



REPORTS ON  
POTENTIALLY PREVENTABLE  
COMPLICATIONS

Developed in Collaboration with  
3M Health Information Systems (3M HIS)

**NEW YORK STATE DEPARTMENT OF HEALTH  
REPORTS ON POTENTIALLY PREVENTABLE COMPLICATIONS**

**For Discharges In the Year Beginning January 1, 2006 and Ending December 31, 2006**

The nationwide emphasis on patient safety in recent years has generated efforts to examine complications that occur in hospitalized patients. Accordingly, as many of you know, the New York State Department of Health (NYSDOH) has been collaborating with 3M Health Information Systems (3M HIS) which has been developing a new module for its All Patient Refined Diagnosis Related Group (APR-DRG) product to measure potentially preventable complications (PPCs). In past years, in conjunction with the Healthcare Association of New York State (HANYS), the Department facilitated a series of regional meetings where 3M/HIS was given the opportunity to present their clinical logic underlying the software and solicit comments from physicians and quality professionals. Comments from these meetings were carefully considered by 3M/HIS and, in many instances, were utilized to further refine the PPC logic.

The second set of reports, using the refined logic and based upon your hospitals' 2006 SPARCS inpatient data, has been produced to systematically review potentially preventable complications from among the secondary diagnoses in your patients's discharge abstracts. The results of this review are summarized in the reports that follow.

PPCs identified are only those diagnoses that were NOT present on admission. Of course, not all complications that occur after admission are potentially preventable. In collaboration with the New York Department of Health and in consultation with a range of clinical specialists, 3M Health Information Systems has developed logic that identifies: 1) whether a secondary diagnosis that arises after admission should be considered a complication rather than a consequence of the natural course of the underlying illness, and 2) whether the complication is potentially preventable, given the patient's conditions present at the time of admission.

The PPC logic recognizes that the probability that a PPC will occur is not only dependent on the reason for admission, but also on the patient's severity of illness at admission. A hospital's rate of PPCs depends on the case-mix of its patients, in addition to the quality of hospital care. Differences in case-mix and severity of illness between your hospital and others are to be expected and impact a hospital's rate of PPCs. In order to compensate for those differences, i.e., to eliminate the impact of case-mix and severity of illness, data are standardized using 3M™ All-Patient Refined Diagnosis Related Groups (APR-DRGs), a patient classification system developed by 3M Health Information Systems. In the reports that follow, both the reason for admission and the severity of illness level at admission are determined using APR-DRGs. The reason for admission is based on the principal diagnosis or the primary surgical procedure. The severity of illness level is determined by the secondary diagnoses coded as present on admission, but not those that arose after admission.

A complication may be preventable for some types of patients, but not for others. Therefore, there are a series of exclusions for each PPC that identify the conditions under which the PPC is not potentially preventable. The most common reason for these exclusions is that the PPC is a natural or unavoidable consequence of one of the diagnoses present on admission. For example, the PPC Aspiration Pneumonia was not considered preventable for patients admitted with seizures, head trauma, respiratory failure requiring ventilator support, septicemia, or immune compromise. For each PPC, all patients that are not excluded are considered "at risk" for the PPC, and comprise the denominator for the PPC rate.

Once PPCs are identified and standardized using APR-DRGs, the information is summarized and compared to the experience of other hospitals.

The results of this review are presented in the four reports listed below.

These reports compare the rate of PPCs in your hospital to that experienced by all hospitals in the state, all hospitals in your region, and by your peer hospitals, controlling for case-mix and severity of illness and are summarized by service line and PPC.

1. Overall rates of Major PPCs compared to state, regional, and peer hospital norms (Report 1).
2. Rates of Major PPCs by Service Line compared to state, regional, and peer hospital norms (Report 2).
3. Rates of Major PPCs by Major PPC Group compared to state, regional, and peer hospital norms (Report 3).
4. Rates of Major PPCs by Major PPC Group for each Service Line compared to state, regional, and peer hospital norms (Report 4).

