

**A SUMMARY REPORT ON NEW JERSEY HOSPITAL READMISSIONS
30 DAYS AFTER CABG SURGERY 1999-2001**



Health Care Quality Assessment
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Introduction

This report presents summary data on readmissions for Coronary Artery Bypass Graft (CABG) surgery patients in New Jersey in 2001. Only those hospitals with cardiac surgery programs that were in operation for the whole of 2001 are included in the report.

CABG surgery patients in 2001 were matched against Uniform Billing (UB-92) records in 2001 and 2002. All CABG surgery patients who had matching records both in the CABG file and the UB-92 files were identified as 're-hospitalized CABG patients' as long as their UB admissions occurred after their CABG admission.

For this analysis, a patient is considered a readmission if the re-hospitalization occurred within 30 days after his/her CABG surgery discharge as reported in the Cardiac Surgery database. Transfer cases, as indicated in the UB-92 data files, were excluded.

Highlights

A. Readmitted Patients

- In 2001, CABG surgery accounted for 69.9% of statewide open-heart surgery patients in New Jersey. The percentage share of CABG surgery varied by hospital and ranges from 51.8% at Englewood Hospital and Medical Center to 80.4% at St. Michael's Medical Center (Exhibit 1).
- About 16.4% of patients who underwent CABG surgery in 2001 were re-hospitalized within 30 days after discharge for additional treatment. By hospital, the lowest readmission rate was 7.0% and the highest was 22.1% (Exhibit 1). For patients in 1999 the readmission rate was 13.4%, while the 2000 rate was 15.2%, reflecting an upward trend over this three-year period.
- Most patients (85.4%) were readmitted only once within 30 days after discharge from CABG surgery, with 12.9% readmitted twice and 1.7% readmitted three or more times (Exhibit 2). This pattern is consistent with 1999 and 2000 data.
- Among causes of re-hospitalization, '*other post-operative infections*' accounted for 12.7% of readmissions followed by '*congestive heart failure*' (10.7%) and '*coronary atherosclerosis of native coronary artery*' (6.4%) (Exhibit 3).
- Consistent with previous years, a substantial proportion of CABG surgery patient re-hospitalizations in 2001 occurred within the first 7 days of discharge from CABG surgery (41.9% in 2001 compared with 40.1% in 2000 and 38.9% in 1999). Second week re-hospitalizations accounted for 23.3% in 2001 (Exhibit 5a) compared with 24.2% in 2000 and 26.9% in 1999. About one-half of one percent (.6%) of CABG surgery patients were readmitted the same day they were discharged with 11.2% being readmitted within one day after discharge (Exhibit 5b).

- The average length of stay for re-hospitalizations among 2001 CABG patients who were readmitted within 7 days after CABG surgery was 8.1, compared with 7.1 for 2000 and 9.0 for 1999.
- In 2001, 62% of re-hospitalized CABG surgery patients were readmitted to the same hospital where the procedure was performed (Exhibit 6) compared with 54% in 2000 and 39% in 1999, a significant shift in the pattern of readmissions during this three-year period.

B. Socio-demographic Characteristics of Readmitted Patients

- There is a marked difference in the gender distributions of readmitted and total CABG surgery patients. For example, women accounted for only 27.2% of total CABG surgery patients compared with 33.9% among CABG readmissions, a disproportionately higher share (Exhibit 7). By contrast, 20.5% of female CABG surgery patients were readmitted compared with 14.9% for males (Exhibit 11).
- Likewise, African American or black patients represented only 5.9% of total CABG surgery cases, but 8.8% of readmissions. Even more notable is that, of the 510 CABG surgery patients for whom race/ethnicity was either “other” or unknown, fully 52% were readmitted. Over 24% (24.3%) of black CABG surgery patients were readmitted compared to 17.9% of Hispanic patients and 15.0% of white patients (Exhibit 11).
- A majority of CABG surgery patients, including those readmitted, were 60 years of age or older. A disproportionate share of patients 70 years of age or older were readmitted. This is reinforced by the finding that Medicare patients accounted for 52.4% of readmitted CABG surgery patients while their share of total CABG surgery patients was 48.8%. By comparison, commercial/HMO insurance carriers accounted for 35.1 % of CABG surgery readmissions and 41.7% of total CABG surgery patients (Exhibits 9 & 10).
- The readmission rate for those insured by Medicaid was 22.7% compared to a readmission rate for patients with Commercial/HMO insurance of 13.4%. Both Medicaid and commercially insured patients are more likely to be younger, making the higher Medicaid patient readmission rate notable (Exhibit 11).
- 3.2% of patients re-hospitalized in 2001 after CABG surgery died in hospital, compared with 3.6% in 2000 and 2.1% in 1999.
- Hospitals which had high CABG readmission rates in 2000 also tended to have high CABG readmission rates in 2001 ($r = .69$, $p = .0047$). However, there was no statistically significant relationship between CABG readmission rates and risk-adjusted mortality rates within any of the years analyzed (Exhibit 12).

