Medstat Disease Staging™ Software Version 5.24

Reference Guide

November 2006

DISEASE STAGING

DISEASE STAGING CLINICAL CRITERIA

> A disease can be effectively treated only when I as a doctor understand its causes in that particular patient, its site of origin, the internal havoc it creates, and the course which the process is likely to take whether treated or not. With that knowledge, I can make a diagnosis, prescribe a program of treatment, and predict an outcome.[1]

Where? Why? How serious? These are the basic questions that a clinician must attempt to answer when a patient presents with a medical problem. The same questions must be answered to make appropriate comparisons in studies of outcomes, quality, or costs of care. The "where" is the specific organ or system of the body; the "why" is the etiology of the problem; and the "how serious" is the pathophysiologic changes that have occurred and the ranking of the disease's complications.

Physicians use information from a patient's history, physical examination, laboratory findings, and other diagnostic tests to answer these questions in order to diagnose a disease, to estimate the patient's prognosis, and to prescribe appropriate treatment. Ideally, answers should be available before therapeutic intervention. Even in those cases when definitive answers may not be available and treatment must be given, it should be based on the presumptive answers to these questions.

Disease Staging is a classification system that uses diagnostic findings to produce clusters of patients who require similar treatment and have similar expected outcomes. It can serve as the basis for clustering of clinically homogeneous patients to assess quality of care, analyze clinical outcomes, review utilization of resources, assess efficacy of alternative treatments, and assign credentials for hospital privileges.

Ideally, a diagnostic label should have explicit data about the location of the health problem, the cause of the problem, and the severity of the problem. The majority of diagnostic labels identify the site of the disease (e.g., appendicitis, cholecystitis, diverticulitis, and peptic ulcer). Some provide information about the system involved and cause of the problem (e.g., pneumococcal pneumonia and urinary tract infection caused by E. coli). Other diagnostic labels are manifestations of problems (e.g., hypertension and anemia). A few, because of the body system involved, also convey a degree of severity (e.g., myocardial infarction or bacterial meningitis). And some may even be distinguished by the time of onset (e.g., congenital toxoplasmosis).

Only in the discipline of cancer has the medical profession developed a diagnostic classification that includes severity based on the understanding of the need to measure the efficacy of various treatments for similar clusters of patients. Now that society is challenging the medical profession to document quality of

care in a more objective manner, similar measurement instruments are needed for all medical problems.

Disease Staging Criteria

The Disease Staging criteria define levels of biological severity for specific medical diseases, where severity is defined as the risk of organ failure or death. The classification is based on the severity of the pathophysiologic manifestations of the disease:

Stage 1	A disease with no complications
Stage 2	The disease has local complications
Stage 3	The disease involves multiple sites, or has systemic complications
Stage 4	Death

Subdivisions of these stage levels have been defined to allow more precise classification. The challenge is to include enough detail to allow for a rich description of each disease and yet not be so overwhelmingly complete that the staging is cumbersome.

In the definition of the Staging criteria, most of the diseases begin at Stage 1 and continue through Stage 4. There are several exceptions to this rule. Some self-limiting diseases, such as cataracts, do not include a Stage 3 or 4. Other criteria begin at either Stage 2 or 3 since they are often complications of other diseases (e.g., bacterial meningitis, which can be a complication of sinusitis, otitis media, or bacterial pneumonia). Stage 0 has also been included in the classification of diseases for patients with a history of a significant predisposing risk factor for the disease, but for whom there is currently no pathology (e.g., history of carcinoma or a newborn baby born to a mother suspected of having an infection at the time of delivery).

The Stage levels are ordinal in nature for each medical problem. Stage 1 of one disease may have different implications for resource use, treatment, and prognosis than a similar stage of another disease. For example, hyperglycemia (Stage 1 diabetes mellitus) is different than positive serological evidence of AIDS (Stage 1). Even when major pathophysiologic damage exists such as coma, which in all diseases is a Stage 3 complication, the prognosis may be different for each disease since for some there is treatment which may reverse the complication. Treatment, whether medical or surgical, has not, however, been introduced into the staging classification; staging is driven by the natural history of the disease. Nor has quality of life been taken into consideration in Disease Staging. Controlling for other factors (e.g., choice of treatment, age, and presence of co-morbid disease), risk of death is a function of etiology and stage of disease. While this risk generally increases with each higher Stage level, it may vary dramatically by Stage from one disease to another.

It is important to distinguish the etiology of a disease whenever possible. For example, "pneumonia" does not specify etiology. Designating that the pneumonia was bacterial in origin would be an improvement, (e.g., "bacterial pneumonia"), but optimally a physician should document the specific bacteria causing the pneumonia (e.g., pneumococcal pneumonia).

Health problems, such as congestive heart failure, and laboratory findings, such as anemia, that may result from a variety of causes, are not diagnoses. When such problems are recorded as the only evidence and stated as the patient's "diagnosis," the implication is that the physician did not know, or did not document, the disease process that produced the problem. Unfortunately, many users of medical information fail to distinguish between non-specific health problems (e.g., symptoms and laboratory findings) and diagnoses of specific diseases. As a result, patients may be inappropriately classified for the purposes of reimbursement, for the analysis of resource utilization, and for the assessment of quality of care.

For each Staging criteria set included in this volume, the most likely etiology is specified. Some diseases may have multiple etiologies (e.g., bacterial pneumonia). While the Staging classification is essentially the same for pneumonia due to Pneumococcus as it is for that due to Staphylococcus or Pseudomonas, each type of bacterial pneumonia should be analyzed separately when evaluating quality of care, clinical trials, and utilization of resources because of the varying prognosis associated with each.

There are a number of complications (for example, sepsis and congestive heart failure) that may result from many diseases. Generally, these complications have been assigned the same integer stage level across the different diseases, although not necessarily the same substage level. Different integer stage levels have been used when the complication may indicate different levels of severity depending upon the underlying disease. For example, pneumonia is classified as a Stage 2 complication when it occurs secondary to other problems. There are a few diseases, such as botulism, where aspiration pneumonia or bacterial pneumonia is a reflection of the systemic nature of the problem rather than just the involvement of the respiratory system. For these diseases, pneumonia is classified as a Stage 3 complication.

Diagnostic Findings

In addition to the stages of the disease, each criteria set includes a specification of “diagnostic findings” that can be used to validate the presence of the disease and stage level. The diagnostic findings include physical findings, radiological and laboratory results, and pathological and operative reports.2

The present edition has addressed the validation issue more comprehensively than previous editions. Only the information that specifically documents a complication is included, with the understanding that physicians should first gather data from the history and physical examination to state a hypothesis (presumptive diagnosis) and use the laboratory judiciously to validate the diagnosis. Which laboratory data are collected will depend on available facilities and cost-benefits for the patients. For some diagnoses, both the patient and physician can accept uncertainty. However, if major treatment decisions are to be made, validation using objective data is essential. For instance, patients should not be treated for cancer on a presumptive diagnosis.

For some diagnostic testing (e.g., the use of the glucose tolerance test or fasting blood sugar for the diagnosis of diabetes mellitus), criteria have been recommended that are accepted by the medical community. Many laboratory tests, however, do not have nationally accepted values to delineate normal and abnormal results. In these situations, laboratory results have been defined as abnormal when they exceed three standard deviations from the mean value.3, 4

In summary, the physician's clinical judgment based on the history and physical examination should be used along with laboratory data to confirm or rule out the presence of a particular problem. In addition, laboratory values may need to be adjusted based on the calibration of the laboratory performing the test.

Applications of Disease Staging

Disease Staging is a valuable tool in many clinical, research, management, and educational studies. Examples of how Disease Staging has been used to classify patients for a number of applications are highlighted below.

TIMING OF HOSPITALIZATION 5-8

Disease Staging may be used to document potential quality of care problems in ambulatory settings by providing data relating to patients' severity of illness at the time of hospitalization. Patients admitted to the hospital with advanced stages of illness represent possible failures of outpatient care. For example, an admission for cellulitis secondary to diabetes mellitus might have been preventable if the disease progression could have been averted with appropriate outpatient care.

For some diseases, such as appendicitis, hospitalization is clearly appropriate at the earliest stage of the disease. Other diseases, such as essential hypertension, rarely require hospitalization at the early stages; hospitalization is only required if the disease progresses to more advanced stages.

Because admitting patients to an acute care hospital involves incurring significant cost and potential risk, patients should be admitted to the hospital only if the expected benefits outweigh the costs and risks of the admission. Questions to address include:

Is inpatient diagnostic testing required? Do the symptoms suggest a serious illness which, if confirmed, may require immediate treatment? Does the patient require treatment that is most appropriately provided as an inpatient? Does the patient require the types of monitoring and nursing care available only in an acute care hospital?

Classification of severity of illness at the time of hospitalization is important for analysis of both inpatient and outpatient care. Comparisons of inpatient care outcomes can be accomplished only if one adjusts for patient risk at time of admission.