# ACTUAL FACILITY

## Report 3 Rates of Major PPCs by Major PPC Group Across All Service Lines

Compared to Peer Group U2 - Urban Non-Teaching  
For Discharges with One or More Major PPCs  
For Discharges in the Year Beginning January 1, 2006 and Ending December 31, 2006

Major PPC	Discharges At Risk for PPC	Discharges with Major PPC Total Cases		Major PPC Rate/1,000		% Difference	Significance Level
		Actual	Expected	Actual	Expected		
<b>Discharges with One or More Major PPCs</b>							
01 STROKE & INTRACRANIAL HEMORRHAGE	5,031	7	7.5	1.39	1.49	-6.57	
02 EXTREME CNS COMPLICATIONS	4,714	1	2.4	0.21	0.52	-58.84	
03 ACUTE PULMONARY EDEMA AND RESPIRATORY FAILURE WITH MECHANICAL VENTILATION	4,811	20	17.8	4.16	3.69	12.54	
04 PNEUMONIA & OTHER LUNG INFECTIONS	4,165	30	31.0	7.20	7.45	-3.35	
05 ASPIRATION PNEUMONIA	4,709	6	11.1	1.27	2.36	-46.05	
06 PULMONARY EMBOLISM	5,086	2	4.8	0.39	0.94	-58.13	
07 SHOCK	5,098	8	9.6	1.57	1.88	-16.52	
08 CONGESTIVE HEART FAILURE	4,222	30	25.0	7.11	5.92	20.12	
09 ACUTE MYOCARDIAL INFARCT	5,062	16	17.1	3.16	3.39	-6.63	
10 VENTRICULAR FIBRILLATION/CARDIAC ARREST	5,135	17	14.1	3.31	2.75	20.27	
11 PERIPHERAL VASCULAR COMPLICATIONS EXCEPT VENOUS THROMBOSIS	5,126	4	3.2	0.78	0.63	24.19	
12 VENOUS THROMBOSIS	5,093	7	10.1	1.37	1.98	-30.69	
13 MAJOR GASTROINTESTINAL COMPLICATIONS WITH TRANSFUSION OR SIGNIFICANT BLEEDING	4,793	3	3.4	0.63	0.70	-10.65	
14 MAJOR LIVER COMPLICATIONS	5,092	1	1.1	0.20	0.22	-10.52	
15 CLOSTRIDIUM DIFFICILE COLITIS	5,135	7	11.3	1.36	2.21	-38.31	
16 URINARY TRACT INFECTION	4,597	20	42.3	4.35	9.19	-52.68	***
17 RENAL FAILURE WITH DIALYSIS	4,870	3	1.4	0.62	0.30	108.81	
18 POST-HEMORRH & OTHER ACUTE ANEMIA WITH TRANSFUSION	4,600	9	19.2	1.96	4.18	-53.19	***
19 DECUBITUS ULCER	4,951	1	4.0	0.20	0.80	-74.78	
20 SEPTICEMIA & SEVERE INFECTIONS	5,047	22	27.6	4.36	5.46	-20.19	
21 POST-OP WOUND INFECTION & DEEP WOUND DISRUPTION WITH PROCEDURE	2,012	0	1.3	0.00	0.66	-100.00	
22 REOPENING SURGICAL SITE	1,893	2	2.0	1.06	1.06	0.00	
23 POST-OP HEMORRHAGE & HEMATOMA WITH HEM CNTRL PROC OR I&D PROC	2,066	3	1.9	1.45	0.92	58.46	
24 ACCIDENTAL PUNCTURE/LACERATION DURING INVASIVE PROCEDURE	2,420	14	15.3	5.79	6.34	-8.77	
25 POST-PROCEDURE FOREIGN BODIES	2,066	0	0.2	0.00	0.10	-100.00	
26 ENCEPHALOPATHY	4,783	8	6.3	1.67	1.31	27.42	
27 IATROGENIC PNEUMOTHORAX	5,010	3	2.5	0.60	0.50	20.58	
28 MECHANICAL COMPLICATION OF DEVICE, IMPLANT & GRAFT	5,024	5	4.6	1.00	0.91	9.66	
29 INFLAMMATION & OTHER COMPLICATIONS OF DEVICES, IMPLANTS OR GRAFTS EXCEPT VASCULAR INFECTION	5,024	15	8.3	2.99	1.66	80.25	*
30 INFECTIONS DUE TO CENTRAL VENOUS CATHETERS	5,121	2	1.5	0.39	0.29	33.41	
31 OBSTETRICAL HEMORRHAGE WITH TRANSFUSION	0	0	0.0	0.00	0.00	0.00	
32 OBSTETRIC LACERATIONS & OTHER TRAUMA WITHOUT INSTRUMENTATION	0	0	0.0	0.00	0.00	0.00	
33 OBSTETRIC LACERATIONS & OTHER TRAUMA WITH INSTRUMENTATION	0	0	0.0	0.00	0.00	0.00	
34 MAJOR PUERPERAL INFECTION AND OTHER MAJOR OBSTETRIC COMPLICATIONS	0	0	0.0	0.00	0.00	0.00	
35 POST-OP RESP FAILURE WITH TRACHEOSTOMY	2,032	0	0.6	0.00	0.31	-100.00	
<b>Discharges with a Single Major PPC</b>	5,172	132	164.9	25.52	31.88	-19.94	***
<b>Discharges with Two Major PPCs</b>	5,172	26	33.1	5.03	6.40	-21.41	
<b>Discharges with Three or More Major PPCs</b>	5,172	23	21.7	4.45	4.20	5.90	
<b>Discharges with One or More Major PPCs</b>	5,172	181	219.7	35.00	42.47	-17.61	***