Exhibit 1. Distribution of Patients Readmitted within 30 days after Isolated CABG Surgery Performed in 2001

Hospital	OHS Patients	CABG Surgery Cases		CABG Surgery Patients With 1 Or More Readmissions Within 30 Days From Discharge		Risk-adjusted Mortality Rate
		Number	% of OHS Patients	Number	%	%
Cooper Hospital/University MC	297	224	75.4	40	17.9	3.17
Deborah Heart & Lung Center	1,013	588	58.1	41	7.0	3.29
Englewood Hospital & MC	249	129	51.8	14	10.9	1.23
Hackensack University MC	1188	824	69.4	115	14.0	2.16
Jersey Shore Medical Center	863	643	74.5	119	18.5	2.91
Morristown Memorial Hospital	1,414	947	67.0	225	23.8	1.69
Newark Beth Israel	677	384	56.7	78	20.3	3.47
Our Lady of Lourdes MC	981	752	76.7	118	15.7	4.05
PBI Regional Medical Center*	427	323	75.6	46	14.2	2.18
RWJ University Hospital	1,441	1,032	71.6	175	17.0	2.44
St. Barnabas MC	422	316	74.9	32	10.1	2.18
St. Francis MC	265	202	76.2	36	17.8	1.93
St. Joseph's Hospital and MC	583	417	71.5	75	18.0	1.53
St. Michael's Medical Center	710	571	80.4	126	22.1	2.04
UMDNJ/University Hospital	165	114	69.1	21	18.4	3.47
Valley Hospital	815	579	71.0	59	10.2	2.69
State Total	11,510	8,045	69.9	1,320	16.4	2.51

Note: * This hospital was known as 'General Hospital Center at Passaic' in previous reports.

Exhibit 2. Frequency of Readmissions in 2001

Number Of Times Readmitted Within 30 Days From CABG Surgery Discharge	Number Of Readmitted Patients	Percentage Distribution (%)
Once	1127	85.4
Twice	170	12.9
Three Or More Times	23	1.7
State Total	1,320	100.0

Exhibit 3. Top 10 Causes of Readmission 30 Days after CABG Surgery Was Performed, 2001

Primary Diagnosis	ICD-9 Code	Number of Patients Readmitted	% of Readmitted Patients
Other Post Operative Infections	99859	167	12.7
Congestive Heart Failure	4280	141	10.7
Coronary Atherosclerosis of Native Coronary Artery	41401	84	6.4
Atrial Fibrillation	42731	48	3.6
Functional Disturbances Following Cardiac Surgery	4294	40	3.0
Cardiac Complications	9971	39	3.0
Respiratory Complications	9973	38	2.9
Unspecified Pleural Effusion	5119	36	2.7
Pneumonia	486	33	2.5
Other Chest Pain	78659	24	2.3

Exhibit 4. Average Length of Re-hospitalization Days by those Readmitted Within 7 Days of Discharge after CABG Surgery, 2001

