were significantly higher than the statewide rate, and two hospitals (Long Island Jewish Medical Center, and Winthrop University Hospital) had risk-adjusted mortality rates that were significantly lower than the statewide rate. It should be noted that hospitals are more likely to have results that show a statistically significant difference from the statewide rate when three years of data are used than when one year of data is used because the three-year volumes are higher.

Table 2 also presents the 3-year risk adjusted mortality rates for non-emergency cases based on the model in Appendix 4. Non-emergency cases comprise 89.25% of cases for the period 2001-2003. The statewide mortality rate for the 124,096 non-emergency cases during the 3-year period was 0.36%. Observed mortality rates for this group of patients ranged from 0.00% to 0.71% and the risk-adjusted mortality rates ranged from 0.00 to 1.09%. One hospital (Albany Medical Center) had a risk-adjusted mortality rate that was significantly higher than the statewide average. No hospitals had risk-adjusted mortality rates significantly below the statewide rate for non-emergency cases.

The last three columns in Table 2 present data on emergency cases based on the model in Appendix 5. Emergency cases represented 10.75% of cases for the period 2001-2003. The statewide mortality rate for the 14,946 emergency PCI cases during the 3-year period was 3.25%. Observed mortality rates for this group ranged from 0.00% to 11.54% and the risk-adjusted mortality rates ranged from 0.00% to 12.32%. Two hospitals (Albany Medical Center and Beth Israel Medical Center) had risk-adjusted mortality rates that were significantly above the statewide average and two hospitals (North Shore University Hospital and Winthrop University Hospital) had risk-adjusted mortality rates that were significantly below the statewide average for emergency cases.

## Note on Hospitals Not Performing PCI During Entire 2001-2003 Period

Several hospitals began performing PCI during the 2001 - 2003 time period on which this report is based. These hospitals and the month of the first PCI are listed below. Hospitals marked with "#" are allowed to perform PCI only on acute myocardial infarction (heart attack) patients. Staten Island University Hospital - April 2001; #Good Samaritan West Islip - May 2001; #Southside Hospital - June 2001; Mercy Hospital - May 2002; #Elmhurst Hospital - November 2002; Bassett Hospital - March 2003; #Park Ridge Hospital - May 2003; #Glens Falls Hospital - June 2003; #Good Samaritan Suffern - October 2003.

# Definitions of key terms are as follows:

The observed mortality rate (OMR) is the observed number of deaths divided by the number of patients.

The **expected mortality rate (EMR)** is the sum of the predicted probabilities of death for all patients divided by the total number of patients.

The **risk-adjusted mortality rate (RAMR)** is the best estimate, based on the statistical model, of what the provider's mortality rate would have been if the provider had a mix of patients similar to the statewide mix. It is obtained by first dividing the observed mortality rate by the expected mortality rate, and then multiplying that quotient by the statewide mortality rate (0.58% for all PCI patients in 2003).

**Confidence intervals** indicate which hospitals had significantly more or fewer deaths than expected given the risk factors of their patients. Hospitals with significantly higher rates than expected after adjusting for risk are those with confidence intervals entirely above the statewide rate. Hospitals with significantly lower rates than expected given the severity of illness of their patients before the PCI have confidence intervals entirely below the statewide rate.

							Non-Emergency		
Hospital	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR	
Albany Medical Center	1188	12	1.01	0.56	1.06	(0.55, 1.85)	992	0.59	
Arnot-Ogden	274	1	0.36	0.54	0.40	(0.01, 2.21)	195	0.72	
Bellevue	287	3	1.05	0.66	0.93	(0.19, 2.71)	256	0.00	
Beth Israel	1359	12	0.88	0.47	1.09	(0.56, 1.90)	1271	0.60	
Buffalo General	1644	8	0.49	0.37	0.76	(0.33, 1.51)	1580	0.48	
Crouse Hospital	822	2	0.24	0.56	0.25	(0.03, 0.91)	759	0.00	
Ellis Hospital	825	5	0.61	0.62	0.57	(0.18, 1.34)	657	0.60	
Elmhurst	59	2	3.39	3.29	0.60	(0.07, 2.17)	•	•	
Erie County	325	0	0.00	0.37	0.00	(0.00, 1.78)	308	0.00	
Glens Falls Hosp.	16	0	0.00	0.71	0.00	(0.00,18.84)		•	
Good Sam - Suffern	8	0	0.00	11.12	0.00	(0.00, 2.41)			
Good Sam - W. Islip	76	2	2.63	1.80	0.85	(0.10, 3.08)		_	
LIJ Medical Center	1685	- 7	0.42	0.75	0.33	(0.13, 0.67)	1450	0.21	
Lenox Hill	3570	18	0.50	0.51	0.57	(0.34, 0.90)	3445	0.30	
Maimonides	1339	4	0.30	0.58	0.30	(0.08, 0.77)	1240	0.16	
Mary Imogene Bassett Hos		4	2.40	0.56	2.61 *	(0.70, 6.67)	141	1.20	
Mercy Hospital	364	2	0.55	0.53	0.60	(0.07, 2.18)	292	0.29	
Millard Fillmore	908	7	0.77	0.45	1.00	(0.40, 2.06)	862	0.66	
Montefiore - Einstein	790	6	0.76	0.44	1.00	(0.37, 2.18)	725	0.00	
Montefiore - Moses	760	5	0.66	0.44	0.80	(0.26, 1.86)	689	0.41	
Mount Sinai	2691	10	0.00	0.63	0.34	(0.16, 0.63)	2566	0.13	
NY Hospital - Queens	1170	9	0.37	0.59	0.76	(0.35, 1.44)	1053	0.15	
NYP- Columbia	566	9 7	1.24	0.59	1.07	(0.43, 2.21)	474	0.57	
NYP-Weil Cornell	1874	14	0.75	0.82	0.53	(0.29, 0.89)	1714	0.50	
NYU Hospitals Center	748		0.75	0.82	0.33	. ,	690	0.24	
North Shore		1				(0.00, 1.15)			
	3396	12	0.35	0.47	0.44	(0.23, 0.76)	3009	0.17	
Park Ridge Hosp.	37	0	0.00	0.94	0.00	(0.00, 6.13)	•	•	
Rochester General	2508	10	0.40	0.48	0.49	(0.23, 0.90)	2157	0.25	
South Nassau	69 52	1	1.45	1.06	0.80	(0.01, 4.44)	•	•	
Southside Hospital	53	0	0.00	1.44	0.00	(0.00, 2.80)	•	•	
St. Elizabeth	1445	14	0.97	0.76	0.75	(0.41, 1.25)	1333	0.48	
St. Francis	3820	21	0.55	0.47	0.68	(0.42, 1.05)	3642	0.39	
St. Josephs	2054	12	0.58	0.63	0.54	(0.28, 0.94)	1781	0.29	
St. Lukes-Roosevelt	874	4	0.46	0.45	0.59	(0.16, 1.52)	795	0.13	
St. Peters	1111	2	0.18	0.43	0.25	(0.03, 0.89)	909	0.14	
St. Vincents	1371	13	0.95	0.81	0.68	(0.36, 1.17)	1202	0.41	
Staten Island Univ Hosp	1028	1	0.10	0.38	0.15	(0.00, 0.83)	942	0.17	
Strong Memorial	1281	3	0.23	0.60	0.23	(0.05, 0.66)	1005	0.13	
United Health Services	975	9	0.92	1.04	0.52	(0.24, 0.98)	789	0.58	
Univ. Hosp. Brooklyn	1067	3	0.28	0.28	0.60	(0.12, 1.74)	1020	0.14	
Univ. Hosp. Stony Brook	1334	17	1.27	0.68	1.09 *	(0.63, 1.75)	1155	0.82 *	
Univ. Hosp. Upstate	179	2	1.12	1.17	0.56	(0.06, 2.02)	154	0.00	
Vassar Brothers	833	5	0.60	0.75	0.46	(0.15, 1.08)	599	0.16	
Westchester Med. Ctr.	1594	13	0.82	0.75	0.63	(0.34, 1.08)	1325	0.22	
Winthrop Univ. Hosp.	1502	9	0.60	0.66	0.53	(0.24, 1.00)	1378	0.50	
Statewide Total	50046	292	0.58				44554	0.32	

 Table 1 Hospital Observed, Expected, and Risk-Adjusted Mortality Rates (RAMR) for PCI in New York State, 2003 Discharges.

 (Listed Alphabetically by Hospital)

\* Risk-adjusted mortality rate significantly higher than statewide rate based on 95 percent confidence interval.

\*\* Risk-adjusted mortality rate significantly lower than statewide rate based on 95 percent confidence interval.

Table 2 Hospital Observed and Risk-Adjusted Mortality Rates (RAMR) for PCI in New York State 2001 - 2003 Discharges.

		All Cases	5	Non-Ei	mergency	Cases	Emergency Cases		
Hospital	Cases	OMR	RAMR	Cases	OMR	RAMR	Cases	OMR	RAMR
Albany Medical Center	3246	1.45	1.27 *	2724	0.70	0.88 *	522	5.36	5.09 *
Arnot-Ogden	708	0.99	0.92	516	0.58	1.09	192	2.08	3.17
Bellevue	707	0.85	1.13	628	0.48	0.50	79	3.80	6.07
Beth Israel	3918	0.84	0.93	3700	0.38	0.38	218	8.72	5.78 *
Buffalo General	4459	0.27	0.50	4334	0.23	0.29	125	1.60	1.50
Columbia Presbyterian	1844	1.19	0.96	1516	0.46	0.49	328	4.57	4.58
Crouse Hospital	2634	0.42	0.51	2425	0.12	0.15	209	3.83	3.49
Ellis Hospital	2221	1.04	0.85	1768	0.40	0.44	453	3.53	4.29
Elmhurst	67	2.99	0.65				67	2.99	2.74
Erie County	920	0.33	0.50	885	0.11	0.15	35	5.71	3.10
Glens Falls Hosp.	16	0.00	0.00			•	16	0.00	0.00
Good Sam - Suffern	8	0.00	0.00	•	•		8	0.00	0.00
Good Sam - W. Islip	231	1.30	0.48	1	0.00	0.00	230	1.30	2.10
LIJ Medical Center	4390	0.57	0.42 **	3718	0.30	0.22	672	2.08	2.23
Lenox Hill	10226	0.55	0.71	9880	0.37	0.37	346	5.49	3.78
Maimonides	3854	0.67	0.57	3616	0.47	0.28	238	3.78	3.87
Mary Imogene Bassett Hosp		2.40	2.61 *	141	0.71	0.96	26	11.54	12.32
Marcy Hospital	528	0.38	0.40	422	0.24	0.19	106	0.94	2.14
Millard Fillmore	3095	0.50	0.64	2939	0.24	0.26	156	5.77	4.20
Montefiore - Einstein	2046	0.78	0.04 1.14	1854	0.54	0.20	192	3.13	7.14
Montefiore - Moses	1922	0.78	0.59	1758	0.54	0.50	192	2.44	1.95
Mount Sinai	7207	0.02	0.59	6830	0.40	0.44	377	2.44 3.98	2.17
NY Hospital - Queens	3190	0.94	0.54	2836	0.35	0.31	354	4.80	3.96
NYU Hospitals Center	2083	0.91	0.81	2830 1876	0.42	0.41	207	4.80 2.90	2.84
North Shore	2085 9518	0.07	0.04	8405	0.43	0.38	1113	2.90 1.71	2.04 2.07 **
Park Ridge Hosp.	37	0.45	0.00	6405	0.29	0.52	37	0.00	0.00
Rochester General	7467	0.64			0.25	0.23	1042	0.00 3.07	
			0.55	6425	0.25	0.25			3.13
South Nassau	188	3.19	1.07	•	•	•	188	3.19	4.48
Southside Hospital	162	0.62	0.17			•	162	0.62	0.85
St. Elizabeth	4247	0.82	0.80	4013	0.50	0.42	234	6.41	4.02
St. Francis	10847	0.58	0.70	10232	0.42	0.47	615	3.25	2.60
St. Josephs	5710	0.63	0.68	4994	0.24	0.26	716	3.35	4.31
St. Lukes-Roosevelt	2384	0.50	0.67	2201	0.27	0.29	183	3.28	4.79
St. Peters	3338	0.60	0.59	2759	0.33	0.39	579	1.90	2.58
St. Vincents	3935	0.74	0.65	3449	0.43	0.37	486	2.88	2.91
Staten Island Univ Hosp	2519	0.16	0.27	2294	0.13	0.20	225	0.44	0.64
Strong Memorial	3601	1.00	0.74	2918	0.45	0.46	683	3.37	3.23
United Health Services	2763	0.83	0.51	2293	0.39	0.35	470	2.98	2.10
Univ Hosp-Stony Brook	3936	0.91	0.88	3401	0.47	0.49	535	3.74	4.22
Univ. Hosp Upstate	529	1.51	0.80	441	0.23	0.21	88	7.95	5.31
Univ. Hosp. of Brooklyn	1927	0.42	0.85	1854	0.27	0.40	73	4.11	5.44
Vassar Brothers	2240	0.76	0.55	1582	0.38	0.39	658	1.67	2.40
Weill Cornell-NYP	5024	0.64	0.64	4571	0.24	0.25	453	4.64	3.95
Westchester Med. Ctr.	4445	1.01	0.87	3790	0.45	0.43	655	4.27	4.10
Winthrop Univ. Hosp.	4538	0.37	0.38 **	4107	0.29	0.27	431	1.16	1.14 **
Statewide Total	139042	0.67		124096	0.36		14946	3.25	

\* Risk-adjusted mortality rate significantly higher than statewide rate based on 95 percent confidence interval.

\*\* Risk-adjusted mortality rate significantly lower than statewide rate based on 95 percent confidence interval.

# 2001-2003 HOSPITAL AND CARDIOLOGIST DATA FOR PCI

Table 3 provides the number of PCIs, number of PCI patients who died in the hospital, observed mortality rate, expected mortality rate, risk-adjusted mortality rate, and the 95% confidence interval for the risk-adjusted mortality rate for 2001-2003 for cardiologists in each of the 45 hospitals performing PCI during the time period, and for each of the hospitals. Table 3 also contains the volume and risk-adjusted mortality rate for cardiologists and hospitals for non-emergency cases.

This information is presented for each cardiologist who (a) performed 200 or more PCIs during 2001-2003, and/or (b) performed at least one PCI in each of the years 2001-2003. The results for cardiologists not meeting the above criteria are grouped together and reported as "All Others" in the hospital in which the procedures were performed. Cardiologists who met criterion (a) or (b) above and performed procedures in more than one hospital are noted in the table and are listed in all hospitals in which they performed procedures during 2001-2003.

Also, cardiologists who met criterion (a) and/or criterion (b) above and have performed PCI in two or more New York State hospitals are listed separately in Table 4. For these cardiologists, the table presents the number of PCIs, the number of deaths, observed mortality rate, expected mortality rate and risk-adjusted mortality rate with its 95 percent confidence interval for each hospital in which the cardiologist performed PCI, as well as the aggregate numbers (across all hospitals in which the cardiologist performed procedures). In addition, cardiologists and hospitals with risk-adjusted mortality rates that are significantly lower or higher than the statewide mortality rate (as judged by a 95% confidence interval) are noted in Tables 3 and 4.

It should be noted that MI less than 24 hours before the procedure, shock and hemodynamic instability are significant risk factors in the All Cases model. However, patients with these conditions are excluded from the non-emergency analysis. The outcomes models for the two groups can, therefore, yield substantially different risk-adjusted mortality rates. It is important to compare providers' RAMR to the statewide average mortality rate for the specific group of patients analyzed.