For patients admitted at earlier stages of illness, one may question whether an acceptable level of care could have been provided in an outpatient setting. A number of factors could make such an earlier stage admission appropriate. For example, a patient with acute symptoms (e.g., chest pain), but without a confirmed diagnosis, may be appropriately admitted to the hospital until a diagnosis and a decision can be made as to whether further inpatient care is necessary. A patient may have other co-morbid conditions (for example, poorly controlled diabetes mellitus) that make the admission advisable, or a patient may choose to undergo an elective surgical procedure that must be performed as an inpatient. A patient with osteoarthritis of the hip who decides to have a total hip replacement would clearly require hospitalization.

For patients hospitalized at more advanced stages, the issue is whether the patient has complications that could have been preventable with earlier inpatient care. For example, a patient admitted with acute cholecystitis and gangrene of

the gallbladder has a serious complication that may have been prevented with earlier hospitalization and treatment.

Timeliness of admission is, in part, a function of whether hospitalization is the first or subsequent admission for a particular complication of episode of care. For example, a first admission at advanced-stage cancer should raise questions about whether earlier detection was feasible. Subsequent scheduled admissions for the same patient to undergo chemotherapy would not, of course, raise the same question.

It is important to differentiate the concept of a timely admission from a preventable admission. For example, an admission at Stage 1 appendicitis is timely and, given current medical knowledge, not preventable. Such an admission does not raise issues of appropriateness of care. On the other hand, while an admission for Stage 2.5 diabetes mellitus and cellulitis is also timely, it may have been a preventable admission if the disease progression could have been averted with appropriate outpatient care.

CASE-MIX CLASSIFICATION FOR ANALYSIS OF RESOURCE UTILIZATION AND REIMBURSEMENT [9-19]

Disease Staging should be an integral part of systems designed to analyze resource utilization. Differences in length of stay and cost may result from differences in patient populations treated, as well as from differences in efficiency. Etiology and stage of disease are directly related to the use of resources and must be considered in these types of analyses, whether the focus is at the level of an individual physician, a hospital product line, or an entire institution.

In addition to the stage of the principal disease, other variables to be included in analysis of utilization include: presence of co-morbid, or co-existing, medical problems (e.g., presence of diabetes mellitus in a patient hospitalized for appendicitis – both the diabetes mellitus and appendicitis should be staged); reason for admission (e.g., for diagnostic purposes, therapeutic purposes, both diagnosis and therapy, chemotherapy, or observation); and the use of surgical procedures or special units (e.g., ICU, CCU), if such use is justified by the needs of the patient.

Use of resources depends on the clinical status of the patient, the reason for admission, and whether the latter is the first or one of many re-admissions. For instance, a woman with Stage 3 cancer of the breast will consume more resources during the first hospitalization, when more diagnostic and therapeutic interventions will be used, than on her third hospitalization, when for the same problem she may likely receive only chemotherapy or radiation therapy. In addition, the social support needs of the patient should be considered, although this variable would have a greater impact on timing of hospitalization and length of stay than on the diagnostic or therapeutic intervention.

By using Disease Staging, variations in resource use resulting from patient differences can be controlled, thereby allowing the manager or researcher to appropriately focus on the analysis of differences resulting from variation in physician and institutional practices. For similar reasons, reimbursement systems should be modified to account for differences in severity of illness.

Quality of Care Assessment [5, 20-30]

Whether the goal is assessment and improvement of the process of care or evaluation of clinical outcomes, there is a need for clinical specificity. The Centers for Medicare and Medicaid Services (CMS) and several statewide data organizations publish institution-specific, and in some cases physician-specific, information on outcome measures such as mortality. Without appropriate ways to account for differences in the severity of the patient mix treated, the relevance of these types of analyses is questionable. For example, analysis of data from the National Hospital Discharge Survey demonstrated a 5.6% mortality rate for patients hospitalized with Stage 1 bacterial pneumonia, 9.5% for those with Stage 2, and a 33.1% mortality rate for Stage 3.29 These estimates were further refined by considering the specific etiology (organism) of the pneumonia.

As a part of a quality improvement program, these types of advanced-stage admissions should be reviewed to evaluate whether they resulted from physician-related problems (e.g., delayed or incorrect diagnosis or treatment), patient-related problems (e.g., failure to seek timely care or comply with prescribed treatment), system problems (e.g., lack of access to care), or were not preventable (e.g., resulting from rapid disease progression in a particular patient).

Disease Staging can also be used as a direct measure of patient outcomes by studying changes in disease stage over time. For instance, severity at hospital admission can be compared with severity at discharge. Patient-based longitudinal data can be used in conjunction with Disease Staging to assess changes in severity of illness for defined populations and specific episodes of care.

Another valuable use of Disease Staging is the evaluation of processes as well as outcomes of medical care. A great deal of activity is currently being devoted to the development of clinical guidelines designed to reduce uncertainty and help guide the process of care. One of the difficulties faced in guidelines development is that the appropriateness of a specific diagnostic test or prescribed treatment varies by stage of disease. By defining stage-specific criteria, it is possible to improve the specificity of clinical guidelines and process review criteria and to make them more useful and acceptable to clinicians.

Clinical Trials 29

The primary objective of clinical trials is to test the efficacy of therapeutic interventions under highly controlled conditions. By using Disease Staging to help specify the study population, comparability of the treatment and control groups can be assessed. Staging allows the investigator to stratify patients more accurately, both for their principal diagnoses or problems and for any co-morbid conditions that they may have. Depending on the goals of the trial, it can be restricted to samples defined using specific stages of disease or designed to allow the assessment of efficacy across different levels of severity.

Professional Staffing and Facility Planning in Health Care Institutions [9-11, 31]

Severity of illness, as documented by Disease Staging, may be used to evaluate the appropriateness of current or planned staffing levels within hospitals or managed care institutions in relationship to patients' health care needs. Staging can provide severity-level data for specific patient groups that may justify

establishing or expanding special care units or securing special diagnostic equipment or other facilities.

SPECIALTY BOARD CERTIFICATION AND CLINICAL PRIVILEGES [32-34]

A major responsibility of medical specialty boards is the development and administration of procedures and examinations for board certification and recertification. Disease Staging has been used to classify the content of test items from the board certification/recertification examinations administered by the American Board of Family Practice32 and to analyze medical licensing examinations in Japan.33 Each item on the examination is classified by organ system, etiology, and stage of illness, along with other dimensions such as age group affected and whether the item focuses on diagnosis or management.

Use of this type of classification enables the specialty board to assess the current mix of items and begin to develop a "blueprint" to guide development of future examinations. For example, by using Disease Staging, one can refine the assessment of the physician's knowledge of diabetes mellitus management to assure that there is an appropriate mixture of items relevant to the early stages, as well as prevention and management of specific advanced-stage complications.

Disease Staging can be used in the assignment of hospital clinical privileges.34 Currently, the delineation of clinical privileges is primarily procedure-oriented, even in the medically-oriented specialties. For example, a general internist may be credentialed to perform procedures such as arterial puncture, thoracentesis, and lumbar puncture. However, the skills necessary to successfully perform an arterial puncture say very little about the physician's ability to diagnose or manage the complex patient with advanced-stage medical problems.

Disease Staging can be used to delineate disease-specific privileges that more appropriately reflect the clinical challenges of patient management. For example, a board certified general internist may have the appropriate education and experience to manage early stage diabetes mellitus, but not to manage a patient admitted for hyperosmolar coma. Potentially, the volume and outcomes of stage-specific experience could also be monitored, as is increasingly done for surgical volume and outcomes, to reassess the privileges assignment.

MEDICAL EDUCATION [35, 36, 37]

A significant part of both undergraduate and graduate medical education involves increasing levels of patient care responsibility as the experience of the student/physician increases. Disease Staging can be used as a part of systems designed to document these clinical experiences. For example, what is the mix of severity of illness of patients with diabetes mellitus seen by medical students? Does the student have adequate experience managing a patient with this disease to avoid, as well as in treating complications which may occur? Does this vary depending on the site where the students perform their clerkship? Is there significant variation from student to student?

Similarly, Disease Staging concepts can be used to evaluate the content of the curriculum. To what extent does the medical curriculum address Stage 1 illness and to what extent does it address Stage 3 illness? To what extent is attention devoted to problems associated with particular body organ systems or to problems of a particular etiological nature?

Use of Disease Staging can also help the student and resident become more effective diagnosticians. By understanding the evolution of a disease, the physician will use the laboratory more effectively and avoid delay in arriving at an accurate diagnosis.

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DISEASE STAGING CODED STAGING CRITERIA

The medical criteria can be applied on a manual basis to medical records to analyze diseases of patients within an institution or within a selected disease category. While this requires only a few minutes per patient, and may be acceptable for physicians in recording diagnoses on patient charts, it is too time-consuming and costly for use in large-scale research projects and utilization reviews. A computerized version of Disease Staging is required to facilitate analyses of large numbers of hospitalized patients.

A team of medical records professionals is employed to translate each stage and substage definition into diagnostic codes. Operationally, a procedure similar to that used for the medical (clinical) criteria is used for the coding process. Each medical staging criteria set is coded independently and then reviewed by a clinical data specialist to resolve discrepancies. When necessary, physician panel members are consulted to assist in making the final decision.