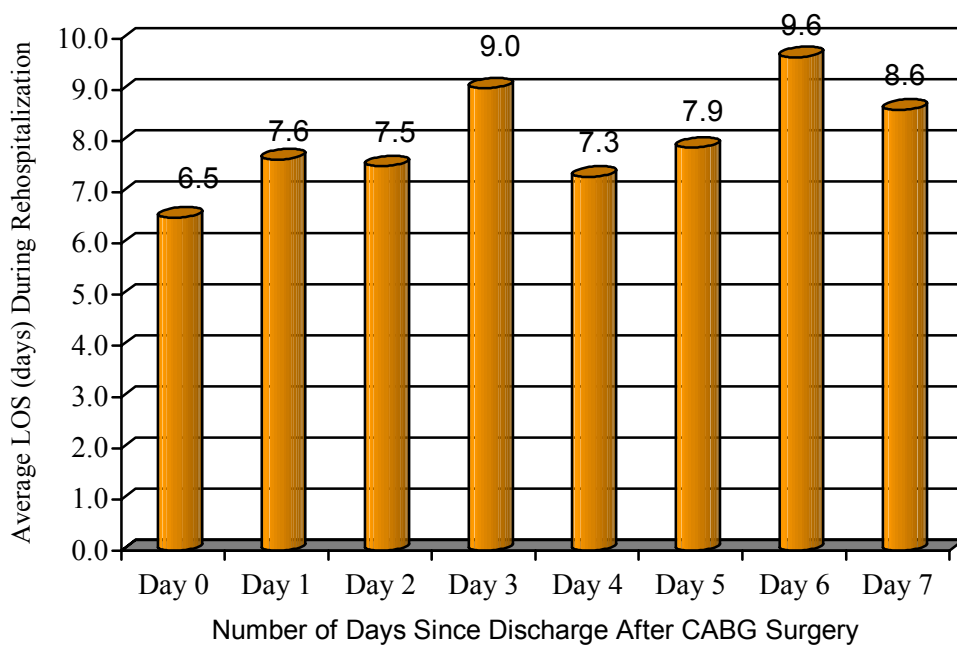
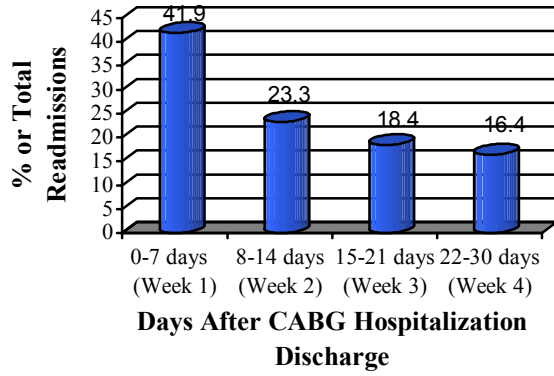


Exhibit 5. Distribution of Readmitted Patients by Days after CABG Surgery Discharge, 2001

(a)



(b)

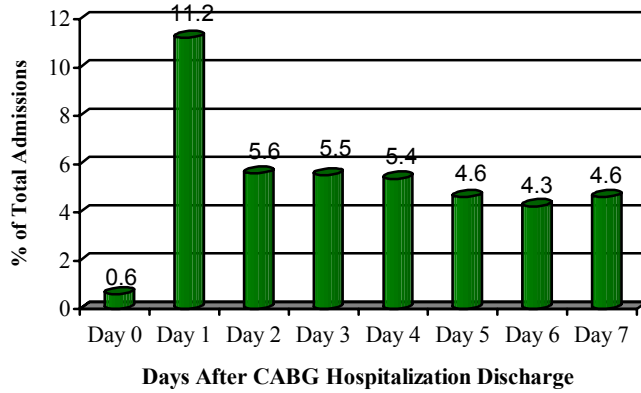


Exhibit 6. Distribution of Patients by Whether they were Readmitted to the Same Hospital, 2001