Note: - Expected PPC rates computed using SPARCS 2006 data (excluding specialty hospitals)  
- Definition of peer group provided by the Hospital Association of New York State

\* Statistically significant ( p<0.05 ) higher rate of PPCs  
\*\*\* Statistically significant ( p<0.05 ) lower rate of PPCs

# ST. ELSEWHERE

## Report 3 Rates of Major PPCs by Major PPC Group Across All Service Lines

**Elsewhere Hospital 0000 Compared to Peer Group U6 - Urban Teaching  
For Discharges with One or More Major PPCs  
For Discharges In the Year Beginning January 1, 2006 and Ending December 31, 2006**

Major PPC	Discharges At Risk for PPC	Discharges with Major PPC Total Cases		Major PPC Rate/1,000		% Difference	Significance Level
		Actual	Expected	Actual	Expected		
<b>Discharges with One or More Major PPCs</b>							
01	STROKE & INTRACRANIAL HEMORRHAGE	53,991	101	83.8	1.87	1.55	20.48
02	EXTREME CNS COMPLICATIONS	50,510	28	16.4	0.55	0.32	71.03
03	ACUTE PULMONARY EDEMA AND RESPIRATORY FAILURE WITH MECHANICAL VENTILATION	52,133	115	122.1	2.21	2.34	-5.83
04	PNEUMONIA & OTHER LUNG INFECTIONS	46,025	0	0.0	0.00	0.00	0.00
05	ASPIRATION PNEUMONIA	50,452	118	88.5	2.34	1.75	33.32
06	PULMONARY EMBOLISM	54,565	66	73.2	1.21	1.34	-9.89
07	SHOCK	53,709	74	59.2	1.38	1.10	25.08
08	CONGESTIVE HEART FAILURE	48,451	262	142.7	5.41	2.95	83.56
09	ACUTE MYOCARDIAL INFARCT	53,658	195	154.4	3.63	2.88	26.28
10	VENTRICULAR FIBRILLATION/CARDIAC ARREST	55,251	157	147.4	2.84	2.67	6.54
11	PERIPHERAL VASCULAR COMPLICATIONS EXCEPT VENOUS THROMBOSIS	55,004	26	31.0	0.47	0.56	-16.17
12	VENOUS THROMBOSIS	54,775	157	183.1	2.87	3.34	-14.24
13	MAJOR GASTROINTESTINAL COMPLICATIONS WITH TRANSFUSION OR SIGNIFICANT BLEEDING	52,448	21	27.3	0.40	0.52	-23.00
14	MAJOR LIVER COMPLICATIONS	54,741	37	28.9	0.68	0.53	28.11
15	CLOSTRIDIUM DIFFICILE COLITIS	55,251	0	0.0	0.00	0.00	0.00
16	URINARY TRACT INFECTION	56,225	792	648.5	14.09	11.53	22.13
17	RENAL FAILURE WITH DIALYSIS	52,075	34	35.2	0.65	0.68	-3.50