Two types of problems are addressed in translating the medical criteria into coded criteria: the specificity in the coding systems themselves and the availability of certain data on a typical discharge abstract. Code specificity can be a problem because coding systems do not always allow for the precision specified by the clinical criteria within substages. For example, the medical criteria for external hernia classify “irreducible external hernia and intestinal obstruction” as Stage 2.01 and “strangulated external hernia” as Stage 2.02. However, it is not possible to differentiate between obstruction and strangulation in the ICD-9-CM coding system.

This problem is resolved via a conservative strategy to understate stage of disease. For example, a patient with the diagnostic codes of femoral or ventral hernia with obstruction is classified as Stage 2.01 since it is unknown whether the hernia resulted in obstruction or strangulation. Of course, if this patient had other complications of an external hernia, such as septicemia, then the patient would be classified at the appropriate higher stage.

Detailed refinements were also necessary when translating the criteria to ICD-9-CM and ICD-10 diagnosis codes because of a lack of data (primarily physical findings, laboratory results and diagnostic imaging) in most discharge abstract data systems. It is not possible to specify a stage (or substage) that is defined solely on laboratory results by use of discharge abstract data. For example, the stages of aplastic anemia are defined in terms of hemoglobin levels, white blood cell counts, and platelet counts. Again, the coded criteria will understate the severity of the disease if the supporting evidence is not represented by a unique diagnosis code.

THE DISEASE STAGING SOFTWARE

Once the Staging criteria are coded, a software package is developed for assigning disease categories and stages to the diagnosis codes found on medical record abstracts or hospital insurance claim records. Every diagnosis code on the patient record is assigned a disease category and is staged. The staging algorithms are designed to be exhaustive so that the input of patient diagnosis code data always results in at least one disease category being defined. If additional diagnoses are included on the record, the patient may be assigned multiple disease categories.

Once each diagnosis has been staged, a Principal Disease Category (PDXCAT) and a Principal Stage value are assigned. There is only one PDXCAT for each

admission, and it is based on the principal diagnosis that appears on the inpatient record. A secondary diagnosis may be a complication of the PDXCAT. For example, when diabetes mellitus is present as the principal diagnosis and both retinopathy and neuropathy are secondary diagnoses, the latter are considered manifestations or complications of diabetes and are used by the software logic in establishing the stage for diabetes.

All the additional DXCATs that will appear on the record use secondary diagnoses to establish the DXCAT and are unrelated to the PDXCAT and to each other. A secondary diagnosis and associated DXCAT will fall into one of the following categories:

Unrelated Comorbidity - A secondary diagnosis that is not associated with the PDXCAT or other DXCATs is an unrelated comorbidity.

Symptoms - In many cases, codes for symptoms appear in the patient record in addition to the codes for disease. This type of combination is exemplified by a secondary diagnosis code for abdominal pain for which the principal diagnosis is appendicitis.

PATIENT LEVEL SEVERITY METHODOLOGY

Disease specificity has always been a key strength of Disease Staging. However, this characteristic also makes it difficult to quantify patient-level severity of illness especially if a patient has multiple diseases. Disease Stages are expressed as ordinal levels that cannot simply be averaged across diseases to describe a patient's overall severity of illness. Consequently, The MEDSTAT Group developed a number of patient level measures, or predictive scales, that combine the information about a patient's diseases and their severity and correlate this information with outcome measures.

Resource Scales

The MEDSTAT Group has developed separate predictive scales for hospital charges (resource demand) and length of stay (LOS). The reason for this is that while charge and LOS are highly correlated, they do not correlate in a linear fashion. While the shortening of length of stay has allowed many hospitals to lower their average charges, the decrease in length of stay does not correspond to a proportional decrease in charges. Many studies have demonstrated that treatment intensity is usually highest early in the hospital stay. Total charges therefore tend to decrease at a slower rate than the average LOS. For example, for certain diseases, such as cancers, the cost of treatment may decrease with severity because of the futility of any further active intervention, while at the same time the mortality rate goes up for each stage and substage.

To derive the various scales, The MEDSTAT Group conducts empirical analyses on a database containing approximately 15 million patient records. The predictions were derived from multiple regression models. An algorithm for combining multiple DXCATs to derive a single measure for the affect of comorbidities was developed and is applied.

For the Charge and LOS scales, regressions are run for each DRG and DXCAT combination separately. The independent variables consist of variables whose values tended to correlate with patient severity. Such variables include the

patient's DXCAT and stage, age, sex, comorbid conditions, and whether the patient was an emergency admission.

Total Resource Demand Scale RDSCALE

The Overall Resource Demand Scale (RDSCALE) is a measure of resource consumption scaled to average 100 across all patients (regardless of DRG) in the development database. That is, RDSCALE is a patient's predicted charge as a percent of the average of predicted charges taken over all cases in the development database.

Within DRG Resource Demand Scale - DRGSACLE

The DRG Resource Demand Scale (DRGSCALE) is a within-DRG measure of resource consumption scaled to average 100 in each DRG. That is, DRGSCALE is a patient's predicted charges as a percent of the average of predicted charges taken over all cases in that DRG. Thus, a DRGSCALE value of 120 indicates that a patient is expected to have a 20 percent greater average resource consumption than the average for patients in that DRG. It is important to keep in mind that an individual patient's actual resource utilization will likely vary from predicted resource utilization. As a result, DRGSCALE has greater precision as a predictor of average resource utilization for a group of patients than as a predictor for a single patient.

Length Of Stay Scale - LOSSCALE

The Length of Stay Scale (LOSSCALE) is an overall measure of likely length of stay scaled to average 100 across all patients, regardless of DRG, in the development database. Like RDSCALE, it represents a patient's predicted length of stay. It is described as a percent of the average length of stay in the development database.

LOS and Charge Levels

A great deal of interest surrounds the predicted scales for individual patients. However, the variation in the prediction at the patient level is extremely high and for this reason drawing any conclusions at this level is extremely difficult. The reliability of the estimates improves as the predictions are aggregated into ranges.

To meet the interests of those desiring patient level statistics, LOS and RD and DRG Levels were devised and are included in the software output. The levels are explained in Table 3 below.

Table 3
Disease Staging Software
Patient Level
LOS, RD AND DRG Scale Definitions

LEVEL	PERCENTILES
+	> 95
High	75 - 95

Medium	25 - 75
Low	5 - 25
-	< 5

Mortality Scale

The MEDSTAT Group's mortality scale was produced from the same development database described above. The first step in the process was accomplished by segregating surgical and medical DRGs. This is necessary as surgical procedures are an important predictor of in-hospital mortality.

The occurrence of an in-hospital death is an infrequent event. As a result reliable regression models could not be developed for all DRGs and/or DXCATs. As a result, the medical and surgical discharge groups were further divided on whether there were a sufficient number of discharges to run regressions. The data and expected mortality rates were calculated within the classes described below:

Class 1 - Medical Admissions – observed rates of death are calculated at the DXCAT and integer stage level where there were fewer than 300 discharges for a DXCAT. The observed death rates are used in the calculation of the mortality scale values for these DXCATs.

Class 2 – Medical Admissions – Prediction models analogous to the LOS and Charge models is developed where there were 300 or more discharges for a DXCAT:

Class 4 – Surgical Admissions – Observed rates are calculated at the DRG/DXCAT and integer stage level where there were fewer than 300 discharges for a DXCAT and used in the calculation of the mortality.

Class 5 – Surgical Admissions – Prediction models analogous to the LOS and Charge models are developed where there were 300 or more discharges for a DXCAT. The form of the models described for Class 2 were employed for this group of calculations with the difference being that the predictions were made at both the DRG and DXCAT level.

The Mortality Scale is calculated by dividing the predicted mortality, obtained from one of the four classes described above, by the overall rate of in-hospital mortality from the development database times 100.

Mortality Levels

Mortality levels are output for patients using the ranges and designations described for the LOS and Charge Levels (see Table 3). (Expected mortality of = .001 is considered near zero and not included in the calculation of the levels. The vast majority of the discharges in this group are normal deliveries.)

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COMPLICATIONS OF CARE

INTRODUCTION

The MEDSTAT Complications of Care (COC) methodology was first introduced in the early 1990s. It was designed as a screening tool to identify, from inpatient administrative data, records that have a high probability of detecting a complication of care in the patient hospital medical record. Then, as today, the identification of a claim record containing a potential complication did not necessarily indicate that a medical error had occurred.

In 2000, peer reviewed studies published in the 1990s were examined and compared to the COC Version 2.2 methodology. It was gratifying to find that a significant number of the original MEDSTAT COCs were validated, in whole or in part, by this independent research. Based on these studies, modifications to the design of the methodology and the software programs were made and implemented with the release of the Disease Staging version 4.10 software.

In 2001, COC v3.1 was released offering users the capability of excluding diagnoses that present at admission of the patient from use in the screening of potential complications. This functionality dramatically reduces the number of false-positive complications flagged by the software enabling users to more productively focus their efforts on the medical record reviews in the examination of medical errors.