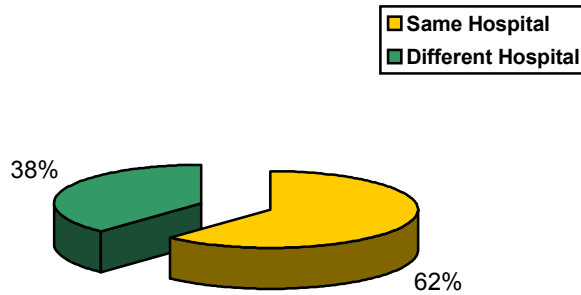


Exhibit 7. Percentage Distribution of Readmitted and Total Isolated CABG Surgery Patients by Gender, 2001

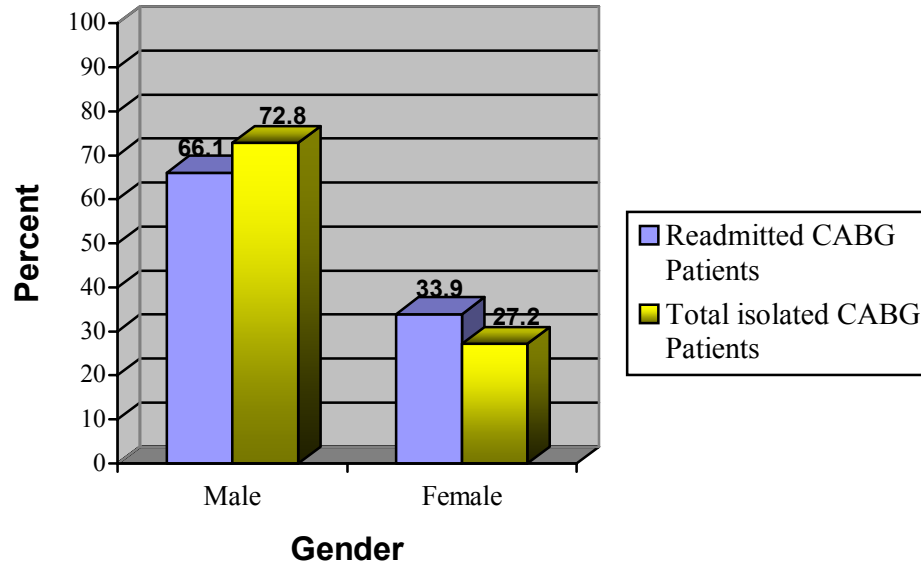


Exhibit 8. Race/Ethnicity Distribution of Readmitted and Total Isolated CABG Surgery Patients, 2001

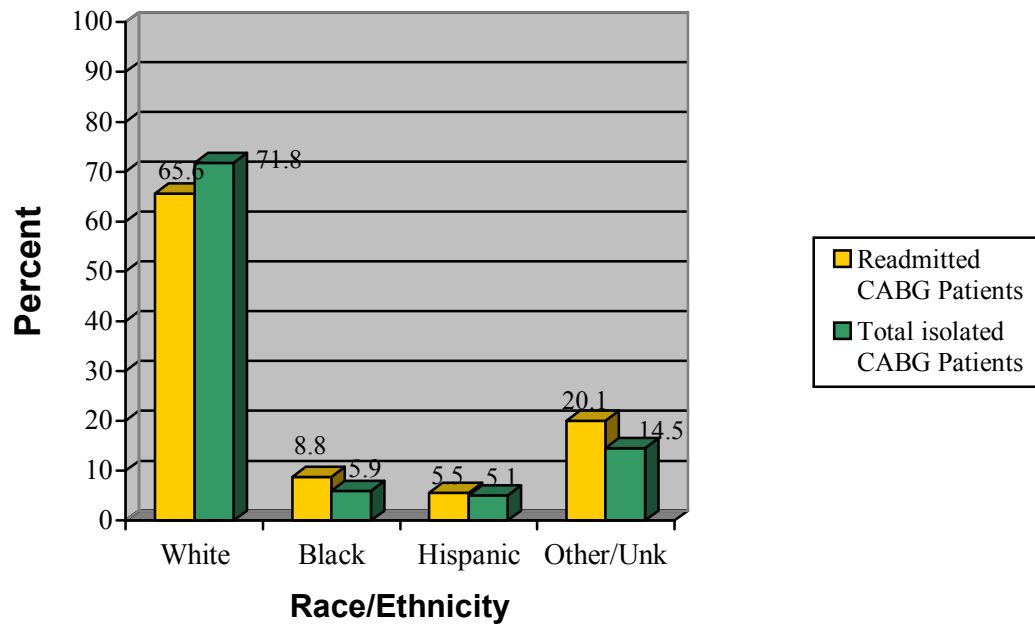


Exhibit 9. Age Distribution of Readmitted and Total Isolated CABG Surgery Patients, 2001