				ALL CAS	ES		NON-EME	RGENCY
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	CASES	RAMR
Statewide Total	139042	927	0.67				124096	0.36
Albany Medical Center								
#Brady S	408	10	2.45	1.11	1.47 *	(0.70, 2.70)	316	1.06
#Delago A	1367	19	1.39	0.67	1.38 *	(0.83, 2.16)	1207	1.08 *
##Dempsey S	2	0	0.00	0.06	0.00	(0.00,100.0)	2	0.00
##Desantis J	1	0	0.00	0.03	0.00	(0.00,100.0)	1	0.00
#Esper D	327	9	2.75	1.34	1.37	(0.62, 2.60)	247	1.85 *
##Hogan R	282	0	0.00	0.22	0.00	(0.00, 3.90)	277	0.00
Houghton J	440	7	1.59	0.62	1.70 *	(0.68, 3.50)	369	0.48
##Kufs W	25	0	0.00	0.77	0.00	(0.00,12.67)	22	0.00
Macina A	157	1	0.64	0.62	0.69	(0.01, 3.82)	98	0.00
#Marmulstein M	4	0	0.00	0.75	0.00	(0.00,81.09)	3	0.00
#Martinelli M	6	0	0.00	0.26	0.00	(0.00,100.0)	6	0.00
#Papaleo R	110	1	0.91	0.59	1.02	(0.01, 5.68)	98	0.00
#Papandrea L	55	0	0.00	1.61	0.00	(0.00, 2.76)	28	0.00
#Roccario E	9	0	0.00	0.36	0.00	(0.00,75.07)	6	0.00
All Others	53	0	0.00	0.65	0.00	(0.00, 7.15)	44	0.00
TOTAL	3246	47	1.45	0.76	1.27 *	(0.94, 1.69)	2724	0.88*

 Table 3 Cardiologist Observed, Expected, and Risk-Adjusted Mortality Rates (RAMR) for PCI in New York State, 2001 - 2003

 Discharges

		All Cases Non-Em										
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR				
Arnot-Ogden												
Laifer L	433	5	1.15	0.53	1.44	(0.46, 3.36)	338	1.76				
#Wasserman H	1	0	0.00	0.17	0.00	(0.00,100.0)	1	0.00				
##Winer H	112	0	0.00	0.86	0.00	(0.00, 2.53)	67	0.00				
All Others	162	2	1.23	1.10	0.75	(0.08, 2.70)	110	0.00				
TOTAL	708	7	0.99	0.72	0.92	(0.37, 1.90)	516	1.09				
Bellevue												
#Attubato M	152	2	1.32	0.61	1.44	(0.16, 5.22)	138	0.57				
#Feit F	168	0	0.00	0.41	0.00	(0.00, 3.55)	152	0.00				
#Keller N	141	1	0.71	0.65	0.73	(0.01, 4.06)	113	0.00				
#Levite H	95	0	0.00	0.39	0.00	(0.00, 6.64)	83	0.00				
##Slater J	41	1	2.44	0.73	2.21	(0.03,12.31)	36	0.00				
##Winer H	110	2	1.82	0.31	3.85	(0.43,13.90)	106	2.10				
TOTAL	707	6	0.85	0.50	1.13	(0.41, 2.46)	628	0.50				
Beth Israel												
#Brown D	288	6	2.08	0.74	1.88 *	(0.69, 4.09)	255	0.87				
#Chadi R	20	0	0.00	0.15	0.00	(0.00,79.45)	20	0.00				
##Duvvuri S	11	0	0.00	0.47	0.00	(0.00,47.30)	10	0.00				
Fox J	1234	12	0.97	0.73	0.89	(0.46, 1.55)	1134	0.30				
Misra D	246	2	0.81	0.85	0.64	(0.07, 2.31)	214	0.58				
Patel R H	103	0	0.00	0.38	0.00	(0.00, 6.18)	100	0.00				
Reimers C	807	9	1.12	0.56	1.33	(0.61, 2.53)	784	0.64				
#Rouvelas P	26	0	0.00	0.33	0.00	(0.00,28.90)	25	0.00				
#Sacchi T	469	0	0.00	0.26	0.00	(0.00, 1.97)	467	0.00				
Shaknovich A	329	0	0.00	0.37	0.00	(0.00, 2.02)	328	0.00				
#Sherman W	110	3	2.73	0.97	1.88	(0.38, 5.50)	102	1.14				
#Siddiqi R	9	0	0.00	0.36	0.00	(0.00,75.43)	9	0.00				
##Wilentz J	85	0	0.00	0.36	0.00	(0.00, 7.92)	84	0.00				
All Others	181	1	0.55	0.83	0.45	(0.01, 2.48)	168	0.00				
TOTAL	3918	33	0.84	0.60	0.93	(0.64, 1.31)	3700	0.38				
Buffalo General												
Conley J	1563	4	0.26	0.29	0.59	(0.16, 1.52)	1547	0.36				
##Emerson R	19	0	0.00	0.27	0.00	(0.00,46.99)	19	0.00				
#Farhi E	928	0	0.00	0.63	0.00 **	(0.00, 0.42)	865	0.00				
##Gelormini J	5	0	0.00	0.58	0.00	(0.00,84.59)	5	0.00				
#Masud A	339	1	0.29	0.32	0.61	(0.01, 3.40)	327	0.38				
##Morris W	349	2	0.57	0.39	0.98	(0.11, 3.53)	342	0.56				
Paris J	131	0	0.00	0.23	0.00	(0.00, 8.23)	127	0.00				
Sullivan P	108	1	0.93	0.20	3.02	(0.04,16.79)	103	2.09				
Visco J	984	4	0.41	0.24	1.12	(0.30, 2.86)	968	0.37				
##Young H	33	0	0.00	0.28	0.00	(0.00,26.16)	31	0.00				
TOTAL	4459	12	0.27	0.36	0.50	(0.26, 0.88)	4334	0.29				

		All Cases										
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR				
Crouse Hospital												
#Alfaro-Franco C	52	0	0.00	0.36	0.00	(0.00,13.04)	50	0.00				
#Amin N	182	0	0.00	0.39	0.00	(0.00, 3.44)	162	0.00				
#Battaglia J	834	5	0.60	0.34	1.19	(0.38, 2.78)	786	0.38				
#Berkery W	353	2	0.57	1.31	0.29	(0.03, 1.04)	290	0.00				
#Bhan R	1	0	0.00	0.03	0.00	(0.00,100.0)	1	0.00				
#Caputo R	219	2	0.91	0.54	1.14	(0.13, 4.10)	202	0.00				
#Esente P	198	1	0.51	0.37	0.92	(0.01, 5.13)	195	0.53				
#Ford T	160	0	0.00	0.28	0.00	(0.00, 5.39)	151	0.00				
#Giambartolomei A	115	0	0.00	0.75	0.00	(0.00, 2.83)	106	0.00				
#Lozner E	188	0	0.00	0.74	0.00	(0.00, 1.75)	176	0.00				
#Reger M	97	0	0.00	0.31	0.00	(0.00, 8.17)	90	0.00				
#Simons A	139	0	0.00	0.33	0.00	(0.00, 5.36)	128	0.00				
All Others	96	1	1.04	0.62	1.13	(0.01, 6.28)	88	0.00				
TOTAL	2634	11	0.42	0.54	0.51	(0.26, 0.92)	2425	0.15				
Ellis Hospital												
#Card H	63	0	0.00	0.63	0.00	(0.00, 6.17)	59	0.00				
Cospito P	354	6	1.69	1.02	1.11	(0.41, 2.42)	270	1.05				
##Dempsey S	108	0	0.00	0.88	0.00	(0.00, 2.57)	97	0.00				
##Hogan R	245	0	0.00	0.28	0.00	(0.00, 3.53)	240	0.00				
Jordan M	365	7	1.92	1.12	1.14	(0.46, 2.35)	243	1.40				
##Kufs W	179	0	0.00	0.34	0.00	(0.00, 3.99)	163	0.00				
Parkes R	510	8	1.57	0.77	1.36	(0.59, 2.68)	393	0.45				
Weitz S	374	1	0.27	0.96	0.19	(0.00, 1.04)	287	0.00				
All Others	23	1	4.35	0.60	4.80	(0.06,26.72)	16	0.00				
TOTAL	2221	23	1.04	0.81	0.85	(0.54, 1.28)	1768	0.44				
Elmhurst												
#Kamran M	35	2	5.71	3.96	0.96	(0.11, 3.47)		•				
#Kim M	16	0	0.00	1.57	0.00	(0.00, 9.74)		•				
##Suleman J	16	0	0.00	2.48	0.00	(0.00, 6.15)		•				
TOTAL	67	2	2.99	3.04	0.65	(0.07, 2.36)	•	•				
Erie County												
##Calandra S	10	0	0.00	0.13	0.00	(0.00,100.0)	10	0.00				
#Corbelli J	74	1	1.35	0.18	5.04	(0.07,28.02)	74	3.04				
#Dashkoff N	571	2	0.35	0.57	0.41	(0.05, 1.49)	545	0.00				
##Emerson R	34	0	0.00	0.27	0.00	(0.00,26.34)	31	0.00				
#Farhi E	12	0	0.00	0.26	0.00	(0.00,77.16)	12	0.00				
##Phadke K	211	0	0.00	0.21	0.00	(0.00, 5.42)	206	0.00				
##Young H	8	0	0.00	0.46	0.00	(0.00,67.01)	7	0.00				
TOTAL	920	3	0.33	0.43	0.50	(0.10, 1.47)	885	0.15				
Glens Falls Hospital												
##Desantis J	5	0	0.00	0.76	0.00	(0.00,64.60)						
##Hogan R	11	0	0.00	0.96	0.00	(0.00,23.25)						
TOTAL	16	0	0.00	0.89	0.00	(0.00,17.09)	•					

			Non-Emergen					
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Good Samaritan - Suffern								
#Brogno D	3	0	0.00	27.92	0.00	(0.00, 2.92)		•
All Others	5	0	0.00	0.76	0.00	(0.00,64.35)		•
TOTAL	8	0	0.00	10.94	0.00	(0.00, 2.79)	•	•
Good Samaritan - W. Islip								
##Deutsch E	40	0	0.00	2.49	0.00	(0.00, 2.45)		•
##Gambino A	5	0	0.00	0.52	0.00	(0.00,93.90)		•
##Lee P	45	0	0.00	1.55	0.00	(0.00, 3.51)		•
##Patel R B	55	2	3.64	1.39	1.74	(0.20, 6.28)	1	0.00
##Reich D	64	1	1.56	1.99	0.52	(0.01, 2.92)		
##Schwartz R	15	0	0.00	1.56	0.00	(0.00,10.43)		•
All Others	7	0	0.00	3.11	0.00	(0.00,11.24)		
TOTAL	231	3	1.30	1.82	0.48	(0.10, 1.39)	1	0.00
LIJ Medical Center								
#Freeman J	21	0	0.00	2.66	0.00	(0.00, 4.39)	1	0.00
##Friedman G	533	5	0.94	0.95	0.66	(0.21, 1.53)	465	0.52
#Green S	20	0	0.00	2.58	0.00	(0.00, 4.75)	5	0.00
##Grunwald A	651	6	0.92	1.00	0.61	(0.22, 1.33)	570	0.21
##Jauhar R	796	3	0.38	0.77	0.33	(0.07, 0.95)	642	0.12
#Kaplan B	1483	4	0.27	0.81	0.22 **	(0.06, 0.57)	1306	0.11
#Katz S	23	1	4.35	5.48	0.53	(0.01, 2.95)	4	0.00
##Koss J	599	5	0.83	0.72	0.77	(0.25, 1.81)	517	0.41
##Lee P	9	0	0.00	0.24	0.00	(0.00,100.0)	8	0.00
#Marchant D	17	0	0.00	3.28	0.00	(0.00, 4.39)	3	0.00
#Ong L Y	16	0	0.00	2.16	0.00	(0.00, 7.07)	5	0.00
##Padmanabhan V	21	0	0.00	0.27	0.00	(0.00,43.54)	18	0.00
##Reich D	21	0	0.00	0.29	0.00	(0.00,40.69)	21	0.00
#Strizik B	50	1	2.00	0.63	2.11	(0.03,11.73)	50	1.07
##Suleman J	5	0	0.00	0.17	0.00	(0.00,100.0)	5	0.00
All Others	125	0	0.00	1.24	0.00	(0.00, 1.58)	98	0.00
TOTAL	4390	25	0.57	0.90	0.42 **	(0.27, 0.63)	3718	0.22
Lenox Hill								
Collins M	1560	7	0.45	0.43	0.69	(0.28, 1.43)	1525	0.27
Columbo A	144	1	0.69	0.56	0.83	(0.01, 4.62)	143	0.00
Dangas G	540	4	0.74	0.67	0.74	(0.20, 1.89)	503	0.63
##Dominguez A	5	0	0.00	0.25	0.00	(0.00,100.0)	5	0.00
##Geizhals M	104	0	0.00	0.48	0.00	(0.00, 4.87)	104	0.00
Iyer S	504	4	0.79	0.65	0.82	(0.22, 2.09)	472	0.54
Kreps E	942	4	0.42	0.56	0.50	(0.13, 1.28)	888	0.21
Leon M	1060	11	1.04	0.52	1.33	(0.66, 2.37)	1035	0.73
Moses J	2670	2	0.07	0.36	0.14 **	(0.02, 0.50)	2654	0.05
		-		2.20		(,)		2.05

				All Case	S		Non-Emergency		
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR	
Lenox Hill, continued									
Roubin G	423	6	1.42	0.93	1.01	(0.37, 2.21)	399	0.67	
Stone G	607	3	0.49	0.62	0.53	(0.11, 1.54)	572	0.16	
Teirstein P	222	1	0.45	0.64	0.47	(0.01, 2.60)	208	0.46	
All Others	216	3	1.39	0.51	1.82	(0.37, 5.33)	199	1.26	
TOTAL	10226	56	0.55	0.51	0.71	(0.54, 0.93)	9880	0.37	
Maimonides									
Borgen E	873	8	0.92	0.94	0.65	(0.28, 1.28)	771	0.28	
Frankel R	888	4	0.45	0.62	0.49	(0.13, 1.25)	850	0.32	
Friedman M	429	3	0.70	0.91	0.51	(0.10, 1.49)	391	0.32	
#Sacchi T	247	0	0.00	0.35	0.00	(0.00, 2.81)	247	0.00	
Shani J	1281	11	0.86	0.85	0.67	(0.34, 1.20)	1241	0.30	
All Others	136	0	0.00	0.79	0.00	(0.00, 2.28)	116	0.00	
TOTAL	3854	26	0.67	0.79	0.57	(0.37, 0.83)	3616	0.28	
Mary Imogene Bassett Ho	spital								
All Others	167	4	2.40	0.61	2.61 *	(0.70, 6.68)	141	0.96	
TOTAL	167	4	2.40	0.61	2.61 *	(0.70, 6.68)	141	0.96	
Mercy Hospital									
##Calandra S	67	0	0.00	0.29	0.00	(0.00,12.41)	61	0.00	
##Emerson R	209	1	0.48	0.70	0.46	(0.01, 2.53)	148	0.44	
##Gelormini J	60	0	0.00	0.38	0.00	(0.00,10.72)	55	0.00	
##Morris W	20	0	0.00	0.44	0.00	(0.00,28.10)	14	0.00	
##Young H	84	1	1.19	1.17	0.68	(0.01, 3.77)	67	0.00	
All Others	88	0	0.00	0.43	0.00	(0.00, 6.40)	77	0.00	
TOTAL	528	2	0.38	0.63	0.40	(0.04, 1.44)	422	0.19	
Millard Fillmore									
##Calandra S	557	4	0.72	0.39	1.21	(0.33, 3.11)	543	0.47	
#Corbelli J	610	6	0.98	0.52	1.26	(0.46, 2.74)	574	0.60	
#Dashkoff N	3	0	0.00	0.22	0.00	(0.00,100.0)	3	0.00	
##Emerson R	55	0	0.00	0.45	0.00	(0.00, 9.87)	46	0.00	
##Gelormini J	407	1	0.25	0.43	0.38	(0.00, 2.10)	395	0.23	
#Masud A	428	0	0.00	0.40	0.00	(0.00, 1.41)	415	0.00	
##Morris W	777	3	0.39	0.74	0.35	(0.07, 1.01)	731	0.00	
##Phadke K	246	1	0.41	0.69	0.40	(0.01, 2.20)	222	0.00	
##Young H	12	1	8.33	0.59	9.43	(0.12,52.45)	10	0.00	
TOTAL	3095	16	0.52	0.54	0.64	(0.37, 1.04)	2939	0.26	