The COC methodology is a powerful tool for in-hospital quality management activities. The computerized screening of administrative records for complications of medical care is a far more efficient means of identifying medical errors than the review of individual patient charts. It is not intended to be a complete and exhaustive list of hospital-based complications of care but a tool that identifies common potential complications from administrative data sources.

ENVIRONMENT AND FOCUS

The study of complications of care moved from the sole domain of health care professionals into the public forum in the 1990s. Interest piqued in 1999 with a report issued by the National Institute of Medicine*, To Error is Human: Building a Safer Health System*.[1] The report recommended a national focus on medical errors. Highlights of the report include:

> "Errors occur in all industries. To date…those involved in health care management and delivery have not had specific, clear, high-level incentives to apply what has been learned in other industries about the way to prevent error and reduce harm."2
>
> "Health care is decades behind other industries in terms of creating safer systems. Much of modern safety thinking grew out of military aviation [during World War II]. In the mid-1960s, the University of Southern California began its first advanced safety management programs…. By

the 1970s, principles of system safety began to spread to other industries, including rapid rail and the oil industry."3

"Preventable adverse events are the leading cause of death in the United States. …[A] t least 44,000 and perhaps as many as 98,000 Americans die in hospitals each year as a result of medical errors."4

"Two studies of large samples of hospital admissions, one in New York using 1984 data and another in Colorado and Utah using 1992 data, found that the proportion of hospital admissions experiencing an adverse event, defined as injuries caused by medical management, were 3.7 and 2.9 percent, respectively. The proportion of adverse events that were attributable to errors (i.e., preventable adverse events) was 58 percent in New York, and 53 percent in Colorado and Utah."5

"Total national costs (lost income, lost household production, disability, health care costs) are estimated to be between $37.6 billion and $50 billion for adverse events and between $17 billion and $29 billion for preventable adverse events."6

"In terms of lives lost, patient safety is as important an issue as worker safety. Although more than 6,000 Americans die from workplace injuries every year, in 1993 medication errors are estimated to have accounted for about 7,000 deaths."7

The interest in patient safety is more than academic and is manifest in a number of real world reporting initiatives:

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) found that at least one third of states have a mandatory adverse medical event reporting system.8

A sentinel event reporting system was established by JCAHO for hospitals in 1996 as a requirement for accreditation. A sentinel event is defined as an "unexpected occurrence involving death of serious injury of psychological injury, or the risk thereof."9

The JCAHO ORYX initiative specifies the collection of six certified performance measures. Analysis and remedial actions are required for continuing accreditation. (The MEDSTAT Group is a vendor of ORYX measures and several COC version 2.2 measures have been certified for ORYX reporting.)

The National Committee for Quality Assurance (NCQA) – Healthcare Employee Data and Information Set (HEDIS) is used as a part of NCQA accreditation of health plans. HEDIS measures are also used by employers and employees to compare health plan performance.

The Scope of Work activities of Professional Review Organizations (PROs) are designed to monitor the utilization and quality of care provided to Medicare beneficiaries by healthcare providers. Currently, the Sixth Scope of Work focuses on selected complications of care.

MedWatch, the Food and Drug Administration's surveillance system, monitors adverse events related to medical products. Hospitals are required to report deaths to the FDA and the manufacturer of the related medical product. Severe injuries are reported to the manufacturer.

The investigation of complications of care and medical errors spans all sites of care and all medical interventions. The sole focus of the MEDSTAT

Complications of Care software, however, is on hospital-based complications that are recorded in or inferred from claims or discharge abstract records. The challenge of complications of care software algorithms is to identify patients experiencing untoward hospital-care events documented in the hospital medical record. In most cases, administrative data based on ICD-9-CM coding alone cannot prove the existence of a complication. Rather, algorithms are designed to identify administrative records that have a high probability of leading quality management personnel and physicians to charts that contain evidence of a complication.

DEFINITION: COMPLICATIONS OF CARE, MEDICAL ERRORS AND ADVERSE EVENTS

The definition of a complication of care offered by Fleming10 provides a useful context for this discussion: a complication is an "unexpected illness or injury caused by medical intervention or disease progression." Complications can be one of two types: the result of disease progression, (as modeled in the Disease Staging case mix severity adjustment methodology and software11) or the result of health care interventions.

Complications relating to health care interventions can further be divided. The Institute of Medicine adopted the following definitions of errors and adverse events:

> "An error is defined as the failure of a planned action to be completed as intended (i.e., error of execution) or the use of the wrong plan to achieve an aim (i.e., error of planning)."12

> "An adverse event is an injury caused by medical management rather than the underlying condition of the patient. An adverse event attributable to error is a 'preventable adverse event.'"13

EVIDENCE FOR USING COC V3.2 SOFTWARE

The following study analyzing the COC v 3.2 was presented at the 18th International Case Mix Conference, PCS/E 2002[14].

AUTOMATED SCREENING OF HOSPITAL COMPLICATIONS OF CARE

INTRODUCTION

In-hospital complications of medical care have long been the concern of clinicians and hospital managers. A principal source for information on complications of care and often a starting point for hospital quality improvement studies are computerized screening algorithms using health insurance claims or medical record abstracts. The challenge for these software algorithms is to identify patients experiencing untoward hospital-care events documented in the hospital medical record. In most cases, administrative data based on ICD-9-CM coding alone cannot prove the existence of a complication. Rather, algorithms are designed to identify administrative records that have a high probability of leading quality management personnel and physicians to medical records that contain evidence of a complication.

The weaknesses of the using these administrative data are well known[1]. Economic efficiency is the principal strength of using automated screening tools. Available evidence for using administrative data to screen discharge abstracts for complications of care is encouraging, notably the validation studies of Iezzoni and coworkers.[2] A significant obstacle, however, to the use of administrative records are standard diagnosis coding practices which do not require information on whether a condition was present at the time the patient was admitted to the hospital. This practice contributes to the high false-positive rates of flagged complications[3].

The focus of this study is the examination of an automated complications-of-care methodology from two perspectives. First, differences in average hospital charges and lengths of stay between groups of patients defined as being at risk of a defined complication and those identified as having a potential complication were studied. Differences between these groups would lend heuristic support for the use of automated methods using conventional diagnosis coding conventions as a component of hospital quality management processes. The second perspective examines the insight gained from knowing if a diagnosis was either present at admission or acquired during the hospital stay. This result would further recommend the value of automated screening protocols and importantly reinforce the value of collecting information relating to whether a condition was acquired during the hospital stay.

METHODS

The MEDSTAT Group is a vendor of a software tool comprised of 37 Complication of Care (COC) screening protocols based on published peer-reviewed validation studies. It is a fully documented and open methodology which identifies patient risk groups and administrative records containing potential complications. Each COC screen is comprised of definitions for determining whether: 1) a patient is at risk for a given complication and 2) if there is evidence contained in the hospital record to suggestive of the occurrence of a potential complication. Both the Risk and COC definitions are defined by using commonly abstracted data elements, i.e., ICD-9-CM diagnosis and procedure codes, patient age and sex variables and hospital length of stay.

For example, the COC 11, Postoperative Cerebral Infarction, screening definitions are displayed in Table 1. In this example, a surgery patient with a secondary diagnosis of "Occlusion of cerebral arteries with cerebral infarction: cerebral thrombosis" (ICD-9-CM diagnosis code 434.01) would be flagged for potentially experiencing a complication of medical care. The diagnosis code, 434.01, is said to have triggered the COC.

Over 3.6 million discharge records obtained from the California Office of State Planning and Development (OSPDA) from the year 1998 were used in the analysis. Along with standard data elements described above, a flag indicating whether a condition represented by a secondary diagnosis was present at the time of the admission of the patient is a required OSPDA data element.

OSHPD gives California hospitals the option to report a subset of External Cause of Injury codes (e-codes) pertaining to "misadventures and abnormal reactions." Many of these codes are used in the COC definitions of nine COCs. Due to the uncertainty surrounding the completeness of the data, these nine COCs were excluded for the study. In total, 26 COCs were analyzed.

Table 1 – Postoperative Cerebral Infarction Complication Screening Definitions

Risk Definition:	All inpatient surgical patients – various ICD-9-CM procedure codes
COC Definition:	Occlusion and stenosis of precerebral arteries with cerebral infarction:
	Basilar artery - sdx = 433.01
	Carotid artery - sdx = 433.11
	Vertebral artery - sdx = 432.21
	Multiple and bilateral - sdx = 433.31
	Other specified precerebral artery - sdx = 433.81
	Unspecified precerebral artery - sdx = 433.91
	Occlusion of cerebral arteries with cerebral infarction:
	Cerebral thrombosis - sdx = 434.01
	Cerebral embolism - sdx = 434.11
	Cerebral artery occlusion, unspecified - sdx = 434.91
	Acute, but ill-defined cerebrovascular disease - sdx = 436
	Iatrogenic cerebrovascular infarction or hemorrhage - sdx = 997.02

Within each of the study COCs differences in the average length of stay and average charge were examined. The first comparison sought to determine whether there were differences between average charges and lengths of stay for patients defined to be at risk and not flagged for a COC (Risk) and those flagged as potentially experiencing a medical complication (COC). The second analysis dissects the COC group into: 1) patients flagged for a COC based on secondary diagnoses that were present at admission (COC Present) and 2) patients whose triggering diagnoses were acquired during the hospital stay (COC Acquired). The natural logarithm of hospital charge and length of stay were calculated for each patient record and t-statistics on the differences between the log means were generated to test for the differences.