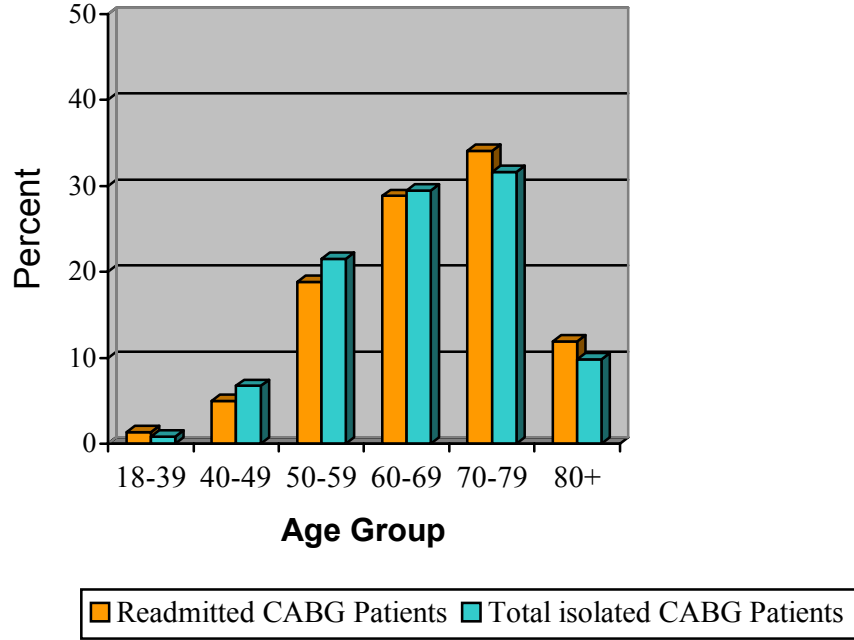
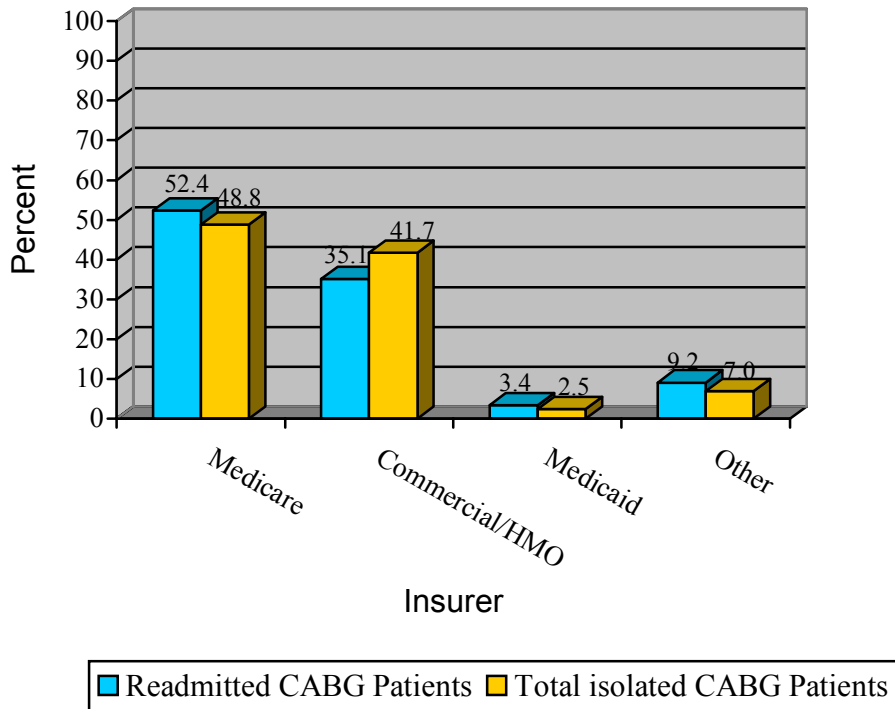