	All Cases Non-										
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR			
Montefiore Medical Center	-Einstein Div	ision									
#Brown D	137	3	2.19	0.46	3.19	(0.64, 9.33)	114	1.88			
Gotsis W	526	5	0.95	0.31	2.05	(0.66, 4.77)	493	1.32 *			
Monrad E	546	2	0.37	0.61	0.40	(0.05, 1.45)	503	0.15			
Silverman G	403	3	0.74	0.50	0.99	(0.20, 2.90)	356	0.27			
Srinivas V	434	3	0.69	0.42	1.11	(0.22, 3.23)	388	0.60			
TOTAL	2046	16	0.78	0.46	1.14	(0.65, 1.85)	1854	0.56			
Montefiore Medical Center	-Moses Divisi	ion									
#Goldman A Y	230	1	0.43	1.40	0.21	(0.00, 1.16)	211	0.24			
Greenberg M	613	3	0.49	0.74	0.44	(0.09, 1.29)	556	0.41			
#Grose R	198	1	0.51	0.40	0.84	(0.01, 4.68)	181	0.00			
#Johnson M	248	2	0.81	0.51	1.06	(0.12, 3.82)	241	0.79			
Menegus M	633	5	0.79	0.59	0.90	(0.29, 2.09)	569	0.60			
TOTAL	1922	12	0.62	0.70	0.59	(0.31, 1.03)	1758	0.44			
Mount Sinai Hospital											
#Kamran M	993	4	0.40	0.54	0.50	(0.13, 1.28)	927	0.42			
#Kim M	832	7	0.84	0.67	0.83	(0.33, 1.72)	783	0.47			
Kini A	669	6	0.90	0.97	0.62	(0.23, 1.35)	623	0.12			
#Marmur J	406	4	0.99	0.77	0.85	(0.23, 2.19)	367	0.88			
##Reich D	167	3	1.80	0.90	1.32	(0.27, 3.87)	154	1.08			
Sharma S	2960	7	0.24	0.63	0.25 **	(0.10, 0.51)	2858	0.12 *			
#Sherman W	581	6	1.03	0.90	0.77	(0.28, 1.67)	544	0.51			
##Suleman J	457	2	0.44	0.35	0.85	(0.09, 3.05)	441	0.81			
All Others	142	0	0.00	0.66	0.00	(0.00, 2.61)	133	0.00			
TOTAL	7207	39	0.54	0.67	0.54	(0.38, 0.73)	6830	0.31			
NY Hospital - Queens											
#Chang J	234	2	0.85	0.46	1.23	(0.14, 4.43)	209	0.57			
##David M	75	0	0.00	0.65	0.00	(0.00, 5.05)	72	0.00			
##Friedman G	35	1	2.86	1.64	1.16	(0.02, 6.44)	28	0.00			
##Geizhals M	403	2	0.50	0.35	0.94	(0.11, 3.38)	396	0.57			
##Grunwald A	45	1	2.22	0.74	1.99	(0.03,11.09)	41	1.78			
Gustafson G	995	15	1.51	0.99	1.02	(0.57, 1.68)	868	0.42			
##Koss J	17	0	0.00	0.30	0.00	(0.00,47.67)	15	0.00			
Papadakos S	1034	7	0.68	0.87	0.52	(0.21, 1.07)	891	0.37			
##Park J	3	0	0.00	0.09	0.00	(0.00,100.0)	3	0.00			
#Perry-Bottinger L	283	1	0.35	0.34	0.69	(0.01, 3.84)	252	0.00			
All Others	66	0	0.00	0.43	0.00	(0.00, 8.60)	61	0.00			
TOTAL	3190	29	0.91	0.75	0.81	(0.54, 1.16)	2836	0.41			

				All Case	25		Non-Emergen		
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR	
NYP- Columbia									
Apfelbaum M	202	1	0.50	0.65	0.51	(0.01, 2.83)	151	0.00	
#Brogno D	181	4	2.21	1.10	1.34	(0.36, 3.43)	148	0.70	
#Grose R	177	0	0.00	0.36	0.00	(0.00, 3.81)	163	0.00	
#Johnson M	73	1	1.37	0.95	0.96	(0.01, 5.36)	71	0.00	
#Perry-Bottinger L	5	0	0.00	0.25	0.00	(0.00,100.0)	5	0.00	
Rabbani L	257	5	1.95	1.15	1.13	(0.36, 2.64)	192	1.10	
Reison D	46	0	0.00	0.15	0.00	(0.00,35.55)	46	0.00	
Schwartz A	14	0	0.00	0.13	0.00	(0.00,100.0)	14	0.00	
Warshofsky M	188	0	0.00	0.51	0.00	(0.00, 2.56)	177	0.00	
#Wasserman H	352	3	0.85	1.03	0.55	(0.11, 1.61)	271	0.39	
Weinberger J	241	6	2.49	0.71	2.33 *	(0.85, 5.07)	191	1.06	
All Others	108	2	1.85	1.27	0.98	(0.11, 3.52)	87	0.00	
TOTAL	1844	22	1.19	0.83	0.96	(0.60, 1.45)	1516	0.49	
NYP-Weill Cornell									
Bergman G	783	5	0.64	0.79	0.54	(0.17, 1.26)	688	0.27	
#Charney R	342	2	0.58	0.69	0.56	(0.06, 2.03)	330	0.00	
Hong M	752	7	0.93	1.07	0.58	(0.23, 1.20)	659	0.13	
Iacovone F	414	7	1.69	1.20	0.94	(0.38, 1.94)	348	0.65	
#Messinger D	228	0	0.00	0.44	0.00	(0.00, 2.42)	209	0.00	
Parikh M	1415	4	0.28	0.44	0.43	(0.12, 1.10)	1324	0.17	
Reddy C	358	3	0.84	0.28	2.02	(0.41, 5.90)	354	0.82	
Wong S	647	2	0.31	0.46	0.45	(0.05, 1.61)	590	0.25	
All Others	85	2	2.35	0.76	2.05	(0.23, 7.41)	69	0.00	
TOTAL	5024	32	0.64	0.67	0.64	(0.44, 0.90)	4571	0.25	
NYU Hospitals Center									
##Angelopoulos P	14	0	0.00	0.29	0.00	(0.00,59.22)	14	0.00	
#Attubato M	677	4	0.59	0.75	0.53	(0.14, 1.35)	614	0.34	
#Feit F	643	1	0.16	0.60	0.17	(0.00, 0.97)	580	0.00	
#Keller N	52	0	0.00	1.48	0.00	(0.00, 3.17)	29	0.00	
#Levite H	256	3	1.17	1.04	0.75	(0.15, 2.19)	216	0.83	
##Slater J	204	1	0.49	0.24	1.34	(0.02, 7.46)	200	0.00	
##Winer H	229	5	2.18	0.78	1.88	(0.60, 4.38)	215	0.80	
All Others	8	0	0.00	0.33	0.00	(0.00,91.84)	8	0.00	
TOTAL	2083	14	0.67	0.70	0.64	(0.35, 1.07)	1876	0.38	
North Shore									
##Angelopoulos P	4	0	0.00	0.27	0.00	(0.00,100.0)	•	•	
##Deutsch E	672	0	0.00	0.31	0.00	(0.00, 1.17)	640	0.00	
#Freeman J	861	3	0.35	0.59	0.39	(0.08, 1.15)	703	0.15	
##Friedman G	137	1	0.73	0.51	0.96	(0.01, 5.33)	124	0.00	
##Gambino A	205	1	0.49	0.33	0.98	(0.01, 5.46)	193	0.96	
#Green S	1169	11	0.94	0.78	0.80	(0.40, 1.43)	999	0.41	

				All Case	s		Non-Emergen		
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR	
North Shore, continued									
##Grunwald A	42	0	0.00	0.52	0.00	(0.00,11.24)	36	0.00	
##Jauhar R	49	2	4.08	2.44	1.11	(0.13, 4.02)	4	0.00	
#Kaplan B	65	0	0.00	1.27	0.00	(0.00, 2.95)	14	0.00	
#Katz S	1155	9	0.78	0.78	0.67	(0.30, 1.27)	990	0.77	
##Koss J	61	1	1.64	1.14	0.96	(0.01, 5.32)	56	0.00	
##Lederman S	168	1	0.60	0.38	1.04	(0.01, 5.81)	162	0.63	
##Lee P	278	1	0.36	0.23	1.04	(0.01, 5.77)	272	0.65	
#Marchant D	695	3	0.43	0.74	0.39	(0.08, 1.13)	548	0.34	
#Ong L Y	1329	3	0.23	0.62	0.24	(0.05, 0.71)	1168	0.20	
##Padmanabhan V	33	0	0.00	0.44	0.00	(0.00,16.71)	28	0.00	
##Park J	182	0	0.00	0.57	0.00	(0.00, 2.35)	175	0.00	
Patcha R	392	0	0.00	0.42	0.00	(0.00, 1.50)	360	0.00	
##Patel R B	221	1	0.45	0.42	0.72	(0.01, 4.01)	212	0.43	
##Reich D	346	1	0.29	0.33	0.59	(0.01, 3.29)	341	0.42	
#Sassower M	97	0	0.00	0.38	0.00	(0.00, 6.72)	95	0.00	
##Schwartz R	413	2	0.48	0.54	0.60	(0.07, 2.17)	388	0.25	
#Strizik B	276	2	0.72	0.72	0.67	(0.07, 2.41)	260	0.30	
#Witkes D	129	0	0.00	0.36	0.00	(0.00, 5.28)	125	0.00	
#Zisfein J	331	1	0.30	0.21	0.96	(0.01, 5.33)	325	0.60	
All Others	208	0	0.00	0.43	0.00	(0.00, 2.73)	187	0.00	
TOTAL	9518	43	0.45	0.59	0.51	(0.37, 0.69)	8405	0.32	
Park Ridge Hospital									
##Chockalingam S	2	0	0.00	0.38	0.00	(0.00,100.0)	•	•	
##Ong L S	1	0	0.00	0.59	0.00	(0.00,100.0)	•	•	
##Patel T	34	0	0.00	1.00	0.00	(0.00, 7.22)	•	•	
TOTAL	37	0	0.00	0.95	0.00	(0.00, 6.94)	•	•	
Rochester General									
Berlowitz M	245	2	0.82	0.72	0.75	(0.08, 2.72)	176	0.00	
##Chockalingam S	565	7	1.24	0.84	0.99	(0.40, 2.03)	497	0.19	
#Doling M	970	2	0.21	0.46	0.30	(0.03, 1.08)	902	0.24	
Fitzpatrick P	465	5	1.08	1.12	0.64	(0.21, 1.50)	356	0.27	
Gacioch G	443	3	0.68	0.76	0.60	(0.12, 1.75)	335	0.28	
#Mathew T M	363	3	0.83	0.68	0.82	(0.16, 2.38)	327	0.72	
##Ong L S	2589	12	0.46	0.74	0.42	(0.22, 0.73)	2342	0.22	
##Patel T	605	8	1.32	1.13	0.78	(0.34, 1.53)	505	0.15	
Scortichini D	318	0	0.00	0.61	0.00	(0.00, 1.26)	300	0.00	
Stuver T	867	6	0.69	0.88	0.52	(0.19, 1.14)	658	0.26	
All Others	37	0	0.00	1.57	0.00	(0.00, 4.22)	27	0.00	
TOTAL	7467	48	0.64	0.78	0.55	(0.41, 0.73)	6425	0.23	

		All Cases									
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR			
South Nassau											
#Berke A	12	0	0.00	1.75	0.00	(0.00,11.65)		•			
##David M	3	0	0.00	1.99	0.00	(0.00,40.91)		•			
#Hormozi S	8	0	0.00	1.23	0.00	(0.00,24.76)		•			
#Lituchy A	64	3	4.69	2.51	1.24	(0.25, 3.63)		•			
#Minadeo J	41	2	4.88	0.99	3.28	(0.37,11.86)		•			
#Petrossian G	11	1	9.09	1.81	3.34	(0.04,18.60)		•			
#Zisfein J	49	0	0.00	2.40	0.00	(0.00, 2.08)		•			
TOTAL	188	6	3.19	2.00	1.07	(0.39, 2.32)	•	•			
Southside Hospital											
##Deutsch E	24	0	0.00	3.80	0.00	(0.00, 2.68)					
##Gambino A	1	0	0.00	0.38	0.00	(0.00,100.0)					
##Lee P	22	0	0.00	1.00	0.00	(0.00,11.09)					
##Patel R B	60	0	0.00	3.23	0.00	(0.00, 1.26)		•			
##Reich D	47	1	2.13	1.29	1.10	(0.01, 6.11)					
##Schwartz R	6	0	0.00	3.23	0.00	(0.00,12.63)	•	•			
All Others	2	0	0.00	2.91	0.00	(0.00,42.08)	•	•			
TOTAL	162	1	0.62	2.43	0.17	(0.00, 0.94)	•	•			
St. Elizabeth											
Gaffney B	211	2	0.95	0.79	0.80	(0.09, 2.88)	200	0.00			
Kelberman M	474	4	0.84	0.67	0.83	(0.22, 2.13)	452	0.20			
Macisaac H	790	7	0.89	0.87	0.68	(0.27, 1.40)	728	0.42			
Mathew T C	972	9	0.93	0.58	1.07	(0.49, 2.04)	932	0.75			
Nassif R	604	2	0.33	0.77	0.29	(0.03, 1.03)	578	0.11			
Patel A	536	2	0.37	0.67	0.37	(0.04, 1.35)	510	0.00			
Varma P	660	9	1.36	0.52	1.74 *	(0.79, 3.29)	613	1.21			
TOTAL	4247	35	0.82	0.68	0.80	(0.56, 1.12)	4013	0.42			
St. Francis											
Abittan M	595	3	0.50	0.71	0.47	(0.09, 1.38)	568	0.00			
Arkonac B	544	2	0.37	0.98	0.25	(0.03, 0.90)	482	0.12			
#Berke A	531	6	1.13	1.19	0.63	(0.23, 1.37)	479	0.51			
##David M	44	2	4.55	0.40	7.57 *	(0.85,27.32)	42	4.41 *			
Ezratty A	421	2	0.48	0.28	1.13	(0.13, 4.08)	414	0.77			
Goldman A B	381	2	0.52	0.75	0.47	(0.05, 1.69)	346	0.48			
Gulotta R	409	1	0.24	0.69	0.24	(0.00, 1.32)	384	0.00			
Gulotta S	122	1	0.82	0.43	1.27	(0.02, 7.05)	120	0.96			
Hamby R	214	2	0.93	0.23	2.68	(0.30, 9.67)	214	1.68			
Hershman R	843	2	0.24	0.27	0.59	(0.07, 2.12)	837	0.21			
#Hormozi S	599	7	1.17	0.73	1.06	(0.43, 2.19)	543	0.69			
#Lituchy A	607	2	0.33	0.56	0.39	(0.04, 1.42)	565	0.00			
#Minadeo J	309	4	1.29	1.02	0.85	(0.23, 2.16)	280	0.81			
Oruci E	525	3	0.57	0.36	1.06	(0.21, 3.09)	510	0.65			