RESULTS

The results displayed in Table 2 show that there were statistical differences ($p < .001$) between the Risk patients and the COC patients in 23 of the 26 complications studied. In comparing the COC Present and COC Acquired groups, 12 of 26 average length of stay comparisons and 13 of 26 average charge significantly different. It should be noted that eight of the COC Present and COC Acquired complications which were not statistically different were associated with COCs related

to newborn deliveries. In these instances it seems likely that the secondary diagnosis codes related to deliveries would have been acquired during the hospital stay.

Table 2 - Differences in Average Length of Stay (ALOS) and Average Charge for Patients by COC vs. Risk, COC and COC Acquired vs. COC Present Groups.

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC03						
Postoperative Hemorrhage or Hematoma						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	25,498	9.69	*	22,681	$70,757	*
COC Present	3,940	9.14		3,608	$53,033	
COC Acquired	21,558	9.79		19,073	$74,110	*
COC04						
Postoperative Aspiration Pneumonia						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	14,344	20.30	*	13,346	$104,993	*
COC Present	7,588	17.51		7,145	$84,285	
COC Acquired	6,756	23.44	*	6,201	$128,853	*
	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC05						
Postoperative Pneumonia (non-aspiration)						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	48,186	17.94	*	43,979	$92,170	*
COC Present	33,987	14.78		31,106	$68,097	
COC Acquired	14,199	25.49	*	12,873	$150,341	*

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC06						
Postoperative Urinary Tract Infection						
Risk	772,432	10.01		696,437	$45,238	
COC	64,506	16.28	*	59,079	$63,899	*
COC Present	50,267	13.70		46,178	$51,904	
COC Acquired	14,239	25.40	*	12,901	$106,834	*
COC07						
Postoperative Septicemia						
Risk	772,432	10.01		696,437	$45,238	
COC	29,231	22.73	*	26,617	$127,456	*
COC Present	20,411	18.60		18,653	$96,360	
COC Acquired	8,820	32.30	*	7,964	$200,288	*
COC09						
Postoperative Myocardial Infarction						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	11,903	10.27	*	10,654	$72,576	*
COC Present	7,294	8.62		6,595	$61,685	
COC Acquired	4,609	12.88	*	4,059	$90,271	*
COC10						
Postoperative Cardiopulmonary Complications Except AMI						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	189,142	11.49	*	174,008	$66,092	*
COC Present	123,517	10.02		113,988	$50,050	
COC Acquired	65,625	14.25	*	60,020	$96,560	*

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC11						
Postoperative Cerebral Infarction						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	8,612	16.56	*	7,953	$86,125	*
COC Present	4,496	16.03		4,186	$62,683	
COC Acquired	4,116	17.13	*	3,767	$112,175	*
COC12						
Postoperative or Postanesthetic Shock						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	12,931	13.77	*	12,920	$100,724	*
COC Present	8,645	11.89		8,913	$81,295	
COC Acquired	4,288	17.58	*	4,009	$143,963	*
	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC13						
Postoperative Thrombophlebitis or Phlebitis						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	2,497	13.78	*	2,252	$79,834	*
COC Present	1,190	10.69		1,056	$48,724	
COC Acquired	1,307	16.61	*	1,196	$107,302	*
COC14						
Postoperative wound disruption						
Risk	1,932,327	5.16		1,735,423	$24,030	
COC	3,590	22.54	*	3,265	$126,152	*
COC Present	1,796	16.00		1,669	$70,321	
COC Acquired	1,794	29.10	*	1,596	$184,536	*

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC16						
Postoperative Complications affecting body systems						
Risk	19,445	34.56		18,318	$163,451	
COC	415	28.79		395	$144,170	
COC Present	175	30.67		171	$121,797	
COC Acquired	240	27.41		224	$161,249	
COC17						
Vascular or Infectious Complications Following Infusion or Transfusion						
Risk	547,076	8.15		506,003	$45,318	
COC	25,244	7.93		23,489	$40,666	
COC Present	6,268	9.87		5,931	$39,877	
COC Acquired	18,976	7.28		17,558	$40,932	
COC23						
Medication Reactions and Poisonings						
Risk	490,513	14.44		456,844	$50,023	
COC	12,699	22.14	*	11,831	$83,170	*
COC Present	10,665	18.99		9,973	$66,151	
COC Acquired	2,034	38.68	*	1,858	$174,520	*
COC25						
Rupture of uterus during or after labor						
Risk	3,627,688	5.28		3,351,918	$16,853	
COC	261	6.11	*	247	$35,826	*
COC Present	144	4.24		142	$20,184	
COC Acquired	117	8.41	*	105	$56,979	*

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC27						
Accidental Puncture or Laceration During Procedure						
Risk	553,236	2.26		497,664	$6,771	
COC	20,520	2.11		17,256	$6,190	
COC Present	2,541	2.27		2,226	$6,459	
COC Acquired	17,979	2.09		15,030	$6,150	
	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC28						
Complication of Tracheostomy						
Risk	553,236	2.26		497,664	$6,771	
COC	366	4.65	*	313	$18,290	*
COC Present	96	4.69		83	$18,595	
COC Acquired	270	4.64		230	$18,180	
COC29						
Mechanical Complications of Implanted Device or Graft						
Risk	553,236	2.2646		497,664	$6,771	
COC	93	6.5161	*	93	$48,848	*
COC Present	41	6.41		42	$53,069	
COC Acquired	52	6.5962		51	$45,372	
COC30						
Cesarean Section with Anesthesia or Sedation Complications						
Risk	110,006	3.63		98,909	$11,415	
COC	366	4.34	*	320	$15,636	*
COC Present	57	4.09		53	$14,916	
COC Acquired	309	4.38		267	$15,779	

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC31						
Cesarean Section with Major Puerperal Infection						
Risk	110,006	3.63		98,909	$11,415	
COC	1,975	6.04	*	1,517	$19,524	*
COC Present	328	5.96		277	$21,295	
COC Acquired	1,647	6.05		1,240	$19,128	
COC32						
Vaginal Delivery with Anesthesia or Sedation Complications						
Risk	392,721	1.84		345,676	$5,454	
COC	376	2.45	*	325	$8,178	*
COC Present	47	2.53		45	$7,764	
COC Acquired	329	2.44		280	$8,244	
COC33						
Vaginal Delivery with Major Puerperal Infection						
Risk	392,721	1.84		345,676	$5,454	
COC	879	4.07	*	685	$12,844	*
COC Present	188	3.84		159	$12,755	
COC Acquired	691	4.14		526	$12,871	
COC34						
Delivery wound complications						
Risk	553,236	2.26		497,664	$6,771	
COC	2,092	4.72	*	1,817	$15,432	*
COC Present	322	4.99		272	$18,922	
COC Acquired	1,770	4.67		1,545	$14,817	
	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig

	ALOS Patients	ALOS	sig	Charge Patients	Ave Charge	sig
COC35						
Postpartum Deep Phlebothrombosis						
Risk	553,236	2.26		497,664	$6,771	
COC	203	8.64	*	175	$23,870	*
COC Present	32	6.97		30	$17,120	
COC Acquired	171	8.95		145	$25,267	
COC36						
Postpartum Pulmonary Embolism						
Risk	553,236	2.26		497,664	$6,771	
COC	55	6.53	*	52	$29,884	*
COC Present	14	6.93		12	$34,845	
COC Acquired	41	6.39		40	$28,395	
COC37						
Other obstetrical trauma						
Risk	553,236	2.26		497,664	$6,771	
COC	31,683	2.36	*	26,437	$7,708	*
COC Present	4,930	2.61		4,279	$8,687	
COC Acquired	26,753	2.31		22,158	$7,519	

- Differences significant at $p < .001$

DISCUSSION

Practical observations can be derived from these results. First, the COC screening protocols can identify distinctly different groups of patients from their at-risk counterparts. In many cases the differences are substantial. This information alone suggests that COC flagged patients warrant further investigation which may result in improvements to quality of care processes and reductions in patient care expenses. Next, knowing whether a condition was present at the time the patient was admitted to the hospital can eliminate the false positive identification of potential complication and in many cases dramatically reduce the size of the effort required to conduct medical record audits. Finally, comparing the COC Acquired and the Risk statistics offers valuable insight into the real effort and costs of in-hospital medical errors.

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CONSIDERATIONS IN USING ADMINISTRATIVE DATA TO IDENTIFY QUALITY OF CARE EVENTS

Iezzoni and colleagues have described a series of issues that should be considered in using medical record abstract data in this regard.15 These apply not only to the study of adverse events but more generally to the practical applications of researching discharge and claims-based databases.