Exhibit 10. Distribution of CABG Surgery Patients by Major Health Insurance Coverage, 2001



**Exhibit 11. Readmission Rates of CABG Surgery Patients by Gender,
Race/Ethnicity and Insurer, 2001**

	Number of Readmitted CABG Surgery Patients	Total Number of CABG Patients	Percent Readmitted (Rate)
Gender			
Male	872	5,857	14.9
Female	448	2,186	20.5
Race/Ethnicity			
White	866	5,775	15.0
Black	116	477	24.3
Hispanic	73	407	17.9
Other	265	510	52.0
Insurer			
Commercial	463	3,464	13.4
Medicaid	45	198	22.7
Medicare	691	3,884	17.8
Other	121	499	24.2
Total	1,320	8,045	16.4

* Other refers to Asian, Hawaiians, Native Americans, etc.

Exhibit 12. The Share of CABG Patients Among Open Heart Surgery Patients, CABG Readmission Rates and Isolated CABG Risk-adjusted Mortality Rates: 2000 vs. 2001

Hospital	CABG patients as a Percentage of Total Open Heart Surgeries		CABG Surgery Patients With 1 Or More Readmissions Within 30 Days of Discharge (%)		Risk-adjusted Mortality Rates (%)	
	2000	2001	2000	2001	2000	2001
Cooper Hospital/University MC	59.3	75.4	22.7	17.9	2.51	3.17
Deborah Heart & Lung Center	62.7	58.1	8.6	7.0	2.84	3.29
Englewood Hospital & MC	-	51.8	-	10.9	-	1.23
Hackensack University MC	72.2	69.4	12.6	14.0	2.11	2.16
Jersey Shore Medical Center	76.3	74.5	16.1	18.5	1.45	2.91
Morristown Memorial Hospital	71.5	67.0	15.5	23.8	2.03	1.69
Newark Beth Israel	59.7	56.7	17.0	20.3	2.66	3.47
Our Lady of Lourdes MC	75.6	76.7	14.3	15.7	3.05	4.05
PBI Regional Medical Center*	79.1	75.6	19.3	14.2	4.70	2.18
RWJ University Hospital	70.0	71.6	16.5	17.0	3.14	2.44
St. Barnabas MC	78.2	74.9	13.6	10.1	1.71	2.18
St. Francis MC	77.1	76.2	21.5	17.8	1.31	1.93
St. Joseph's Hospital and MC	75.0	71.5	17.3	18.0	2.51	1.53
St. Michael's Medical Center	72.6	80.4	21.4	22.1	2.62	2.04
UMDNJ University Hospital	75.2	69.1	21.0	18.4	6.59	3.47
Valley Hospital	69.8	71.0	9.1	10.2	3.11	2.69
State Total	71.0	69.9	15.2	16.4	2.68	2.51

Note: * This hospital was known as 'General Hospital Center at Passaic' in previous reports.
 - Indicates that there was no complete year data available for the hospital.

References

- Office of Health Care Quality Assessment, *A Summary Report on New Jersey Hospital Readmissions 30 days After CABG Surgery in 2000*, Division of Health Care Quality and Oversight, New Jersey Department of Health and Senior Services, October 29, 2003.
- Office of Research and Development, *Quick Report on Hospital Readmission 30 days after CABG Surgery performed in New Jersey (1999)*, Health Care Systems Analysis, New Jersey Department of Health and Senior Services, January 3, 2002.
- Office of Research and Development, *The Open Heart Surgery Risk Stratification Database*, Health Care Systems Analysis, New Jersey Department of Health and Senior Services, 2001.
- Health Care Financing Systems, *2001 and 2002 Uniform Billing Databases*, Health Care Systems Analysis, New Jersey Department of Health and Senior Services.