	All Cases				Non-Emergency			
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
St. Francis, continued								
Pappas T	616	4	0.65	0.45	0.97	(0.26, 2.48)	593	1.08
#Petrossian G	828	4	0.48	0.48	0.67	(0.18, 1.72)	781	0.71
Randall A	159	2	1.26	0.92	0.91	(0.10, 3.29)	151	0.74
Rehman A	577	4	0.69	0.49	0.95	(0.26, 2.43)	533	0.41
Shlofmitz R	1417	4	0.28	0.23	0.81	(0.22, 2.09)	1381	0.41
Timmermans R	181	2	1.10	0.54	1.37	(0.15, 4.95)	163	0.63
Tsiamtsiouris T	394	2	0.51	0.78	0.43	(0.05, 1.57)	359	0.23
Venditto J	411	1	0.24	0.49	0.33	(0.00, 1.84)	372	0.34
All Others	120	1	0.83	0.77	0.72	(0.01, 4.01)	115	0.00
TOTAL	10847	63	0.58	0.56	0.70	(0.54, 0.89)	10232	0.47
St. Josephs Hospital Heal	th Center							
#Alfaro-Franco C	114	0	0.00	0.57	0.00	(0.00, 3.77)	91	0.00
#Amin N	146	1	0.68	0.70	0.65	(0.01, 3.63)	103	0.00
#Bhan R	703	6	0.85	0.52	1.09	(0.40, 2.36)	635	0.37
#Caputo R	945	8	0.85	0.59	0.96	(0.41, 1.89)	845	0.40
#Esente P	806	8	0.99	0.79	0.84	(0.36, 1.66)	743	0.44
#Ford T	147	0	0.00	0.64	0.00	(0.00, 2.62)	110	0.00
#Giambartolomei A	626	3	0.48	0.73	0.44	(0.09, 1.28)	547	0.00
#Lozner E	103	0	0.00	0.66	0.00	(0.00, 3.59)	72	0.00
#Reger M	494	3	0.61	0.48	0.84	(0.17, 2.45)	432	0.28
#Simons A	703	1	0.14	0.52	0.18	(0.00, 1.02)	624	0.00
Walford G	648	4	0.62	0.52	0.79	(0.21, 2.02)	579	0.43
All Others	275	2	0.73	0.82	0.59	(0.07, 2.14)	213	0.00
TOTAL	5710	36	0.63	0.61	0.68	(0.48, 0.95)	4994	0.26
St. Lukes Roosevelt Hosp	ital-St Luke's	Div.						
##Dominguez A	1	0	0.00	0.43	0.00	(0.00,100.0)	1	0.00
##Geizhals M	2	0	0.00	0.05	0.00	(0.00,100.0)	2	0.00
#Goldman A Y	72	0	0.00	0.66	0.00	(0.00, 5.15)	67	0.00
Leber R	202	1	0.50	0.30	1.10	(0.01, 6.14)	186	0.80
Palazzo A	164	0	0.00	0.36	0.00	(0.00, 4.12)	149	0.00
Simon C	281	2	0.71	0.91	0.52	(0.06, 1.89)	273	0.33
Singh V	623	2	0.32	0.39	0.54	(0.06, 1.96)	593	0.22
##Slater J	330	1	0.30	0.42	0.48	(0.01, 2.68)	315	0.52
Tamis J	192	2	1.04	0.52	1.34	(0.15, 4.83)	161	0.00
##Wilentz J	421	3	0.71	0.49	0.96	(0.19, 2.82)	381	0.00
All Others	96	1	1.04	0.86	0.81	(0.01, 4.51)	73	1.01
TOTAL	2384	12	0.50	0.50	0.67	(0.35, 1.17)	2201	0.29

				All Case	s		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
St. Peters Hospital								
#Brady S	75	0	0.00	0.71	0.00	(0.00, 4.59)	61	0.00
#Card H	122	1	0.82	0.42	1.31	(0.02, 7.30)	120	1.15
#Delago A	5	0	0.00	0.45	0.00	(0.00,100.0)		
##Dempsey S	8	0	0.00	0.26	0.00	(0.00,100.0)	8	0.00
##Desantis J	230	1	0.43	0.74	0.39	(0.01, 2.17)	192	0.00
#Esper D	238	2	0.84	0.94	0.60	(0.07, 2.16)	213	0.99
Herman B	125	1	0.80	0.45	1.20	(0.02, 6.65)	114	1.37
##Kufs W	13	0	0.00	0.57	0.00	(0.00,32.83)	12	0.00
#Marmulstein M	289	2	0.69	0.67	0.69	(0.08, 2.48)	205	0.62
#Martinelli M	845	3	0.36	0.51	0.47	(0.09, 1.36)	730	0.18
#Papaleo R	42	1	2.38	0.34	4.73	(0.06,26.32)	39	3.30
#Papandrea L	340	0	0.00	0.71	0.00	(0.00, 1.01)	281	0.00
#Roccario E	826	8	0.97	0.85	0.76	(0.33, 1.50)	646	0.35
All Others	180	1	0.56	0.61	0.60	(0.01, 3.36)	138	0.00
TOTAL	3338	20	0.60	0.68	0.59	(0.36, 0.91)	2759	0.39
St. Vincents Hospital and	Medical Cente	r						
#Acuna D	155	3	1.94	0.88	1.47	(0.30, 4.31)	118	0.77
Ambrose J	107	0	0.00	0.62	0.00	(0.00, 3.68)	89	0.00
Bhambhani G	333	0	0.00	0.39	0.00	(0.00, 1.88)	330	0.00
Braff R	120	1	0.83	0.66	0.85	(0.01, 4.72)	97	1.43
Coppola J	466	4	0.86	1.18	0.49	(0.13, 1.24)	362	0.52
##Dominguez A	454	2	0.44	0.82	0.36	(0.04, 1.30)	438	0.12
##Duvvuri S	138	1	0.72	0.51	0.95	(0.01, 5.27)	134	0.53
Elmquist T	138	3	2.17	1.39	1.04	(0.21, 3.04)	102	0.98
#Farid A	125	1	0.80	0.52	1.03	(0.01, 5.72)	114	0.95
#Hasan C	104	0	0.00	0.33	0.00	(0.00, 7.03)	102	0.00
#Homayuni A	33	0	0.00	0.29	0.00	(0.00,25.92)	32	0.00
Kantrowitz N	454	2	0.44	0.53	0.55	(0.06, 1.99)	415	0.16
Klapholz M	203	3	1.48	1.61	0.61	(0.12, 1.79)	130	0.00
Kwan T	376	0	0.00	0.25	0.00	(0.00, 2.59)	370	0.00
#Malpeso J	18	0	0.00	0.14	0.00	(0.00,93.89)	17	0.00
#McCord D	10	0	0.00	0.17	0.00	(0.00,100.0)	10	0.00
Rentrop K	67	1	1.49	0.32	3.11	(0.04,17.32)	66	2.95
#Safi A	1	0	0.00	0.13	0.00	(0.00,100.0)	1	0.00
Seldon M	129	5	3.88	1.34	1.93	(0.62, 4.50)	88	3.14
#Siddiqi R	193	0	0.00	0.29	0.00	(0.00, 4.30)	190	0.00
#Snyder S	135	1	7.69	0.23	22.22	(0.29,100.0)	13	12.74
#Vazzana T	15	0	0.00	0.06	0.00	(0.00,100.0)	1	0.00
#Warchol A	8	0	0.00	0.08	0.00	(0.00,100.0)	7	0.00
##Wilentz J	13	0	0.00	0.66	0.00	(0.00,28.50)	, 13	0.00
All Others	276	2	0.00	1.27	0.38	(0.04, 1.37)	210	0.00
TOTAL	3935	L	0.72	1.67	0.00	(0.07, 1.37)	210	0.54

				All Case	25		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Staten Island Univ Hosp								
#Acuna D	1	0	0.00	0.17	0.00	(0.00,100.0)	1	0.00
##Duvvuri S	528	1	0.19	0.43	0.30	(0.00, 1.65)	483	0.24
#Farid A	83	0	0.00	0.21	0.00	(0.00,13.93)	77	0.00
#Homayuni A	294	0	0.00	0.26	0.00	(0.00, 3.14)	269	0.00
#Malpeso J	348	1	0.29	0.34	0.56	(0.01, 3.14)	308	0.58
#McCord D	283	0	0.00	0.48	0.00	(0.00, 1.80)	252	0.00
#Rouvelas P	189	0	0.00	0.39	0.00	(0.00, 3.34)	184	0.00
#Snyder S	202	1	0.50	0.43	0.76	(0.01, 4.23)	187	0.00
#Vazzana T	244	0	0.00	0.45	0.00	(0.00, 2.23)	211	0.00
#Warchol A	149	0	0.00	0.40	0.00	(0.00, 4.10)	132	0.00
All Others	198	1	0.51	0.35	0.96	(0.01, 5.36)	190	0.94
TOTAL	2519	4	0.16	0.39	0.27	(0.07, 0.70)	2294	0.20
Strong Memorial								
##Chockalingam S	25	0	0.00	0.39	0.00	(0.00,24.78)	24	0.00
Cove C	805	8	0.99	0.88	0.76	(0.33, 1.49)	650	0.93
#Doling M	82	0	0.00	0.45	0.00	(0.00, 6.64)	75	0.00
Gassler J	328	0	0.00	0.71	0.00	(0.00, 1.05)	250	0.00
Ling F	774	9	1.16	1.11	0.70	(0.32, 1.33)	634	0.15
#Mathew T M	22	1	4.55	1.68	1.80	(0.02,10.04)	21	7.06
Narins C	880	9	1.02	0.70	0.97	(0.44, 1.84)	722	0.28
##Ong L S	112	0	0.00	0.40	0.00	(0.00, 5.51)	110	0.00
##Patel T	42	0	0.00	0.30	0.00	(0.00,19.56)	39	0.00
Pomerantz R	406	7	1.72	1.15	1.00	(0.40, 2.06)	295	0.85
All Others	125	2	1.60	1.92	0.56	(0.06, 2.01)	98	1.04
TOTAL	3601	36	1.00	0.91	0.74	(0.52, 1.02)	2918	0.46
United Health Services								
Jamal N	577	6	1.04	1.04	0.67	(0.24, 1.45)	502	0.41
Kashou H	592	6	1.01	0.84	0.80	(0.29, 1.75)	500	0.58
Phillips W	272	0	0.00	0.75	0.00	(0.00, 1.19)	238	0.00
Rehman A U	358	4	1.12	1.35	0.55	(0.15, 1.41)	286	0.00
Stamato N	306	2	0.65	1.34	0.33	(0.04, 1.17)	241	0.75
Traverse P	383	4	1.04	1.12	0.62	(0.17, 1.59)	311	0.33
All Others	275	1	0.36	1.48	0.16	(0.00, 0.91)	215	0.00
TOTAL	2763	23	0.83	1.10	0.51	(0.32, 0.76)	2293	0.35
University Hospital of Bro	oklyn							
Afflu E	239	0	0.00	0.23	0.00	(0.00, 4.36)	234	0.00
Badero O	163	4	2.45	0.55	2.97 *	(0.80, 7.61)	157	1.63
#Chadi R	5	0	0.00	0.24	0.00	(0.00,100.0)	5	0.00
Chadow H	326	3	0.92	0.34	1.82	(0.37, 5.33)	317	1.26
Feit A	510	1	0.20	0.25	0.53	(0.01, 2.95)	487	0.00
#Hasan C	22	0	0.00	0.11	0.00	(0.00,100.0)	21	0.00

	371         0         0.00         0.49         0.00         (0.00, 1.34)         354           48         0         0.00         0.16         0.00         (0.00, 32.67)         47           243         0         0.00         0.23         0.00         (0.00, 4.45)         232           1927         8         0.42         0.33         0.85         (0.36, 1.67)         1854           Brook         249         1         0.40         0.45         0.59         (0.01, 3.30)         224           415         3         0.72         0.70         0.69         (0.14, 2.01)         330           461         6         1.30         0.79         1.10         (0.40, 2.39)         425           537         3         0.56         0.45         0.83         (0.17, 2.41)         483           42         0         0.00         0.15         0.00         (0.00, 38.14)         38           373         1         0.27         0.32         0.56         (0.01, 4.12)         141           447         4         0.89         0.78         0.76         (0.20, 1.95)         374           590         5         0.85         0.					ergency		
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
University Hospital of Broo	oklyn, continu	ed						
#Marmur J	371	0	0.00	0.49	0.00	(0.00, 1.34)	354	0.00
#Safi A	48	0	0.00	0.16	0.00	(0.00,32.67)	47	0.00
All Others	243	0	0.00	0.23	0.00	(0.00, 4.45)	232	0.00
TOTAL	1927	8	0.42	0.33	0.85	(0.36, 1.67)	1854	0.40
University Hospital-Stony I	Brook							
Balchandani R	249	1	0.40	0.45	0.59	(0.01, 3.30)	224	0.55
Chernilas J	415	3	0.72	0.70	0.69	(0.14, 2.01)	330	0.63
Dervan J	461	6	1.30	0.79	1.10	(0.40, 2.39)	425	1.01
#Grella R	537	3	0.56	0.45	0.83	(0.17, 2.41)	483	0.21
##Jauhar R	42	0	0.00	0.15	0.00	(0.00,38.14)	38	0.00
Korlipara G	373	1	0.27	0.32	0.56	(0.01, 3.14)	351	0.37
Lawson W	543	7	1.29	1.00	0.86	(0.34, 1.77)	434	0.49
##Lederman S	158	1	0.63	0.57	0.74	(0.01, 4.12)	141	0.00
Novotny H	447	4	0.89	0.78	0.76	(0.20, 1.95)	374	0.00
Rosenband M	590	5	0.85	0.70	0.81	(0.26, 1.89)	508	0.56
All Others	121	5	4.13	1.73	1.60	(0.51, 3.72)	93	1.44
TOTAL	3936	36	0.91	0.70	0.88	(0.61, 1.21)	3401	0.49
University Hospital Upstat	te							
#Battaglia J	226	2	0.88	0.75	0.79	(0.09, 2.86)	191	0.00
#Berkery W	44	0	0.00	1.95	0.00	(0.00, 2.85)	34	0.00
##Phadke K	183	4	2.19	1.51	0.96	(0.26, 2.47)	152	0.44
All Others	76	2	2.63	1.78	0.98	· · ·	64	0.00
TOTAL	529	8	1.51	1.26	0.80	· · ·	441	0.21
Vassar Brothers								
Dukkipati M	40	0	0.00	0.17	0.00	(0.00,36.76)	40	0.00
Gorwara S	480	3	0.63	1.09	0.38	(0.08, 1.11)	316	0.29
Jafar M	1093	11	1.01	0.92	0.73	(0.36, 1.30)	769	0.36
Kantaros L	627	3	0.48	0.81	0.39	(0.08, 1.15)	457	0.57
TOTAL	2240	17	0.76	0.91	0.55	(0.32, 0.89)	1582	0.39
Westchester Medical Cente	r							
#Charney R	47	0	0.00	0.41	0.00	(0.00,12.65)	47	0.00
Cohen M	623	4	0.64	0.77	0.55	(0.15, 1.42)	528	0.00
Hjemdahl-Monsen C	1301	9	0.69	0.81	0.57	(0.26, 1.09)	1131	0.16
Kalapatapu K	1061	16	1.51	0.71	1.42 *	(0.81, 2.31)	873	0.73
#Messinger D	21	1	4.76	0.99	3.22	(0.04,17.91)	19	2.03
Pucillo A	918	8	0.87	0.65	0.90	(0.39, 1.77)	797	0.45
Weiss M	474	7	1.48	1.11	0.88	(0.35, 1.82)	395	0.92
TOTAL	4445	45	1.01	0.77	0.87	(0.64, 1.17)	3790	0.43

				All Case	S		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Winthrop Univ. Hosp.								
##Angelopoulos P	82	0	0.00	0.36	0.00	(0.00, 8.28)	67	0.00
#Chang J	43	1	2.33	1.38	1.13	(0.01, 6.27)	24	0.00
##David M	59	0	0.00	0.32	0.00	(0.00,12.76)	59	0.00
##Deutsch E	133	0	0.00	0.51	0.00	(0.00, 3.58)	132	0.00
##Gambino A	462	4	0.87	0.69	0.84	(0.23, 2.15)	409	0.70
#Grella R	11	0	0.00	0.25	0.00	(0.00,89.67)	11	0.00
##Jauhar R	5	0	0.00	0.33	0.00	(0.00,100.0)	5	0.00
##Lederman S	100	2	2.00	0.66	2.01	(0.23, 7.26)	89	1.36
##Lee P	69	0	0.00	0.35	0.00	(0.00,10.24)	67	0.00
Marzo K	950	2	0.21	0.50	0.28	(0.03, 1.01)	869	0.31
##Padmanabhan V	277	1	0.36	0.61	0.39	(0.01, 2.19)	227	0.41
##Park J	208	0	0.00	0.49	0.00	(0.00, 2.41)	188	0.00
##Patel R B	40	0	0.00	0.87	0.00	(0.00, 7.02)	38	0.00
##Reich D	297	1	0.34	0.36	0.63	(0.01, 3.51)	292	0.37
Robin G	34	0	0.00	0.74	0.00	(0.00, 9.75)	25	0.00
#Sassower M	511	3	0.59	1.31	0.30	(0.06, 0.87)	454	0.19
##Schwartz R	903	3	0.33	0.73	0.30	(0.06, 0.89)	825	0.18
#Witkes D	243	0	0.00	0.43	0.00	(0.00, 2.33)	227	0.00
All Others	111	0	0.00	0.66	0.00	(0.00, 3.33)	99	0.00
TOTAL	4538	17	0.37	0.66	0.38 **	(0.22, 0.60)	4107	0.27
Statewide Total	139042	927	0.67				124096	0.36

Risk-adjusted mortality rate significantly higher than statewide rate based on 95 percent confidence interval. Risk-adjusted mortality rate significantly lower than statewide rate based on 95 percent confidence interval. Performed procedures in another New York State hospital. Performed procedures in two or more other New York State hospitals. \*

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 Table 4
 Summary Information for Cardiologists Practicing at More Than One Hospital, 2001-2003.