Hospital-acquired conditions

The most significant confounder in relating administrative data to quality outcomes deals with whether a secondary diagnosis was present at the admission of a patient. Standard ICD-9-CM coding practices specify that all relevant patient conditions be recorded. The principal diagnosis is defined to be the condition responsible for the hospitalization. The secondary diagnoses detail the remaining patient conditions, many of which may have been present at the time of admission. The secondary diagnosis is generally used as the trigger for software logic to designate whether a patient record contains a potential complication of hospital care. Not knowing whether a secondary diagnosis was present at admission has an enormous affect on the interpretation of the results.

The MEDSTAT Group strongly encourages hospitals to collect data indicating whether a complication was present at admission. Additional functionality has been added to the software to permit the submission and interpretation of this additional information. The use of this feature will greatly enhance the value of the software in discovering preventable complications in hospital medical records.

Clinical Specificity of Diagnosis Codes

A second concern in using administrative records to screen for complications of care regards the clinical specificity of diagnosis codes. For example, coding systems do not specify symptoms, signs, laboratory findings and diagnostic test results. It is then incumbent on medical record documentation and medical record coder interpretations to ensure the validity of the diagnosis codes.16, 17

Coding Variability Across Hospitals

The thoroughness of coding can vary from one hospital to another,18 raising issues of coding bias at the hospital level. “We cannot say…whether the findings related to the rates of complications by hospital characteristics were biased by differences in coding styles or whether the patients were truly more complicated at a certain hospital.”19 Evidence of this is seen in a study of heart attack

patients in California.20 The authors showed that missing risk factors ranged from 45-87 percent across hospitals and that variation in coding explained a portion of the difference between "high" and "low" mortality hospitals.

Physician Reviews of Medical Records Flagged by Diagnosis Codes

Iezzoni and her colleagues have also studied complications from the physician perspective.21 In reviewing medical records flagged by a diagnosis code-based algorithm, trained physician reviewers found complications resulted from quality of care mishaps in 30.7 percent of surgical and 19.2 percent of medical cases. The probability of finding a medical error in an unflagged medical record was 2.1 percent.

Geraci and her collaborators22 approached the topic from the opposite perspective with equally disquieting results. Using confirmed complications found in medical records, they then examined administrative data for corresponding diagnosis codes. They found that fewer than 50 percent of patients with complications documented in the medical records were flagged using ICD-9-CM codes.

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PROCESS OF SELECTING AND DEFINING COMPLICATIONS FOR INCLUSION IN VERSION 3.2

Complications of Care, version 3.2, was the result of three interrelated processes:

Evidence-based Literature Review –Since the initial development of the method in the early 1990's, a number of research studies were conducted and published regarding the ability of ICD-9-CM codes and administrative data to identify medical errors in hospital medical records. A review of the peer-reviewed literature was conducted and many of the findings were incorporated into the software and documentation. See Section 6 for many of the studies surveyed.

Data Analysis – Data and analyses were shared with MEDSTAT by a prominent user of the COC algorithm. Washington and California all payer data and the MEDSTAT MarketScan database were also analyzed to design and test the algorithms. This core of information was used to supplement the literature review and consensus processes.

Market Research – Customers were surveyed and the results of these discussions, as well as overall impressions of the software and documentation, were shared with the design team. The above evidence, as well as marketplace and software considerations, were used by the design team in making recommendations for the set of COCs to be incorporated in the Version 3.0 release of the software.

Overview of Algorithm

The COC algorithm determines whether a patient is at risk for a given complication and whether that complication is present in the patient administrative record. The software outputs the presence of complications, the probability of having complications and the associated prediction errors.

Complications: ICD-9-CM codes are used to define the 37 individual complications. (See Section 12)

Risk Pools: ICD-9-CM codes, patient demographics, hospital length of stay or DRGs define the risk pools. (See Section 13)

All principal and secondary diagnoses, as well as all procedure codes are considered in selecting risk pools and determining the presence of a complication. The associated probabilities and prediction errors are based on all secondary diagnoses in the development database. The findings obtained from this approach will overstate the rate of hospital incurred complications, as many of the secondary diagnoses will have been present at the admission of the patient.

If the user sets the "acquired flag" in the parameter file, only secondary diagnoses which were acquired during the hospital stay will be used in the screening of potential complications.

Description of Input Elements

The Disease Staging Software contains MEDSTAT's COC methodology for identifying records with potential complications of care. The input variables that are required to identify the 37 different complications include:

Principal and Secondary ICD-9-CM diagnosis codes – The COC method will use up to 15 diagnosis codes.

ICD-9-CM procedure codes

Sex

Age

Discharge Status

Length of Stay

Output Data Elements

The following data elements are output from the software:

Complications and Risk - For each of the 37 COCs, the software identifies whether the patient was at risk for a given complication and whether the complication was found in the patient record.

Expected Values - Predicted rates of occurrence based on the age and sex of the patients at risk for a complication are output.

Prediction Error Estimates – these estimates are output for each expected value. The prediction error is used in the calculation of statistical confidence intervals.

A patient will not be at risk of a complication and there will be no output for expected value and prediction error if an input element used to define a COC is missing from the patient record.

INTERPRETATION OF COC AND RISK GROUP DEFINITIONS

The following is a key to understanding the headings, wording and symbols found in the COC and Risk Groups definitions:

ICD-9-CM Code or DRG – Contained in this column is information that describes the type and name of ICD-9-CM codes used (i.e., principal and secondary diagnoses or procedures) or the DRG number and description.

Relation – the information contained in this column informs the user of the following:

Between – the ICD-9-CM codes fall between the codes listed in the next two columns, i.e., "From" and "To."

"=" - the ICD-9-CM codes equal the code displayed in "From"

">=" - this relation is used in the length of stay risk group definitions and states that the length of stay is greater than or equal to the number of days shown. For example, '>= 4' states that the length of stay either equals 4 days or is greater than 4 days.

From – This column is either that code the begins the range of codes in "Between" relations or is a specific code in the equals (=) relation.

To – these ICD-9-CM codes end the range of codes in Between relations.

Operand

Or – A logical "Or" is used to include additional relations. For example, the statement '9984 Or 9987' states that either of these diagnosis codes can be used to satisfy the definition.

And Not – This operand is used to modify statements so that the definition is satisfied if the given code is not found in the patient record.

Parentheses – "**(**" and "**)**" are used to combine codes and operands to make a single logical statement.

Example –the definition of COC 01 can be interpreted as follows.

A patient will be considered to have had complication COC 01 if any of the secondary diagnoses, 998.4 (foreign body accidentally left during a procedure), 998.7 (acute reaction to foreign substance accidentally left during procedure), 998.82 (Cataract fragments in eye following cataract surgery) or codes between E8710 (Foreign object left in body during procedure – surgical operation) and E8719 (Foreign object left in body during procedure – unspecified procedure) are found in the patient claims or abstract and the principal diagnosis is not 998.4, 998.7 or 998.82.

The statement “Between E8710 and E8719” includes the following diagnosis codes that are found in ICD-9-CM coding manuals, e.g., E871.0, E871.1, E871.2, E871.3, E871.4, E871.5, E871.6, E871.7, E871.8 and E871.9.

A principal diagnosis is defined as the main reason that a patient is admitted to a hospital. If a patient has been admitted to a hospital for a foreign body or substance left in the body during a procedure as principal diagnosis, it is inferred that these are complications of care of a previous hospitalization.

ICD-9-CM code or DRG	**Relation**	**From**	**To**	**Operand**
Any Secondary Diagnosis Code in List	=	9984		Or
- FB LEFT DURING PROCEDURE				
Any Secondary Diagnosis Code in List	=	9987		Or
- POSTOP FORGN SUBST REACT				
Any Secondary Diagnosis Code in List	=	99882		Or (
- CTRCT FRGMT FRM CTR SURG				
Any Secondary Diagnosis Code in List	Between	E8710	E8719	And Not
- POST-SURGICAL FORGN BODY				
- POST-OP FOREIGN BODY NOS				
Principal Diagnosis Code	=	9984		And Not
- FB LEFT DURING PROCEDURE				
Principal Diagnosis Code	=	9987		And Not
- POSTOP FORGN SUBST REACT				
Principal Diagnosis Code	=	99882		)
- CTRCT FRGMT FRM CTR SURG				

Risk Group Definitions With Titles

Group Name: RG-01 Procedural Patient

Comments: 8/9/2004 removed many of the non-OR procedures from this definition, but retained those that involve systemic contrast or infusion (including myelogram) and vascular procedures (including lymphangiograms).