18	POST-HEMORRH & OTHER ACUTE ANEMIA WITH TRANSFUSION	42,107	95	86.0	2.26	2.04	10.47
19	DECUBITUS ULCER	58,560	0	0.0	0.00	0.00	0.00
20	SEPTICEMIA & SEVERE INFECTIONS	53,113	0	0.0	0.00	0.00	0.00
21	POST-OP WOUND INFECTION & DEEP WOUND DISRUPTION WITH PROCEDURE	22,478	4	3.0	0.18	0.13	33.33
22	REOPENING SURGICAL SITE	21,214	18	18.0	0.85	0.85	0.00
23	POST-OP HEMORRHAGE & HEMATOMA WITH HEM CNTRL PROC OR I&D PROC	22,147	26	24.0	1.17	1.08	8.33
24	ACCIDENTAL PUNCTURE/LACERATION DURING INVASIVE PROCEDURE	25,710	182	157.0	7.08	6.11	15.92
25	POST-PROCEDURE FOREIGN BODIES	22,161	4	2.0	0.18	0.09	100.11
26	ENCEPHALOPATHY	51,669	22	16.1	0.43	0.31	36.69
27	IATROGENIC PNEUMOTHORAX	49,648	26	25.1	0.52	0.51	3.52
28	MECHANICAL COMPLICATION OF DEVICE, IMPLANT & GRAFT	54,145	45	40.1	0.83	0.74	12.10
29	INFLAMMATION & OTHER COMPLICATIONS OF DEVICES, IMPLANTS OR GRAFTS EXCEPT VASCULAR INFECTION	54,145	125	118.3	2.31	2.19	5.64
30	INFECTIONS DUE TO CENTRAL VENOUS CATHETERS	60,245	0	0.0	0.00	0.00	0.00
31	OBSTETRICAL HEMORRHAGE WITH TRANSFUSION	8,960	45	37.6	5.02	4.20	19.64
32	OBSTETRIC LACERATIONS & OTHER TRAUMA WITHOUT INSTRUMENTATION	9,101	245	222.1	26.92	24.41	10.29
33	OBSTETRIC LACERATIONS & OTHER TRAUMA WITH INSTRUMENTATION	9,101	125	68.8	13.73	7.55	81.80
34	MAJOR PUERPERAL INFECTION AND OTHER MAJOR OBSTETRIC COMPLICATIONS	9,101	61	105.5	6.70	11.59	-42.16
35	POST-OP RESP FAILURE WITH TRACHEOSTOMY	19,492	12	7.0	0.62	0.36	71.43
<b>Discharges with a Single Major PPC</b>		61,234	2,277	1,905.1	37.19	31.11	19.52
<b>Discharges with Two Major PPCs</b>		60,196	306	273.9	5.08	4.55	11.72
<b>Discharges with Three or More Major PPCs</b>		60,018	103	88.4	1.72	1.47	16.49
<b>Discharges with One or More Major PPCs</b>		61,234	2,686	2,267.7	43.86	37.03	18.45

Note: - Expected PPC rates computed using SPARCS 2006 data (excluding specialty hospitals)  
- Definition of peer group provided by the Hospital Association of New York State

\* Statistically significant ( p<0.05 ) higher rate of PPCs  
\*\*\* Statistically significant ( p<0.05 ) lower rate of PPCs