				All Case	s		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Acuna D	156	3	1.92	0.87	1.47	(0.30, 4.30)	119	0.76
St. Vincents	155	3	1.94	0.88	1.47	(0.30, 4.31)	118	0.77
Staten Island Univ Hosp	1	0	0.00	0.17	0.00	(0.00,100.0)	1	0.00
Alfaro-Franco C	166	0	0.00	0.50	0.00	(0.00, 2.93)	141	0.00
Crouse Hospital	52	0	0.00	0.36	0.00	(0.00,13.04)	50	0.00
St. Josephs	114	0	0.00	0.57	0.00	(0.00, 3.77)	91	0.00
Amin N	328	1	0.30	0.53	0.38	(0.01, 2.14)	265	0.00
Crouse Hospital	182	0	0.00	0.39	0.00	(0.00, 3.44)	162	0.00
St. Josephs	146	1	0.68	0.70	0.65	(0.01, 3.63)	103	0.00
Angelopoulos P	100	0	0.00	0.35	0.00	(0.00, 7.04)	81	0.00
NYU Hospitals Center	14	0	0.00	0.29	0.00	(0.00,59.22)	14	0.00
North Shore	4	0	0.00	0.27	0.00	(0.00,100.0)		
Winthrop Univ. Hosp.	82	0	0.00	0.36	0.00	(0.00, 8.28)	67	0.00
Attubato M	829	6	0.72	0.72	0.67	(0.24, 1.45)	752	0.38
Bellevue	152	2	1.32	0.61	1.44	(0.16, 5.22)	138	0.57
NYU Hospitals Center	677	4	0.59	0.75	0.53	(0.14, 1.35)	614	0.34
Battaglia J	1060	7	0.66	0.42	1.04	(0.42, 2.14)	977	0.28
Crouse Hospital	834	5	0.60	0.34	1.19	(0.38, 2.78)	786	0.38
Univ. Hosp. Upstate	226	2	0.88	0.75	0.79	(0.09, 2.86)	191	0.00
Berke A	543	6	1.10	1.21	0.61	(0.22, 1.33)	479	0.51
South Nassau	12	0	0.00	1.75	0.00	(0.00,11.65)		
St. Francis	531	6	1.13	1.19	0.63	(0.23, 1.37)	479	0.51
Berkery W	397	2	0.50	1.38	0.24	(0.03, 0.88)	324	0.00
Crouse Hospital	353	2	0.57	1.31	0.29	(0.03, 1.04)	290	0.00
Univ. Hosp. Upstate	44	0	0.00	1.95	0.00	(0.00, 2.85)	34	0.00
Bhan R	704	6	0.85	0.52	1.09	(0.40, 2.36)	636	0.37
Crouse Hospital	1	0	0.00	0.03	0.00	(0.00,100.0)	1	0.00
St. Josephs	703	6	0.85	0.52	1.09	(0.40, 2.36)	635	0.37
Brady S	483	10	2.07	1.05	1.32	(0.63, 2.42)	377	0.87
Albany Medical Center	408	10	2.45	1.11	1.47 *	(0.70, 2.70)	316	1.06
St. Peters	75	0	0.00	0.71	0.00	(0.00, 4.59)	61	0.00
Brogno D	184	4	2.17	1.54	0.94	(0.25, 2.41)	148	0.70
Good Sam - Suffern	3	0	0.00	27.92	0.00	(0.00, 2.92)		•
NYP- Columbia	181	4	2.21	1.10	1.34	(0.36, 3.43)	148	0.70
Brown D	425	9	2.12	0.65	2.18 *	(0.99, 4.13)	369	1.19
Beth Israel	288	6	2.08	0.74	1.88 *	(0.69, 4.09)	255	0.87
Montefiore - Einstein	137	3	2.19	0.46	3.19	(0.64, 9.33)	114	1.88

				All Case	S		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Calandra S	634	4	0.63	0.38	1.11	(0.30, 2.84)	614	0.41
Erie County	10	0	0.00	0.13	0.00	(0.00,100.0)	10	0.00
Mercy Hospital	67	0	0.00	0.29	0.00	(0.00,12.41)	61	0.00
Millard Fillmore	557	4	0.72	0.39	1.21	(0.33, 3.11)	543	0.47
Caputo R	1164	10	0.86	0.58	0.99	(0.47, 1.82)	1047	0.35
Crouse Hospital	219	2	0.91	0.54	1.14	(0.13, 4.10)	202	0.00
St. Josephs	945	8	0.85	0.59	0.96	(0.41, 1.89)	845	0.40
Card H	185	1	0.54	0.49	0.74	(0.01, 4.10)	179	0.66
Ellis Hospital	63	0	0.00	0.63	0.00	(0.00, 6.17)	59	0.00
St. Peters	122	1	0.82	0.42	1.31	(0.02, 7.30)	120	1.15
Chadi R	25	0	0.00	0.17	0.00	(0.00,57.48)	25	0.00
Beth Israel	20	0	0.00	0.15	0.00	(0.00,79.45)	20	0.00
Univ. Hosp. Brooklyn	5	0	0.00	0.24	0.00	(0.00,100.0)	5	0.00
Chang J	277	3	1.08	0.61	1.19	(0.24, 3.49)	233	0.44
NY Hospital - Queens	234	2	0.85	0.46	1.23	(0.14, 4.43)	209	0.57
Winthrop Univ. Hosp.	43	1	2.33	1.38	1.13	(0.01, 6.27)	24	0.00
Charney R	389	2	0.51	0.66	0.52	(0.06, 1.87)	377	0.00
NYP-Weill Cornell	342	2	0.58	0.69	0.56	(0.06, 2.03)	330	0.00
Westchester Med. Ctr.	47	0	0.00	0.41	0.00	(0.00,12.65)	47	0.00
Chockalingam S	592	7	1.18	0.82	0.96	(0.39, 1.99)	521	0.18
Park Ridge Hosp.	2	0	0.00	0.38	0.00	(0.00,100.0)		•
Rochester General	565	7	1.24	0.84	0.99	(0.40, 2.03)	497	0.19
Strong Memorial	25	0	0.00	0.39	0.00	(0.00,24.78)	24	0.00
Corbelli J	684	7	1.02	0.48	1.41	(0.56, 2.90)	648	0.72
Erie County	74	1	1.35	0.18	5.04	(0.07,28.02)	74	3.04
Millard Fillmore	610	6	0.98	0.52	1.26	(0.46, 2.74)	574	0.60
Dashkoff N	574	2	0.35	0.56	0.41	(0.05, 1.49)	548	0.00
Erie County	571	2	0.35	0.57	0.41	(0.05, 1.49)	545	0.00
Millard Fillmore	3	0	0.00	0.22	0.00	(0.00,100.0)	3	0.00
David M	181	2	1.10	0.50	1.46	(0.16, 5.28)	173	1.06
NY Hospital - Queens	75	0	0.00	0.65	0.00	(0.00, 5.05)	72	0.00
South Nassau	3	0	0.00	1.99	0.00	(0.00,40.91)	•	•
St. Francis	44	2	4.55	0.40	7.57 *	(0.85,27.32)	42	4.41 *
Winthrop Univ. Hosp.	59	0	0.00	0.32	0.00	(0.00,12.76)	59	0.00
Delago A	1372	19	1.38	0.67	1.38 *	(0.83, 2.15)	1207	1.08 *
Albany Medical Center	1367	19	1.39	0.67	1.38 *	(0.83, 2.16)	1207	1.08 *
St. Peters	5	0	0.00	0.45	0.00	(0.00,100.0)	0	0.00

				All Case	S		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Dempsey S	118	0	0.00	0.83	0.00	(0.00, 2.51)	107	0.00
Albany Medical Center	2	0	0.00	0.06	0.00	(0.00,100.0)	2	0.00
Ellis Hospital	108	0	0.00	0.88	0.00	(0.00, 2.57)	97	0.00
St. Peters	8	0	0.00	0.26	0.00	(0.00,100.0)	8	0.00
Desantis J	236	1	0.42	0.74	0.38	(0.00, 2.13)	193	0.00
Albany Medical Center	1	0	0.00	0.03	0.00	(0.00,100.0)	1	0.00
Glens Falls Hosp.	5	0	0.00	0.76	0.00	(0.00,64.60)	•	•
St. Peters	230	1	0.43	0.74	0.39	(0.01, 2.17)	192	0.00
Deutsch E	869	0	0.00	0.54	0.00 **	(0.00, 0.52)	772	0.00
Good Sam - W. Islip	40	0	0.00	2.49	0.00	(0.00, 2.45)		•
North Shore	672	0	0.00	0.31	0.00	(0.00, 1.17)	640	0.00
Southside Hospital	24	0	0.00	3.80	0.00	(0.00, 2.68)		
Winthrop Univ. Hosp.	133	0	0.00	0.51	0.00	(0.00, 3.58)	132	0.00
Doling M	1052	2	0.19	0.46	0.28	(0.03, 1.00)	977	0.22
Rochester General	970	2	0.21	0.46	0.30	(0.03, 1.08)	902	0.24
Strong Memorial	82	0	0.00	0.45	0.00	(0.00, 6.64)	75	0.00
Dominguez A	460	2	0.43	0.81	0.36	(0.04, 1.29)	444	0.12
Lenox Hill	5	0	0.00	0.25	0.00	(0.00,100.0)	5	0.00
St. Lukes-Roosevelt	1	0	0.00	0.43	0.00	(0.00,100.0)	1	0.00
St. Vincents	454	2	0.44	0.82	0.36	(0.04, 1.30)	438	0.12
Duvvuri S	677	2	0.30	0.44	0.44	(0.05, 1.60)	627	0.32
Beth Israel	11	0	0.00	0.47	0.00	(0.00,47.30)	10	0.00
St. Vincents	138	1	0.72	0.51	0.95	(0.01, 5.27)	134	0.53
Staten Island Univ Hosp	528	1	0.19	0.43	0.30	(0.00, 1.65)	483	0.24
Emerson R	317	1	0.32	0.59	0.36	(0.00, 2.00)	244	0.35
Buffalo General	19	0	0.00	0.27	0.00	(0.00,46.99)	19	0.00
Erie County	34	0	0.00	0.27	0.00	(0.00,26.34)	31	0.00
Mercy Hospital	209	1	0.48	0.70	0.46	(0.01, 2.53)	148	0.44
Millard Fillmore	55	0	0.00	0.45	0.00	(0.00, 9.87)	46	0.00
Esente P	1004	9	0.90	0.70	0.85	(0.39, 1.61)	938	0.46
Crouse Hospital	198	1	0.51	0.37	0.92	(0.01, 5.13)	195	0.53
St. Josephs	806	8	0.99	0.79	0.84	(0.36, 1.66)	743	0.44
Esper D	565	11	1.95	1.17	1.11	(0.55, 1.98)	460	1.44 *
Albany Medical Center	327	9	2.75	1.34	1.37	(0.62, 2.60)	247	1.85 *
St. Peters	238	2	0.84	0.94	0.60	(0.07, 2.16)	213	0.99
Farhi E	940	0	0.00	0.63	0.00 **	(0.00, 0.42)	877	0.00
Buffalo General	928	0	0.00	0.63	0.00 **	(0.00, 0.42)	865	0.00
Erie County	12	0	0.00	0.26	0.00	(0.00,77.16)	12	0.00

		Non-Emergency						
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Farid A	208	1	0.48	0.40	0.81	(0.01, 4.50)	191	0.72
St. Vincents	125	1	0.80	0.52	1.03	(0.01, 5.72)	114	0.95
Staten Island Univ Hosp	83	0	0.00	0.21	0.00	(0.00,13.93)	77	0.00
Feit F	811	1	0.12	0.56	0.15	(0.00, 0.82)	732	0.00
Bellevue	168	0	0.00	0.41	0.00	(0.00, 3.55)	152	0.00
NYU Hospitals Center	643	1	0.16	0.60	0.17	(0.00, 0.97)	580	0.00
Ford T	307	0	0.00	0.45	0.00	(0.00, 1.76)	261	0.00
Crouse Hospital	160	0	0.00	0.28	0.00	(0.00, 5.39)	151	0.00
St. Josephs	147	0	0.00	0.64	0.00	(0.00, 2.62)	110	0.00
Freeman J	882	3	0.34	0.64	0.36	(0.07, 1.04)	704	0.15
LIJ Medical Center	21	0	0.00	2.66	0.00	(0.00, 4.39)	1	0.00
North Shore	861	3	0.35	0.59	0.39	(0.08, 1.15)	703	0.15
Friedman G	705	7	0.99	0.90	0.73	(0.29, 1.51)	617	0.42
LIJ Medical Center	533	5	0.94	0.95	0.66	(0.21, 1.53)	465	0.52
NY Hospital - Queens	35	1	2.86	1.64	1.16	(0.02, 6.44)	28	0.00
North Shore	137	1	0.73	0.51	0.96	(0.01, 5.33)	124	0.00
Gambino A	673	5	0.74	0.58	0.86	(0.28, 2.00)	602	0.75
Good Sam - W. Islip	5	0	0.00	0.52	0.00	(0.00,93.90)	•	•
North Shore	205	1	0.49	0.33	0.98	(0.01, 5.46)	193	0.96
Southside Hospital	1	0	0.00	0.38	0.00	(0.00,100.0)	•	•
Winthrop Univ. Hosp.	462	4	0.87	0.69	0.84	(0.23, 2.15)	409	0.70
Geizhals M	509	2	0.39	0.38	0.69	(0.08, 2.50)	502	0.42
Lenox Hill	104	0	0.00	0.48	0.00	(0.00, 4.87)	104	0.00
NY Hospital - Queens	403	2	0.50	0.35	0.94	(0.11, 3.38)	396	0.57
St. Lukes-Roosevelt	2	0	0.00	0.05	0.00	(0.00,100.0)	2	0.00
Gelormini J	472	1	0.21	0.43	0.33	(0.00, 1.83)	455	0.20
Buffalo General	5	0	0.00	0.58	0.00	(0.00,84.59)	5	0.00
Mercy Hospital	60	0	0.00	0.38	0.00	(0.00,10.72)	55	0.00
Millard Fillmore	407	1	0.25	0.43	0.38	(0.00, 2.10)	395	0.23
Giambartolomei A	741	3	0.40	0.73	0.37	(0.07, 1.08)	653	0.00
Crouse Hospital	115	0	0.00	0.75	0.00	(0.00, 2.83)	106	0.00
St. Josephs	626	3	0.48	0.73	0.44	(0.09, 1.28)	547	0.00
Goldman A Y	302	1	0.33	1.22	0.18	(0.00, 1.01)	278	0.20
Montefiore - Moses	230	1	0.43	1.40	0.21	(0.00, 1.16)	211	0.24
St. Lukes-Roosevelt	72	0	0.00	0.66	0.00	(0.00, 5.15)	67	0.00