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Procedure Code in List - CISTERNAL PUNCTURE - MANUAL ROTAT FETAL HEAD	Between	0101	7351	Or
Any Procedure Code in List - EPISIOTOMY - SKIN & SUBQ OP NEC	Between	736	8699	Or
Any Procedure Code in List - CONTRAST MYELOGRAM	=	8721		Or
Any Procedure Code in List - INTRAOPER CHOLANGIOGRAM	=	8753		Or
Any Procedure Code in List - ABDOMINAL LYMPHANGIOGRAM	=	8804		Or
Any Procedure Code in List - UPPER LIMB LYMPHANGIOGRM	=	8834		Or
Any Procedure Code in List - LOWER LIMB LYMPHANGIOGRM	=	8836		Or
Any Procedure Code in List - CONTRAST ARTERIOGRAM NOS - CONTRAST PHLEBOGRAM NEC	Between	8840	8867	Or
Any Procedure Code in List - PERIOP AUT TRANS HOL BLD - TRANSFUSION NEC	Between	9900	9909	Or
Any Procedure Code in List - THERAPEU PLASMAPHERESIS - OTHER THERAPEU APHERESIS	Between	9971	9979	Or
Any Procedure Code in List - THERAPEUTC PHOTOPHERESIS	=	9988		Or
Any Procedure Code in List - Implant cardiac resynch pacer w/o defib -	Between	0050	0057	Or
Any Procedure Code in List - Percut angioplasty precerebral vessel - Percut insert intracranial vasc stent	Between	0061	0065	Or
Any Procedure Code in List - Transplant from live related donor - Transplant from cadaver	Between	0091	0093	Or

Group Name: RG-01 Procedural Patient				
Any Procedure Code in List - Intravac imaging extracranial vessels - Intravascular imaging unspecified vessel	Between	0021	0029	Or
Any Procedure Code in List -	=	0044		Or
Any Procedure Code in List -	=	0077		Or
Any Procedure Code in List - -	Between	0085	0087	

Group Name: RG-02 All Patients

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code	Is Present			

Group Name: RG-03 Obstetrical Patients

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Diagnosis Related Group	Between	370	384	
- CESAREAN SECTION W CC				
- OTHER ANTEPARTUM DIAGNOSES W/O MEDICAL C				

Group Name: RG-04 Tracheostomy Status or Procedure

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - TRACHEOSTOMY COMP NOS - TRACHEOSTOMY COMP NEC	Between	51900	51909	Or
Any Secondary Diagnosis Code in List - TRACHEOSTOMY STATUS	=	V440		Or
Any Secondary Diagnosis Code in List - ATTEN TO TRACHEOSTOMY	=	V550		Or
Any Procedure Code in List - TEMPORARY TRACHEOSTOMY - OTHER PERM TRACHEOSTOMY	Between	311	3129	

Group Name: RG-05 Implanted Device or Graft

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - COMPLICATION CNS DEVICE	=	3491		Or
Any Diagnosis Code in List - GASTROSTOMY COMP - MECH	=	53642		Or
Any Diagnosis Code in List - COLOSTY/ENTER COMP-MECH	=	56962		Or
Any Diagnosis Code in List - MALFUNC CARD DEV/GRF NOS - COMPL REATTACH PART NEC	Between	99600	99699	Or
Any Diagnosis Code in List - KIDNEY TRANSPLANT STATUS - TRNSPL STATUS ORGAN NEC	Between	V420	V4289	Or
Any Diagnosis Code in List - STATUS CARDC DVCE UNSPCF - PRSC NTRUTR CNTRCPTV DVC	Between	V4500	V4551	Or
Any Diagnosis Code in List - FITTING ARTIFICIAL ARM - ADJ NERV SYST DEVICE NEC	Between	V520	V5309	Or
Any Diagnosis Code in List - FTNG CARDIAC PACEMAKER - FTNG OTH CARDIAC DEVICE	Between	V5331	V5339	Or
Any Diagnosis Code in List - FIT/ADJ INTES APPL NEC - FIT ORTHOPEDIC DEVICES	Between	V535	V537	Or
Any Diagnosis Code in List - ADJUSTMNT DEVICE NEC/NOS*	=	V539		Or
Any Diagnosis Code in List - REMOVAL INT FIXATION DEV*	=	V540		Or
Any Diagnosis Code in List - RENAL DIALYSIS ENCOUNTER - DIALYSIS ENCOUNTER, NEC	Between	V560	V568	Or
Any Diagnosis Code in List - FIT/ADJ VASCULAR CATHETR	=	V5881		Or
Any Diagnosis Code in List - FIT/ADJ NON-VSC CATH NEC	=	V5882		Or
Any Procedure Code in List - VENTRICL SHUNT TUBE PUNC	=	0102		Or
Any Procedure Code in List - REMOV INTRACRAN STIMULAT	=	0122		Or
Any Procedure Code in List - BONE GRAFT TO SKULL - SKULL PLATE INSERTION	Between	0204	0205	Or

Any Procedure Code in List - VENTRICULOSTOMY	=	022		Or
Any Procedure Code in List - VENTRICL SHUNT-HEAD/NECK - REMOVE VENTRICLE SHUNT	Between	0231	0243	Or
Any Procedure Code in List - IMPLANT BRAIN STIMULATOR	=	0293		Or
Any Procedure Code in List - INSERT SPHENOID ELECTROD	=	0296		Or
Any Procedure Code in List - SUBARACH-PERITON SHUNT - OTH SPINAL THECAL SHUNT	Between	0371	0379	Or
Any Procedure Code in List - INSERT SPINAL STIMULATOR - REMOVE SPINAL STIMULATOR	Between	0393	0394	Or
Any Procedure Code in List - REVISE SPINE THECA SHUNT - REMOVE SPINE THECA SHUNT	Between	0397	0398	Or
Any Procedure Code in List - IMPLANT PERIPH STIMULAT - REMOVE PERIPH STIMULATOR	Between	0492	0493	Or
Any Procedure Code in List - CONJUNCTIVORHINOS W TUBE	=	0983		Or
Any Procedure Code in List - SYMBLEPH REP W FREE GRFT - GRAFT CONJUNC CUL-DE-SAC	Between	1041	1042	Or
Any Procedure Code in List - PTERYG EXC W CORNEA GRFT	=	1132		Or
Any Procedure Code in List - CORNEAL TRANSPLANT NOS - LAM KERATPLAST W AUTGRFT	Between	1160	1161	Or
Any Procedure Code in List - PERF KERATOPL W AUTOGRFT - PERFORAT KERATOPLAST NEC	Between	1163	1164	Or
Any Procedure Code in List - REMOVE CORNEAL IMPLANT	=	1192		Or
Any Procedure Code in List - REPAIR STAPHYLOM W GRAFT	=	1285		Or
Any Procedure Code in List - GRAFT REINFORCE SCLERA	=	1287		Or
Any Procedure Code in List - INSERT PSEUDOPHAKOS NOS - SECONDARY INSERT LENS	Between	1370	1372	Or
Any Procedure Code in List - IMPLANTED LENS REMOVAL	=	138		Or

Group Name: RG-05 Implanted Device or Graft				
Any Procedure Code in List - SCLERAL BUCKLE W IMPLANT	=	1441		Or
Any Procedure Code in List - REMOV PROS MAT POST SEG	=	146		Or
Any Procedure Code in List - VITREOUS SUBSTITUT INJEC	=	1475		Or
Any Procedure Code in List - ORBITOTOMY W IMPLANT	=	1602		Or
Any Procedure Code in List - EYE EVISC W SYNCH IMPLAN	=	1631		Or
Any Procedure Code in List - EYE ENUC/IMPLAN/MUSC ATT - EYE ENUC W IMPLANT NEC	Between	1641	1642	Or
Any Procedure Code in List - 2NDRY OCULAR IMP INSERT - REVIS ENUC SOCKET W GRFT	Between	1661	1663	Or
Any Procedure Code in List - 2NDRY EXENT CAVITY GRAFT	=	1665		Or
Any Procedure Code in List - EXT AUDIT CANAL RECONSTR	=	186		Or
Any Procedure Code in List - CONSTRUCTION EAR AURICLE	=	1871		Or
Any Procedure Code in List - MYRINGOTOMY W INTUBATION	=	2001		Or
Any Procedure Code in List - TYMPANOSTOMY TUBE REMOVE	=	201		Or
Any Procedure Code in List - ENDOLYMPHATIC SHUNT	=	2071		Or
Any Procedure Code in List - ELECMAG HEAR DEV IMPLANT - IMP/REP MCHAN COCHL PROS	Between	2095	2098	Or
Any Procedure Code in List - FULL-THICK GRFT TO MOUTH - PEDICLE ATTACH TO MOUTH	Between	2755	2757	Or
Any Procedure Code in List - TEMPORARY TRACHEOSTOMY - OTHER PERM TRACHEOSTOMY	Between	311	3129	Or
Any Procedure Code in List - LARYNGOSTOMY REVISION	=	3163		Or
Any Procedure Code in List - REVISION OF TRACHEOSTOMY	=	3174		Or
Any Procedure Code in List - PLEUROPERITONEAL SHUNT	=	3405		Or
Any Procedure Code in List - IMPLANT DIAPHRA PACEMAKE	=	3485		Or