				All Case	S		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Green S	1189	11	0.93	0.81	0.76	(0.38, 1.36)	1004	0.41
LIJ Medical Center	20	0	0.00	2.58	0.00	(0.00, 4.75)	5	0.00
North Shore	1169	11	0.94	0.78	0.80	(0.40, 1.43)	999	0.41
Grella R	548	3	0.55	0.45	0.82	(0.16, 2.39)	494	0.21
Univ. Hosp. Stony Brook	537	3	0.56	0.45	0.83	(0.17, 2.41)	483	0.21
Winthrop Univ. Hosp.	11	0	0.00	0.25	0.00	(0.00,89.67)	11	0.00
Grose R	375	1	0.27	0.38	0.46	(0.01, 2.59)	344	0.00
Montefiore - Moses	198	1	0.51	0.40	0.84	(0.01, 4.68)	181	0.00
NYP- Columbia	177	0	0.00	0.36	0.00	(0.00, 3.81)	163	0.00
Grunwald A	738	7	0.95	0.96	0.66	(0.26, 1.36)	647	0.28
LIJ Medical Center	651	6	0.92	1.00	0.61	(0.22, 1.33)	570	0.21
NY Hospital - Queens	45	1	2.22	0.74	1.99	(0.03,11.09)	41	1.78
North Shore	42	0	0.00	0.52	0.00	(0.00,11.24)	36	0.00
Hasan C	126	0	0.00	0.30	0.00	(0.00, 6.57)	123	0.00
St. Vincents	104	0	0.00	0.33	0.00	(0.00, 7.03)	102	0.00
Univ. Hosp. Brooklyn	22	0	0.00	0.11	0.00	(0.00,100.0)	21	0.00
Hogan R	538	0	0.00	0.26	0.00	(0.00, 1.72)	517	0.00
Albany Medical Center	282	0	0.00	0.22	0.00	(0.00, 3.90)	277	0.00
Ellis Hospital	245	0	0.00	0.28	0.00	(0.00, 3.53)	240	0.00
Glens Falls Hosp.	11	0	0.00	0.96	0.00	(0.00,23.25)	•	•
Homayuni A	327	0	0.00	0.27	0.00	(0.00, 2.80)	301	0.00
St. Vincents	33	0	0.00	0.29	0.00	(0.00,25.92)	32	0.00
Staten Island Univ Hosp	294	0	0.00	0.26	0.00	(0.00, 3.14)	269	0.00
Hormozi S	607	7	1.15	0.74	1.04	(0.42, 2.14)	543	0.69
South Nassau	8	0	0.00	1.23	0.00	(0.00,24.76)	•	•
St. Francis	599	7	1.17	0.73	1.06	(0.43, 2.19)	543	0.69
Jauhar R	892	5	0.56	0.83	0.45	(0.14, 1.05)	689	0.12
LIJ Medical Center	796	3	0.38	0.77	0.33	(0.07, 0.95)	642	0.12
North Shore	49	2	4.08	2.44	1.11	(0.13, 4.02)	4	0.00
Univ. Hosp. Stony Brook	42	0	0.00	0.15	0.00	(0.00,38.14)	38	0.00
Winthrop Univ. Hosp.	5	0	0.00	0.33	0.00	(0.00,100.0)	5	0.00
Johnson M	321	3	0.93	0.61	1.02	(0.21, 2.99)	312	0.62
Montefiore - Moses	248	2	0.81	0.51	1.06	(0.12, 3.82)	241	0.79
NYP- Columbia	73	1	1.37	0.95	0.96	(0.01, 5.36)	71	0.00
Kamran M	1028	6	0.58	0.66	0.59	(0.22, 1.29)	927	0.42
Elmhurst	35	2	5.71	3.96	0.96	(0.11, 3.47)	•	
Mount Sinai	993	4	0.40	0.54	0.50	(0.13, 1.28)	927	0.42

				All Case	25		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Kaplan B	1548	4	0.26	0.83	0.21 **	(0.06, 0.53)	1320	0.11
LIJ Medical Center	1483	4	0.27	0.81	0.22 **	(0.06, 0.57)	1306	0.11
North Shore	65	0	0.00	1.27	0.00	(0.00, 2.95)	14	0.00
Katz S	1178	10	0.85	0.87	0.65	(0.31, 1.20)	994	0.76
LIJ Medical Center	23	1	4.35	5.48	0.53	(0.01, 2.95)	4	0.00
North Shore	1155	9	0.78	0.78	0.67	(0.30, 1.27)	990	0.77
Keller N	193	1	0.52	0.87	0.40	(0.01, 2.20)	142	0.00
Bellevue	141	1	0.71	0.65	0.73	(0.01, 4.06)	113	0.00
NYU Hospitals Center	52	0	0.00	1.48	0.00	(0.00, 3.17)	29	0.00
Kim M	848	7	0.83	0.69	0.80	(0.32, 1.64)	783	0.47
Elmhurst	16	0	0.00	1.57	0.00	(0.00, 9.74)		•
Mount Sinai	832	7	0.84	0.67	0.83	(0.33, 1.72)	783	0.47
Koss J	677	6	0.89	0.75	0.79	(0.29, 1.72)	588	0.37
LIJ Medical Center	599	5	0.83	0.72	0.77	(0.25, 1.81)	517	0.41
NY Hospital - Queens	17	0	0.00	0.30	0.00	(0.00,47.67)	15	0.00
North Shore	61	1	1.64	1.14	0.96	(0.01, 5.32)	56	0.00
Kufs W	217	0	0.00	0.41	0.00	(0.00, 2.78)	197	0.00
Albany Medical Center	25	0	0.00	0.77	0.00	(0.00,12.67)	22	0.00
Ellis Hospital	179	0	0.00	0.34	0.00	(0.00, 3.99)	163	0.00
St. Peters	13	0	0.00	0.57	0.00	(0.00,32.83)	12	0.00
Lederman S	426	4	0.94	0.52	1.21	(0.33, 3.10)	392	0.72
North Shore	168	1	0.60	0.38	1.04	(0.01, 5.81)	162	0.63
Univ. Hosp. Stony Brook	158	1	0.63	0.57	0.74	(0.01, 4.12)	141	0.00
Winthrop Univ. Hosp.	100	2	2.00	0.66	2.01	(0.23, 7.26)	89	1.36
Lee P	423	1	0.24	0.43	0.37	(0.00, 2.04)	347	0.44
Good Sam - W. Islip	45	0	0.00	1.55	0.00	(0.00, 3.51)	•	•
LIJ Medical Center	9	0	0.00	0.24	0.00	(0.00,100.0)	8	0.00
North Shore	278	1	0.36	0.23	1.04	(0.01, 5.77)	272	0.65
Southside Hospital	22	0	0.00	1.00	0.00	(0.00,11.09)	•	•
Winthrop Univ. Hosp.	69	0	0.00	0.35	0.00	(0.00,10.24)	67	0.00
Levite H	351	3	0.85	0.86	0.66	(0.13, 1.93)	299	0.69
Bellevue	95	0	0.00	0.39	0.00	(0.00, 6.64)	83	0.00
NYU Hospitals Center	256	3	1.17	1.04	0.75	(0.15, 2.19)	216	0.83
Lituchy A	671	5	0.75	0.75	0.67	(0.21, 1.55)	565	0.00
South Nassau	64	3	4.69	2.51	1.24	(0.25, 3.63)		
St. Francis	607	2	0.33	0.56	0.39	(0.04, 1.42)	565	0.00

				All Case	s		Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Lozner E	291	0	0.00	0.71	0.00	(0.00, 1.18)	248	0.00
Crouse Hospital	188	0	0.00	0.74	0.00	(0.00, 1.75)	176	0.00
St. Josephs	103	0	0.00	0.66	0.00	(0.00, 3.59)	72	0.00
Malpeso J	366	1	0.27	0.33	0.55	(0.01, 3.08)	325	0.56
St. Vincents	18	0	0.00	0.14	0.00	(0.00,93.89)	17	0.00
Staten Island Univ Hosp	348	1	0.29	0.34	0.56	(0.01, 3.14)	308	0.58
Marchant D	712	3	0.42	0.81	0.35	(0.07, 1.02)	551	0.34
LIJ Medical Center	17	0	0.00	3.28	0.00	(0.00, 4.39)	3	0.00
North Shore	695	3	0.43	0.74	0.39	(0.08, 1.13)	548	0.34
Marmulstein M	293	2	0.68	0.67	0.68	(0.08, 2.44)	208	0.62
Albany Medical Center	4	0	0.00	0.75	0.00	(0.00,81.09)	3	0.00
St. Peters	289	2	0.69	0.67	0.69	(0.08, 2.48)	205	0.62
Marmur J	777	4	0.51	0.64	0.54	(0.15, 1.38)	721	0.46
Mount Sinai	406	4	0.99	0.77	0.85	(0.23, 2.19)	367	0.88
Univ. Hosp. Brooklyn	371	0	0.00	0.49	0.00	(0.00, 1.34)	354	0.00
Martinelli M	851	3	0.35	0.51	0.46	(0.09, 1.36)	736	0.18
Albany Medical Center	6	0	0.00	0.26	0.00	(0.00,100.0)	6	0.00
St. Peters	845	3	0.36	0.51	0.47	(0.09, 1.36)	730	0.18
Masud A	767	1	0.13	0.37	0.24	(0.00, 1.31)	742	0.15
Buffalo General	339	1	0.29	0.32	0.61	(0.01, 3.40)	327	0.38
Millard Fillmore	428	0	0.00	0.40	0.00	(0.00, 1.41)	415	0.00
Mathew T M	385	4	1.04	0.73	0.95	(0.25, 2.42)	348	1.03
Rochester General	363	3	0.83	0.68	0.82	(0.16, 2.38)	327	0.72
Strong Memorial	22	1	4.55	1.68	1.80	(0.02,10.04)	21	7.06
McCord D	293	0	0.00	0.47	0.00	(0.00, 1.78)	262	0.00
St. Vincents	10	0	0.00	0.17	0.00	(0.00,100.0)	10	0.00
Staten Island Univ Hosp	283	0	0.00	0.48	0.00	(0.00, 1.80)	252	0.00
Messinger D	249	1	0.40	0.49	0.55	(0.01, 3.05)	228	0.33
NYP-Weill Cornell	228	0	0.00	0.44	0.00	(0.00, 2.42)	209	0.00
Westchester Med. Ctr.	21	1	4.76	0.99	3.22	(0.04,17.91)	19	2.03
Minadeo J	350	6	1.71	1.02	1.12	(0.41, 2.45)	280	0.81
South Nassau	41	2	4.88	0.99	3.28	(0.37,11.86)		
St. Francis	309	4	1.29	1.02	0.85	(0.23, 2.16)	280	0.81
Morris W	1146	5	0.44	0.63	0.46	(0.15, 1.08)	1087	0.21
Buffalo General	349	2	0.57	0.39	0.98	(0.11, 3.53)	342	0.56
Mercy Hospital	20	0	0.00	0.44	0.00	(0.00,28.10)	14	0.00
Millard Fillmore	777	3	0.39	0.74	0.35	(0.07, 1.01)	731	0.00

	All Cases					Non-Em	ergency	
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Ong L S	2702	12	0.44	0.72	0.41	(0.21, 0.72)	2452	0.21
Park Ridge Hosp.	1	0	0.00	0.59	0.00	(0.00,100.0)		•
Rochester General	2589	12	0.46	0.74	0.42	(0.22, 0.73)	2342	0.22
Strong Memorial	112	0	0.00	0.40	0.00	(0.00, 5.51)	110	0.00
Ong L Y	1345	3	0.22	0.64	0.23	(0.05, 0.68)	1173	0.20
LIJ Medical Center	16	0	0.00	2.16	0.00	(0.00, 7.07)	5	0.00
North Shore	1329	3	0.23	0.62	0.24	(0.05, 0.71)	1168	0.20
Padmanabhan V	331	1	0.30	0.57	0.35	(0.00, 1.96)	273	0.35
LIJ Medical Center	21	0	0.00	0.27	0.00	(0.00,43.54)	18	0.00
North Shore	33	0	0.00	0.44	0.00	(0.00,16.71)	28	0.00
Winthrop Univ. Hosp.	277	1	0.36	0.61	0.39	(0.01, 2.19)	227	0.41
Papaleo R	152	2	1.32	0.52	1.68	(0.19, 6.06)	137	1.01
Albany Medical Center	110	1	0.91	0.59	1.02	(0.01, 5.68)	98	0.00
St. Peters	42	1	2.38	0.34	4.73	(0.06,26.32)	39	3.30
Papandrea L	395	0	0.00	0.84	0.00	(0.00, 0.74)	309	0.00
Albany Medical Center	55	0	0.00	1.61	0.00	(0.00, 2.76)	28	0.00
St. Peters	340	0	0.00	0.71	0.00	(0.00, 1.01)	281	0.00
Park J	393	0	0.00	0.52	0.00	(0.00, 1.19)	366	0.00
NY Hospital - Queens	3	0	0.00	0.09	0.00	(0.00,100.0)	3	0.00
North Shore	182	0	0.00	0.57	0.00	(0.00, 2.35)	175	0.00
Winthrop Univ. Hosp.	208	0	0.00	0.49	0.00	(0.00, 2.41)	188	0.00
Patel R B	376	3	0.80	1.06	0.50	(0.10, 1.47)	251	0.31
Good Sam - W. Islip	55	2	3.64	1.39	1.74	(0.20, 6.28)	1	0.00
North Shore	221	1	0.45	0.42	0.72	(0.01, 4.01)	212	0.43
Southside Hospital	60	0	0.00	3.23	0.00	(0.00, 1.26)	•	•
Winthrop Univ. Hosp.	40	0	0.00	0.87	0.00	(0.00, 7.02)	38	0.00
Patel T	681	8	1.17	1.07	0.73	(0.31, 1.44)	544	0.14
Park Ridge Hosp.	34	0	0.00	1.00	0.00	(0.00, 7.22)	•	•
Rochester General	605	8	1.32	1.13	0.78	(0.34, 1.53)	505	0.15
Strong Memorial	42	0	0.00	0.30	0.00	(0.00,19.56)	39	0.00
Perry-Bottinger L	288	1	0.35	0.34	0.68	(0.01, 3.79)	257	0.00
NY Hospital - Queens	283	1	0.35	0.34	0.69	(0.01, 3.84)	252	0.00
NYP- Columbia	5	0	0.00	0.25	0.00	(0.00,100.0)	5	0.00
Petrossian G	839	5	0.60	0.50	0.80	(0.26, 1.87)	781	0.71
South Nassau	11	1	9.09	1.81	3.34	(0.04,18.60)		•
St. Francis	828	4	0.48	0.48	0.67	(0.18, 1.72)	781	0.71

	All Cases						Non-Emergenc	
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Phadke K	640	5	0.78	0.77	0.68	(0.22, 1.59)	580	0.20
Erie County	211	0	0.00	0.21	0.00	(0.00, 5.42)	206	0.00
Millard Fillmore	246	1	0.41	0.69	0.40	(0.01, 2.20)	222	0.00
Univ. Hosp. Upstate	183	4	2.19	1.51	0.96	(0.26, 2.47)	152	0.44
Reger M	591	3	0.51	0.45	0.74	(0.15, 2.18)	522	0.24
Crouse Hospital	97	0	0.00	0.31	0.00	(0.00, 8.17)	90	0.00
St. Josephs	494	3	0.61	0.48	0.84	(0.17, 2.45)	432	0.28
Reich D	942	7	0.74	0.60	0.83	(0.33, 1.71)	808	0.57
Good Sam - W. Islip	64	1	1.56	1.99	0.52	(0.01, 2.92)		•
LIJ Medical Center	21	0	0.00	0.29	0.00	(0.00,40.69)	21	0.00
Mount Sinai	167	3	1.80	0.90	1.32	(0.27, 3.87)	154	1.08
North Shore	346	1	0.29	0.33	0.59	(0.01, 3.29)	341	0.42
Southside Hospital	47	1	2.13	1.29	1.10	(0.01, 6.11)		
Winthrop Univ. Hosp.	297	1	0.34	0.36	0.63	(0.01, 3.51)	292	0.37
Roccario E	835	8	0.96	0.84	0.76	(0.33, 1.50)	652	0.35
Albany Medical Center	9	0	0.00	0.36	0.00	(0.00,75.07)	6	0.00
St. Peters	826	8	0.97	0.85	0.76	(0.33, 1.50)	646	0.35
Rouvelas P	215	0	0.00	0.38	0.00	(0.00, 3.00)	209	0.00
Beth Israel	26	0	0.00	0.33	0.00	(0.00,28.90)	25	0.00
Staten Island Univ Hosp	189	0	0.00	0.39	0.00	(0.00, 3.34)	184	0.00
Sacchi T	716	0	0.00	0.29	0.00	(0.00, 1.16)	714	0.00
Beth Israel	469	0	0.00	0.26	0.00	(0.00, 1.97)	467	0.00
Maimonides	247	0	0.00	0.35	0.00	(0.00, 2.81)	247	0.00
Safi A	49	0	0.00	0.16	0.00	(0.00,32.11)	48	0.00
St. Vincents	1	0	0.00	0.13	0.00	(0.00,100.0)	1	0.00
Univ. Hosp. Brooklyn	48	0	0.00	0.16	0.00	(0.00,32.67)	47	0.00
Sassower M	608	3	0.49	1.16	0.28	(0.06, 0.83)	549	0.16
North Shore	97	0	0.00	0.38	0.00	(0.00, 6.72)	95	0.00
Winthrop Univ. Hosp.	511	3	0.59	1.31	0.30	(0.06, 0.87)	454	0.19
Schwartz R	1337	5	0.37	0.69	0.36	(0.12, 0.84)	1213	0.19
Good Sam - W. Islip	15	0	0.00	1.56	0.00	(0.00,10.43)		•
North Shore	413	2	0.48	0.54	0.60	(0.07, 2.17)	388	0.25
Southside Hospital	6	0	0.00	3.23	0.00	(0.00,12.63)		
Winthrop Univ. Hosp.	903	3	0.33	0.73	0.30	(0.06, 0.89)	825	0.18
Sherman W	691	9	1.30	0.91	0.96	(0.44, 1.82)	646	0.60
Beth Israel	110	3	2.73	0.97	1.88	(0.38, 5.50)	102	1.14
Mount Sinai	581	6	1.03	0.90	0.77	(0.28, 1.67)	544	0.51

	All Cases						Non-Emergency	
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Siddiqi R	202	0	0.00	0.30	0.00	(0.00, 4.07)	199	0.00
Beth Israel	9	0	0.00	0.36	0.00	(0.00,75.43)	9	0.00
St. Vincents	193	0	0.00	0.29	0.00	(0.00, 4.30)	190	0.00
Simons A	842	1	0.12	0.49	0.16	(0.00, 0.91)	752	0.00
Crouse Hospital	139	0	0.00	0.33	0.00	(0.00, 5.36)	128	0.00
St. Josephs	703	1	0.14	0.52	0.18	(0.00, 1.02)	624	0.00
Slater J	575	3	0.52	0.38	0.92	(0.18, 2.68)	551	0.31
Bellevue	41	1	2.44	0.73	2.21	(0.03,12.31)	36	0.00
NYU Hospitals Center	204	1	0.49	0.24	1.34	(0.02, 7.46)	200	0.00
St. Lukes-Roosevelt	330	1	0.30	0.42	0.48	(0.01, 2.68)	315	0.52
Snyder S	215	2	0.93	0.42	1.47	(0.16, 5.30)	200	0.76
St. Vincents	13	1	7.69	0.23	22.22	(0.29,100.0)	13	12.74
Staten Island Univ Hosp	202	1	0.50	0.43	0.76	(0.01, 4.23)	187	0.00
Strizik B	326	3	0.92	0.71	0.86	(0.17, 2.52)	310	0.47
LIJ Medical Center	50	1	2.00	0.63	2.11	(0.03,11.73)	50	1.07
North Shore	276	2	0.72	0.72	0.67	(0.07, 2.41)	260	0.30
Suleman J	478	2	0.42	0.42	0.67	(0.08, 2.43)	446	0.80
Elmhurst	16	0	0.00	2.48	0.00	(0.00, 6.15)		
LIJ Medical Center	5	0	0.00	0.17	0.00	(0.00,100.0)	5	0.00
Mount Sinai	457	2	0.44	0.35	0.85	(0.09, 3.05)	441	0.81
Vazzana T	245	0	0.00	0.45	0.00	(0.00, 2.23)	212	0.00
St. Vincents	1	0	0.00	0.06	0.00	(0.00,100.0)	1	0.00
Staten Island Univ Hosp	244	0	0.00	0.45	0.00	(0.00, 2.23)	211	0.00
Warchol A	157	0	0.00	0.38	0.00	(0.00, 4.06)	139	0.00
St. Vincents	8	0	0.00	0.08	0.00	(0.00,100.0)	7	0.00
Staten Island Univ Hosp	149	0	0.00	0.40	0.00	(0.00, 4.10)	132	0.00
Wasserman H	353	3	0.85	1.03	0.55	(0.11, 1.61)	272	0.39
Arnot-Ogden	1	0	0.00	0.17	0.00	(0.00,100.0)	1	0.00
NYP- Columbia	352	3	0.85	1.03	0.55	(0.11, 1.61)	271	0.39
Wilentz J	519	3	0.58	0.48	0.81	(0.16, 2.37)	478	0.00
Beth Israel	85	0	0.00	0.36	0.00	(0.00, 7.92)	84	0.00
St. Lukes-Roosevelt	421	3	0.71	0.49	0.96	(0.19, 2.82)	381	0.00
St. Vincents	13	0	0.00	0.66	0.00	(0.00,28.50)	13	0.00
Winer H	451	7	1.55	0.68	1.51	(0.61, 3.11)	388	1.01
Arnot-Ogden	112	0	0.00	0.86	0.00	(0.00, 2.53)	67	0.00
Bellevue	110	2	1.82	0.31	3.85	(0.43,13.90)	106	2.10
NYU Hospitals Center	229	5	2.18	0.78	1.88	(0.60, 4.38)	215	0.80

	All Cases						Non-Em	ergency
	Cases	Deaths	OMR	EMR	RAMR	95% CI for RAMR	Cases	RAMR
Witkes D	372	0	0.00	0.41	0.00	(0.00, 1.62)	352	0.00
North Shore	129	0	0.00	0.36	0.00	(0.00, 5.28)	125	0.00
Winthrop Univ. Hosp.	243	0	0.00	0.43	0.00	(0.00, 2.33)	227	0.00
Young H	137	2	1.46	0.86	1.13	(0.13, 4.07)	115	0.00
Buffalo General	33	0	0.00	0.28	0.00	(0.00,26.16)	31	0.00
Erie County	8	0	0.00	0.46	0.00	(0.00,67.01)	7	0.00
Mercy Hospital	84	1	1.19	1.17	0.68	(0.01, 3.77)	67	0.00
Millard Fillmore	12	1	8.33	0.59	9.43	(0.12,52.45)	10	0.00
Zisfein J	380	1	0.26	0.49	0.36	(0.00, 1.98)	325	0.60
North Shore	331	1	0.30	0.21	0.96	(0.01, 5.33)	325	0.60
South Nassau	49	0	0.00	2.40	0.00	(0.00, 2.08)	•	•

### Criteria Used in Reporting Significant Risk Factors (2003) Based on Documentation in Medical Record

Patient Risk Factor	Definitions
Hemodynamic State	Determined just prior to the intervention
• Unstable	Patient requires pharmacologic or mechanical support to maintain blood pressure or cardiac output
• Shock	Acute hypotension (systolic blood pressure < 80 mmHg) or low cardiac index (< 2.0 liters/min/m2), despite pharmacologic or mechanical support
Comorbidities	
Chronic Obstructive Pulmonary Disease (COPD)	Patients who require chronic (longer than three months) bronchodilator therapy to avoid disability from obstructive airway disease, have a forced expiratory volume in one second of less than 75% of the predicted value or less than 1.25 liters, or have a room air $pO_2 < 60$ or a $pCO_2 > 50$ .
Congestive Heart Failure (CHF), Current	Within 2 weeks prior to the procedure, a physician has diagnosed CHF by one of the following:
	<ul> <li>Paroxysmal nocturnal dyspnea (PND)</li> </ul>
	• Dyspnea on exertion (DOE) due to heart failure, or
	Chest X-Ray showing pulmonary congestion.
• Congestive Heart Failure (CHF), Past	Between 2 weeks to 6 months prior to the procedure, a physician has diagnosed CHF by one of the following:
	• Paroxysmal nocturnal dyspnea (PND)
	• Dyspnea on exertion (DOE) due to heart failure, or
	Chest X-Ray showing pulmonary congestion.
• Renal Failure, Creatinine > 2.5	Pre-intervention creatinine greater than 2.5 mg/dl
• Renal Failure, Dialysis	The patient is on chronic peritoneal or hemodialysis
• Stent Thrombosis	Formation of a blood clot in the stented segment of the artery and/or adjacent area. This usually results in an acute occlusion, chest pain or development of an acute MI.
Ventricular Function	
• Previous MI less than 12 hours	One or more myocardial infarctions (MI) less than 12 hours before the intervention
• Previous MI, more than 12 hours and less than 24 hours	One or more myocardial infarctions (MI) more than 12 hours and less than 24 hours before the intervention
• Previous MI, 1 to 7 days	One or more myocardial infarctions (MI) occurring 1 to 7 days before the intervention.

Ventricular Function, continued	
• Ejection Fraction	Value of the ejection fraction taken closest to the procedure. When a calculated measure is unavailable the ejection fraction should be estimated visually from the ventriculogram or by echocardiography. Intraoperative direct observation of the heart is not an adequate basis for a visual estimate of the ejection fraction.
Severity of Atherosclerotic Process	
• Peripheral Vascular Disease	Patient has either Aortoiliac or Femoral/Popliteal disease as defined below.
• Aortoiliac Disease	Angiographic demonstration of at least 50% narrowing in a major aortoiliac vessel, previous surgery for such disease, absent femoral pulses, or the inability to insert a catheter or intra-aortic balloon due to iliac aneurysm or obstruction of the aortoiliac arteries.
• Femoral/Popliteal Disease	Angiographic demonstration of at least 50% narrowing in a major femoral/popliteal vessel, previous surgery for such disease, absent pedal pulses, or inability to insert a catheter or intra- aortic balloon due to obstruction in the femoral arteries.
Vessels Diseased	
• Left Main Disease	The patient has at least a 50% blockage in the Left Main Coronary Artery.
• Three Vessels Diseased	The patient has at least 70% blockage in each of three native coronary arteries including the Left Anterior Descending (LAD), the Right Coronary Artery (RCA), and the Left Circumflex (LCX) or their major branches.

### **MEDICAL TERMINOLOGY**

percutaneous coronary intervention (PCI) also known as angioplasty or percutaneous transluminal coronary angioplasty – typically in this procedure, a balloon catheter is threaded up to the site of blockage in an artery in the heart, and is then inflated to push arterial plaque against the wall of the artery to create a wider channel in the artery. Other procedures or devices are frequently used in conjunction with the catheter to remove plaque. In particular, stents are used for most patients, and procedures such as atherectomies and ultrasound are sometimes used.

**angina pectoris** - the pain or discomfort felt when blood and oxygen flow to the heart are impeded by blockage in the coronary arteries. This can also be caused by an arterial spasm.

**arteriosclerosis** - the group of diseases characterized by thickening and loss of elasticity of the arterial walls, popularly called "hardening of the arteries". Also called *atherosclerotic coronary artery disease* or *coronary artery disease*.

**atherosclerosis** - one form of arteriosclerosis in which plaques or fatty deposits form in the inner layer of the arteries.

**cardiac catheterization** - also known as *coronary angiography* - a procedure for diagnosing the condition of the heart and the arteries connecting to it. A thin tube threaded through an artery to the heart releases a dye, which allows doctors to observe blockages with an x-ray camera. This procedure is required before PCI is performed.

**cardiovascular disease -** disease of the heart and blood vessels, the most common form is coronary artery disease.

**coronary arteries** - the arteries that supply the heart muscle with blood. When they are narrowed or blocked, blood and oxygen cannot flow freely to the heart muscle or myocardium.

**coronary artery bypass graft surgery (CABG)** - a procedure in which a vein or artery from another part of the body is used to create an alternate path for blood to flow to the heart, bypassing the arterial blockage. Typically, a section of one of the large saphenous veins in the leg, the radial artery in the arm or the mammary artery in the chest is used to construct the bypass. One or more bypasses may be performed during a single operation. When no other major heart surgery (such as valve replacement) is included, the operation is referred to as an isolated CABG.

Double, triple, quadruple **bypass**- the average number of bypass grafts created during coronary artery bypass graft surgery is three or four. Generally, all significantly blocked arteries are bypassed unless they enter areas of the heart that are permanently damaged by previous heart attacks. Five or more bypasses are occasionally created. Multiple bypasses are often performed to provide several alternate routes for the blood flow and to improve the long-term success of the procedure, not necessarily because the patient's condition is more severe.

**ischemic heart disease (ischemia)** - heart disease that occurs as a result of inadequate blood supply to the heart muscle or myocardium.

lesion - an irregular growth of fiber and tissue.

**myocardial infarction** - partial destruction of the heart muscle due to interrupted blood supply, also called a *heart attack*.

**plaque -** also called *atheroma*, this is the fatty deposit in the coronary artery that can block blood flow.

**risk factors for heart disease** - certain risk factors have been found to increase the likelihood of developing heart disease. Some are controllable or avoidable, and some cannot be controlled. The biggest heart disease risk factors are heredity, gender, and age, all of which cannot be controlled. Men are much more likely to develop heart disease than women before the age of 55, although it is the number one killer of both men and women.

Some controllable risk factors that contribute to a higher likelihood of developing coronary artery disease are high cholesterol levels, cigarette smoking, high blood pressure (hypertension), obesity, a sedentary lifestyle or lack of exercise, diabetes, and poor stress management.

**stenosis** - the narrowing of an artery due to blockage. *Restenosis* is when the narrowing recurs after PCI or surgery.

### 2003 Risk Factors For PCI In-Hospital Mortality (ALL CASES)

The significant pre-procedural risk factors for in-hospital mortality following PCI in 2003 are presented in the table that follows.

Roughly speaking, the odds ratio for a risk factor represents the number of times more likely a patient with that risk factor is of dying in the hospital during or after PCI than a patient without the risk factor, all other risk factors being the same. For example, the odds ratio for the risk factor "Peripheral Vascular Disease" is 2.598. This means that a patient with Peripheral Vascular Disease is approximately 2.598 times as likely to die in the hospital during or after undergoing PCI as a patient without Peripheral Vascular Disease who has the same other significant risk factors. The risk factors COPD and CHF, Current are interpreted in the same way.

With regard to age, the odds ratio roughly represents the number of times more likely a patient who is over age 55 is to die in the hospital than another patient who is one year younger, all other significant risk factors being the same. Thus, a patient undergoing PCI who is 63 years old has approximately 1.075 times the chance of dying in the hospital that a 62 year-old patient has, all other risk factors being the same. All patients aged 55 years or younger have roughly the same odds of dying in the hospital if their other risk factors are identical.

The odds ratio for the variable "Female Gender" is 1.498, meaning that a female undergoing PCI is 1.498 times more likely to die in the hospital than a male with all of the same other significant risk factors.

The variables for Hemodynamic State are relative to patients that are not hemodynamically unstable or in shock. So, for example, a patient that is unstable has 7.770 times the odds of death of a hemodynamically stable patient, all of the other significant risk factors being the same.

Ejection fraction, which is the percentage of blood in the heart's left ventricle that is expelled when it contracts (with more denoting a healthier heart), is subdivided into four ranges (<20%, 20% to 29%, 30% to 39% and 40% or more). The last range is referred to as the reference category. This means that the odds ratio that appears for the other ejection fraction categories in the table is relative to patients with an ejection fraction of 40% or more. Thus, a PCI patient with an ejection fraction of <20% is about 4.767 times as likely to die in the hospital as a patient with an ejection fraction of 40% or higher, all other significant risk factors being the same.

Previous MI is subdivided into four ranges (occurring less than 12 hours prior to the procedure, 12 to 23 hours prior, 1-7 days prior, and no MI within 7 days prior to the procedure). The last range is referred to as the reference category. The odds ratios for the Previous MI ranges are relative to patients who have not had an MI within 7 days prior to PCI.

In the case of the risk factor "Renal Failure Requiring Dialysis," the odds ratio given compares patients who have renal failure and are on dialysis with patients who do not have renal failure. In the same manner, the odds ratio for the risk factor "Renal Failure, Creatinine > 2.5" compares patients with renal failure and a Creatinine greater than 2.5 mg/dl with patients who do not have renal failure.

The risk factor "Three Vessels Diseased" refers to patient with at least a 70% blockage in each of three native coronary arteries (LAD, RCA, LCX), or their major branches. The odds ratio for this group is relative to all other patients.

,	,	Logistic Regression			
Patient Risk Factor	Prevalence (%)	Coefficient	P-Value	Odds Ratio	
Demographic					
Age: # of years > 55		0.0724	<.0001	1.075	
Female Gender	31.92	0.4038	0.0021	1.498	
Hemodynamic State					
Hemodynamically Stable	99.15	Refere	nce —	1.000	
Unstable	0.69	2.0503	<.0001	7.770	
Shock	0.16	3.0950	<.0001	22.087	
Ventricular Function					
Ejection Fraction					
Ejection Fraction 40% or greater	88.19	Refere		1.000	
Ejection Fraction < 20%	0.83	1.5617	<.0001	4.767	
Ejection Fraction 20-29%	3.49	0.6780	0.0005	1.970	
Ejection Fraction 30-39%	7.50	0.5719	0.0008	1.772	
Pre-Procedure MI					
No MI within 7 days	76.19	Refere		1.000	
MI < 12 hrs	7.80	2.1570	<.0001	8.645	
MI 12 - 23 hrs	2.99	1.2210	<.0001	3.390	
MI 1-7 days	13.02	0.9388	<.0001	2.557	
Severity of Atherosclerotic Process					
Peripheral Vascular Disease	6.08	0.9549	<.0001	2.598	
Comorbidities					
COPD	6.02	0.8118	<.0001	2.252	
CHF, Current	5.91	1.1728	<.0001	3.231	
Renal Failure					
No Renal Failure	97.15	Refere	nce —	1.000	
Renal Failure, Creatinine > 2.5	1.24	1.1392	<.0001	3.124	
Renal Failure, requiring dialysis	1.60	1.5581	<.0001	4.750	
Vessels					
Three Vessels Diseased	14.54	0.6257	<.0001	1.870	
Intercent 0.0070					

**Appendix 1** Multivariate Risk-Factor Equation for In-Hospital Deaths During or Following PCI in New York State 2003 *(All Cases)*.

Intercept = -8.0879

C Statistic = 0.905

#### 2003 Risk Factors For In-Hospital Mortality For Non-Emergency PCI

Appendix 2 contains the significant pre-procedural risk factors for 2003 New York PCI patients who were not emergency patients (were not in shock or hemodynamically unstable and who did not suffer a heart attack within 24 hours prior to the PCI being performed).

The interpretation for the variable age is similar to that in Appendix 1. However this time the odds ratio roughly represents the number of times more likely a patient who is over age 60 is to die in the hospital than another patient who is one year younger, all other significant risk factors being the same.

In this model, ejection fraction is represented by three ranges (<20%, 20% - 39%, and 40% or greater). This means that the odds ration that appears for the other ejection fraction categories in the table is relative to patient with an ejection fraction of 40% or more.

Pre-procedure MI 1-7 days compares patients who had an MI 1 to 7 days before the procedure to patients who did not. Thus, the odds of dying in the hospital for a patient who had an MI 1-7 days prior to the procedure are 2.745 times the odds of dying for a patient who did not, all other risk factors being the same.

Renal Failure, requiring dialysis compares patients who had renal failure requiring dialysis to all other patients. The odds ratio of 3.958 means that these patients have 3.958 times the odds of dying as patients who have all of the other risk factors the same.

The variables for Peripheral Vascular Disease, CHF, Current and Three Vessels Diseased are interpreted in the same manner as they were in Appendix 1.

	Logistic Regression						
Patient Risk Factor	Prevalence (%)	Coefficient	P-Value	Odds Ratio			
Demographic							
Age: # of years > 60		0.0734	<.0001	1.076			
Female Gender	32.47	0.5675	0.0014	1.764			
Ventricular Function							
Ejection Fraction							
Ejection Fraction 40% or greater	89.45		nce —	1.000			
Ejection Fraction < 20%	0.73	1.5106	0.0002	4.530			
Ejection Fraction 20-39%	9.82	0.7030	0.0005	2.020			
Pre-Procedure MI							
MI 1-7 days	14.52	1.0098	<.0001	2.745			
Severity of Atherosclerotic Process							
Peripheral Vascular Disease	6.36	1.1642	<.0001	3.203			
Comorbidities							
CHF, Current	5.56	1.3669	<.0001	3.923			
Renal Failure, requiring dialysis	1.72	1.3758	<.0001	3.958			
Vessels							
Three Vessels Diseased	14.70	0.6451	0.0005	1.906			
Intercept = -7.8786							
C Statistic = 0.848							

**Appendix 2** Multivariate Risk-Factor Equation for In-Hospital Deaths During or Following PCI in New York State, 2003 (Non-Emergency Cases)

### 2001-2003 Risk Factors for PCI In-Hospital Mortality (ALL CASES)

The significant pre-procedural risk factors for in-hospital mortality following PCI in the 2001-2003 time period are presented in the table that follows. The interpretation of this table is similar to the interpretation of Appendices 1 and 2 that is described previously. The variables Female Gender, Peripheral Vascular Disease, COPD, and Left Main Disease are interpreted in the same manner as Peripheral Vascular Disease in Appendix 1. For example, patients with COPD have odds of dying in the hospital that are 2.898 times the odds of patients without COPD dying in the hospital, all other risk factors being the same. Unstable, Shock, Three Vessels Diseased, CHF- Current and Past and Renal Failure Dialysis and Creatinine > 2.5 are interpreted in the same manner as they are in Appendix 1.

Age is represented by a linear and a quadratic (squared) term in order to improve the fit of the statistical model, and in this form the odds ratios for the two terms are not meaningful in characterizing relative risk of patients.

In this model, Ejection Fraction is divided into 3 categories (<20%, 20-29%, and 30% or more). The last range is referred to as the reference category. This means that the odds ratios that appear for other ejection fraction categories are relative to patients with an ejection fraction of 30% or more. Thus, a PCI patient with an ejection fraction < 20% is about 5.400 times as likely to die in the hospital as a patient with an ejection fraction of 30% or higher, all other significant risk factors being the same.

Previous MI is subdivided into five ranges (occurring less than 24 hours prior to the procedure with stent thrombosis, less than 12 hours prior without stent thrombosis, 12 to 23 hours without stent thrombosis, 1 to 7 days with or without stent thrombosis and no MI within 7 days prior to the procedure.) The last range is referred to as the reference category. The odds ratios for the Previous MI ranges are relative to patients who have not had an MI within 7 days prior to PCI.

The Number of Risk Factors Squared term is merely the square of the number of risk factors in Appendix 3 that a patient has (not counting age), and is used to improve the ability of the model to predict mortality.

New York State 2001- 2003 (All Cases).		Logistic Regression			
Patient Risk Factor	Prevalence (%)	Coefficient	P-Value	Odds Ratio	
Demographic					
Age		-0.0352	0.2076	0.965	
Age in years Squared		0.0676	0.0008	1.070	
Female Gender	32.00	0.9262	<.0001	2.525	
Hemodynamic State					
Hemodynamically Stable	99.09		ence —	1.000	
Unstable	0.70	2.7634	<.0001	15.854	
Shock	0.21	3.6479	<.0001	38.395	
Ventricular Function					
Ejection Fraction					
Ejection Fraction 30% or greater	95.89			1.000	
Ejection Fraction < 20%	0.76	1.6864	<.0001	5.400	
Ejection Fraction 20-29% Pre-Procedure MI	3.35	1.0185	<.0001	2.769	
No MI within 7 days	73.68		ence —	1.000	
MI < 24 hrs with Stent Thrombosis	0.20	3.1628	<.0001	23.636	
MI < 12 hrs w/o Stent Thrombosis	7.42	2.4130	<.0001	11.167	
MI 12 - 23 hrs w/o Stent Thrombosis	2.92	1.9936	<.0001	7.342	
MI 1 - 7 days with or w/o Stent Thrombosis	13.85	1.3313	<.0001	3.786	
Severity of Atherosclerotic Process					
Peripheral Vascular Disease	6.04	1.1680	<.0001	3.216	
Comorbidities					
Congestive Heart Failure (CHF)					
No CHF	90.51		ence —	1.000	
CHF, Current	5.95	1.7660	<.0001	5.848	
CHF, Past but not current	3.55	1.2509	<.0001	3.494	
COPD	6.06	1.0639	<.0001	2.898	
Renal Failure					
No Renal Failure	97.26		ence —	1.000	
Renal Failure, Creatinine > 2.5	1.27	1.6363	<.0001	5.136	
Renal Failure, Requiring Dialysis	1.47	2.0507	<.0001	7.774	
Vessels					
Left Main Diseased	3.87	1.2529	<.0001	3.501	
Three Vessels Diseased	16.11	0.9057	<.0001	2.474	
Number of Risk Factors Squared		-0.0885	<.0001	0.915	
Intercept = -8.0720 C Statistic = 0.894					

**Appendix 3** Multivariate Risk-Factor Equation for In-Hospital Deaths During or Following PCI in New York State 2001- 2003 *(All Cases)*.

# 2001-2003 Risk Factors for In-Hospital Mortality for Non-Emergency PCI

The significant pre-procedural risk factors for in-hospital mortality following non-emergency PCI in the 2001-2003 time period are presented in the Appendix 4 table below. Previous MI is subdivided into three ranges (occurring 1 to 7 days prior to PCI, 8 - 14 days, and no MI within 14 days prior to the procedure.) The last range is referred to as the reference category. The odds ratios for the Previous MI ranges are relative to patients who have not had an MI within 14 days prior to PCI. The interpretation of this table is similar to the interpretation of Appendices 1-3 that are described previously.

		Logistic Regression					
Patient Risk Factor	Prevalence (%)	Coefficient	P-Value	Odds Ratio			
Demographic							
Age		0.0536	<.0001	1.055			
Female Gender	32.52	1.0127	<.0001	2.753			
Ventricular Function Ejection Fraction							
Ejection Fraction 30 % or greater	96.27		nce ——	1.000			
Ejection Fraction < 20%	0.70	1.5782	<.0001	4.846			
Ejection Fraction 20-39% Pre-Procedure MI	9.89	1.0507	<.0001	2.860			
No MI within 14 days Pre-Procedure	82.91		nce —	1.000			
MI 1 - 7 days Pre-Procedure	15.40	1.4122	<.0001	4.105			
MI 8 - 14 days Pre-Procedure	1.69	1.1961	<.0001	3.307			
Severity of Atherosclerotic Process							
Peripheral Vascular Disease	6.26	1.3022	<.0001	3.677			
Comorbidities							
Congestive Heart Failure							
No CHF	90.65	— Refere		1.000			
CHF, Current	5.55	1.9357	<.0001	6.929			
CHF, Past but not current	3.80	1.2016	<.0001	3.325			
COPD Renal Failure	6.10	1.1147	<.0001	3.049			
No Renal Failure	97.13		nce——	1.000			
Renal Failure, Creatinine > 2.5	1.31	1.5083	<.0001	4.519			
Renal Failure, requiring dialysis	1.56	2.0554	<.0001	7.810			
Vessels							
Left Main Diseased	4.01	1.0861	<.0001	2.963			
Three Vessels Diseased	16.45	1.0123	<.0001	2.752			
Number of Risk Factors Squared		-0.0972	<.0001	0.907			
Intercept = -11.1310 C Statistic = 0.836							

### 2001-2003 Risk Factors for In-Hospital Mortality for Emergency PCI

The significant pre-procedural risk factors for in-hospital mortality following Emergency PCI in the 2001-2003 time period are presented in the Appendix 5 table below. In this model, the risk factor CHF compares patients diagnosed with CHF within the past 6 months to those without CHF. The risk factor Renal Failure refers to patients with Renal Failure who are on dialysis or who have a Creatinine greater that 2.5 mg/dl to those who do not have renal failure. The interpretation of the rest of this table is similar to the interpretations of Appendices 1-3 that are described previously.

		Log	gistic Regression		
Patient Risk Factor	Prevalence (%)	Coefficient	P-Value	Odds Ratio	
emographic					
Age: # of years > 50		0.0690	<.0001	1.071	
Female Gender	27.69	0.3638	0.0008	1.439	
lemodynamic State					
Hemodynamically Stable	91.54	—— Referer	1ce ——	1.000	
Unstable	6.51	1.8357	<.0001	6.269	
Shock	1.95	2.8977	<.0001	18.132	
entricular Function					
Ejection Fraction 30% or greater	92.68		nce ——	1.000	
Ejection Fraction < 20%	1.27	1.1487	<.0001	3.154	
Ejection Fraction 20-29%	6.05	0.6495	<.0001	1.915	
Pre-Procedure MI					
MI < 6 hours	52.81	0.3140	0.0033	1.369	
omorbidities					
CHF, Current Admission	9.27	0.9614	<.0001	2.615	
Renal Failure	1.69	1.5383	<.0001	4.656	
essels					
Left Main Diseased	2.69	1.0057	<.0001	2.734	

#### NEW YORK STATE PERCUTANEOUS CORONARY INTERVENTION CENTERS

Albany Medical Center Hospital New Scotland Avenue Albany, New York 12208

Arnot Ogden Medical Center 600 Roe Avenue Elmira, New York 14905

Bellevue Hospital Center First Avenue and 27th Street New York, New York 10016

Beth Israel Medical Center 10 Nathan D. Perlman Place New York, New York 10003

Buffalo General Hospital 100 High Street Buffalo, New York 14203

City Hospital at Elmhurst\* 79-01 Broadway Elmhurst, NY 11373

Columbia Presbyterian Medical Center – NY Presbyterian 161 Fort Washington Avenue New York, New York 10032

Crouse Hospital 736 Irving Avenue Syracuse, New York 13210

Ellis Hospital 1101 Nott Street Schenectady, New York 12308

Erie County Medical Center 462 Grider Street Buffalo, New York 14215

Glens Falls Hospital\* 100 Park Street Glens Falls, NY 12801

Good Samaritan Hospital of Suffern\* 255 Lafayette Avenue Suffern, NY 10901

Good Samaritan Hospital Medical Center\* 1000 Montauk Highway West Islip, New York 11795

Lenox Hill Hospital 100 East 77th Street New York, New York 10021

Long Island Jewish Medical Center 270-05 76th Avenue New Hyde Park, New York 11040

Mary Imogene Bassett Healthcare Atwell Road Cooperstown, NY 13326 Maimonides Medical Center 4802 Tenth Avenue Brooklyn, New York 11219

Mercy Hospital 565 Abbot Rd. Buffalo, NY 14220

Millard Fillmore Hospital 3 Gates Circle Buffalo, New York 14209

Montefiore Medical Center Henry & Lucy Moses Division 111 East 210th Street Bronx, New York 11219

Montefiore Medical Center-Weiler Hospital of A Einstein College 1825 Eastchester Road Bronx, New York 10461

Mount Sinai Medical Center One Gustave L. Levy Place New York, New York 10019

NYU Hospitals Center 550 First Avenue New York, New York 10016

New York Hospital Medical Center-Queens 56-45 Main Street Flushing, New York 11355

North Shore University Hospital 300 Community Drive Manhasset, New York 11030

Park Ridge Hospital\* 1555 Long Pond Road Rochester, NY 14626

Rochester General Hospital 1425 Portland Avenue Rochester, New York 14621

South Nassau Communities Hospital\* One Healthy Way Oceanside, New York 11572

Southside Hospital \* 301 East Main Street Bayshore, New York 11706

St. Elizabeth Medical Center 2209 Genesee Street Utica, New York 13413

St. Francis Hospital Port Washington Boulevard Roslyn, New York 11576 St. Joseph's Hospital Health Center 301 Prospect Avenue Syracuse, New York 13203

St. Luke's Roosevelt Hospital Center 11-11 Amsterdam Avenue at 114th Street New York, New York 10025

St. Peter's Hospital 315 South Manning Boulevard Albany, New York 12208

St. Vincent's Hospital & Medical Center of NY 153 West 11th Street New York, New York 10011

Staten Island University Hospital 475 Seaview Avenue Staten Island, New York 10305

Strong Memorial Hospital 601 Elmwood Avenue Rochester, New York 14642

United Health Services Wilson Hospital Division 33-57 Harrison Street Johnson City, New York 13790

University Hospital at Stony Brook SUNY Health Science Center at Stony Brook Stony Brook, New York 11794-8410

University Hospital of Brooklyn 450 Lenox Road Brooklyn, New York 11203

University Hospital Upstate Medical Center 750 East Adams Street Syracuse, New York 13210

Vassar Brothers Hospital 45 Reade Place Poughkeepsie, New York 12601

Weill-Cornell Medical Center – NY Presbyterian 525 East 68th Street New York, New York 10021

Westchester Medical Center Grasslands Road Valhalla, New York 10595

Winthrop – University Hospital 259 First Street Mineola, New York 11501

Hospital is allowed to perform Primary PCI only on acute MI (heart attack) patients.

Additional copies of this report may be obtained through the Department of Health web site at http://www.health.state.ny.us or by writing to:

Cardiac Box 2000 New York State Department of Health Albany, New York 12220



State of New York George E. Pataki, Governor

Department of Health Antonia C. Novello, M.D., M.P.H., Dr. P.H., Commissioner