Group Name: RG-05 Implanted Device or Graft

Any Procedure Code in List - REPLACE HEART VALVE NOS - REPLACE TRICUSP VALV NEC	Between	3520	3528	Or
Any Procedure Code in List - PROSTH REP HRT SEPTA NOS - PROS REP ENDOCAR CUSHION	Between	3550	3554	Or
Any Procedure Code in List - GRFT REPAIR HRT SEPT NOS - GRFT REP ENDOCAR CUSHION	Between	3560	3563	Or
Any Procedure Code in List - TOT REPAIR TETRAL FALLOT - TOT COR TRANSPOS GRT VES	Between	3581	3584	Or
Any Procedure Code in List - CONDUIT RT VENT-PUL ART - HEART REPAIR REVISION	Between	3592	3595	Or
Any Procedure Code in List - INSERT OF COR ART STENT	=	3606		Or
Any Procedure Code in List - AORTOCORONARY BYPASS NOS - HRT REVAS BYPS ANAS NEC	Between	3610	3619	Or
Any Procedure Code in List - ARTERIAL IMPLANT REVASC	=	362		Or
Any Procedure Code in List - OPEN CHEST TRANS REVASC - OTH HEART REVASCULAR	Between	3631	3639	Or
Any Procedure Code in List - PULSATION BALLOON IMPLAN - REVISE OR REMOVE PACEMAK	Between	3761	3789	Or
Any Procedure Code in List - IMPLT/REPL CARDDEFIB TOT - REPL CARDIODEFIB GENRATR	Between	3794	3798	Or
Any Procedure Code in List - ENDARTERECTOMY NOS - LOWER LIMB ENDARTERECT	Between	3810	3818	Or
Any Procedure Code in List - VESSEL RESECT/ANAST NOS - LEG VEIN RESECT/ANASTOM	Between	3830	3839	Or
Any Procedure Code in List - SYSTEMIC-PULM ART SHUNT - VASC SHUNT & BYPASS NEC	Between	390	3929	Or
Any Procedure Code in List - REVIS REN DIALYSIS SHUNT - REMOV REN DIALYSIS SHUNT	Between	3942	3943	Or
Any Procedure Code in List - REPAIR VESS W TIS PATCH - REPAIR VESS W PATCH NOS	Between	3956	3958	Or

Group Name: RG-05 Implanted Device or Graft				
Any Procedure Code in List - INTRAOP CARDIAC PACEMAK	=	3964		Or
Any Procedure Code in List - INS NON-CORO ART STENT	=	3990		Or
Any Procedure Code in List - INSERT VES-TO-VES CANNUL - REPLAC VES-TO-VES CANNUL	Between	3993	3994	Or
Any Procedure Code in List - THORAC ESOPHAGOESOPHAGOS - STERN ESOPHAG ANAST NEC	Between	4251	4269	Or
Any Procedure Code in List - ESOPHAGOSTOMY CLOSURE	=	4283		Or
Any Procedure Code in List - PERCU ENDOSC GASTROSTOMY - OTHER GASTROSTOMY	Between	4311	4319	Or
Any Procedure Code in List - PROXIMAL GASTRECTOMY - TOTAL GASTRECTOMY NEC	Between	435	4399	Or
Any Procedure Code in List - HIGH GASTRIC BYPASS - GASTROENTEROSTOMY NEC	Between	4431	4439	Or
Any Procedure Code in List - REVISION GASTRIC ANASTOM	=	445		Or
Any Procedure Code in List - COLOSTOMY NOS - ENTEROSTOMY NEC	Between	4610	4639	Or
Any Procedure Code in List - INTEST STOMA CLOSURE NOS - LG BOWEL STOMA CLOSURE	Between	4650	4652	Or
Any Procedure Code in List - REVISE SM BOWEL ANASTOM - REVISE LG BOWEL ANASTOM	Between	4693	4694	Or
Any Procedure Code in List - INSERT SUBQ ANAL STIMUL	=	4992		Or
Any Procedure Code in List - GB-TO-HEPAT DUCT ANAST - BILE DUCT ANASTOMOS NEC	Between	5131	5139	Or
Any Procedure Code in List - CHOLEDOCHOHEPAT INTUBAT	=	5143		Or
Any Procedure Code in List - ENDOSC INSER STENT BILE	=	5187		Or
Any Procedure Code in List - REVIS BILE TRACT ANASTOM - REMOVE BILE DUCT PROSTH	Between	5194	5195	Or
Any Procedure Code in List - ENDOSC INSER PANC STENT	=	5293		Or

Group Name: RG-05 Implanted Device or Graft

Any Procedure Code in List - PANCREATIC ANASTOMOSIS - ENDOSC INSER NASOPAN TUB	Between	5296	5297	Or
Any Procedure Code in List - DIR ING HERNIA REP-GRAFT - ING HERNIA REP-GRAFT NOS	Between	5303	5305	Or
Any Procedure Code in List - BIL DIR ING HRN REP-GRFT - BIL ING HRN REP-GRFT NOS	Between	5314	5317	Or
Any Procedure Code in List - UNIL FEMOR HRN REP-GRFT	=	5321		Or
Any Procedure Code in List - BIL FEM HERN REPAIR-GRFT	=	5331		Or
Any Procedure Code in List - UMBIL HERNIA REPAIR-GRFT	=	5341		Or
Any Procedure Code in List - INCIS HERNIA REPAIR-GRFT	=	5361		Or
Any Procedure Code in List - ABD HERN REPAIR-GRFT NEC	=	5369		Or
Any Procedure Code in List - IMPLANT MECHANIC KIDNEY - REMOV MECHANICAL KIDNEY	Between	5597	5598	Or
Any Procedure Code in List - URIN DIVERSION TO BOWEL - URETERAL ANASTOMOSIS NEC	Between	5671	5679	Or
Any Procedure Code in List - IMPLANT URETERAL STIMUL - REMOVE URETERAL STIMULAT	Between	5692	5694	Or
Any Procedure Code in List - IMPLANT BLADDER STIMULAT - REMOVE BLADDER STIMULAT	Between	5796	5798	Or
Any Procedure Code in List - URETHRAL REANASTOMOSIS	=	5844		Or
Any Procedure Code in List - IMPLT ARTF URIN SPHINCT	=	5893		Or
Any Procedure Code in List - INJECT IMPLANT URETHRA	=	5972		Or
Any Procedure Code in List - URETERAL CATHETERIZATION	=	598		Or
Any Procedure Code in List - INSERT TESTICULAR PROSTH	=	627		Or
Any Procedure Code in List - EPIDIDYMOVASOSTOMY	=	6383		Or
Any Procedure Code in List - REMOV VAS DEFERENS VALVE	=	6385		Or

Any Procedure Code in List - INSERT VALVE IN VAS DEF	=	6395		Or
Any Procedure Code in List - INS NONINFL PENIS PROSTH - INS INFLATE PENIS PROSTH	Between	6495	6497	Or
Any Procedure Code in List - IMPL FALLOP TUBE PROSTH - REMOV FALLOP TUBE PROSTH	Between	6693	6694	Or
Any Procedure Code in List - INSERTION OF IUD	=	697		Or
Any Procedure Code in List - FALLOPIAN TUBE ASPIRAT	=	6691		Or
Any Procedure Code in List - IMPL FALLOP TUBE PROSTH	=	6693		Or
Any Procedure Code in List - REMOVE CERVICAL CERCLAGE	=	6996		Or
Any Procedure Code in List - AUGMENTATION GENIOPLASTY	=	7668		Or
Any Procedure Code in List - BONE GRAFT TO FACE BONE - SYN IMPLANT TO FACE BONE	Between	7691	7692	Or
Any Procedure Code in List - BONE GRAFT NOS - BONE GRAFT NEC	Between	7800	7809	Or
Any Procedure Code in List - LIMB LENGTHEN PROC NOS - LIMB LENGTHEN PROC NEC	Between	7830	7839	Or
Any Procedure Code in List - INT FIX W/O FX REDUC NOS - REMOVE IMPL DEVICE NEC	Between	7850	7869	Or
Any Procedure Code in List - INSERT BONE STIMUL NOS - INSERT BONE STIMUL NEC	Between	7890	7899	Or
Any Procedure Code in List - CL FX REDUC-INT FIX NOS - CL FX REDUC-INT FIX NEC	Between	7910	7919	Or
Any Procedure Code in List - OPN FX RED W INT FIX NOS - OPN FX RED W INT FIX NEC	Between	7930	7939	Or
Any Procedure Code in List - ARTHROT & PROS REMOV NOS - ARTHROT & PROS REMOV NEC	Between	8000	8009	Or
Any Procedure Code in List - TOTAL HIP REPLACEMENT - REV JT REPL LOW EXT NEC	Between	8151	8159	Or
Any Procedure Code in List - ARTHROPLAS METACARP WIT	=	8171		Or

Any Procedure Code in List - TOTAL WRIST REPLACEMENT - ARTHROPLASTY CARPAL WIT	Between	8173	8174	Or
Any Procedure Code in List - TOTAL SHOULDER REPLACE - PARTIAL SHOULDER REPLACE	Between	8180	8181	Or
Any Procedure Code in List - TOTAL ELBOW REPLACEMENT	=	8184		Or
Any Procedure Code in List - REV JT REPL UPPER EXTREM	=	8197		Or
Any Procedure Code in List - PLAST OP HND-MUS/FAS GRF	=	8272		Or
Any Procedure Code in List - PLAST OP HAND W GRFT NEC	=	8279		Or
Any Procedure Code in List - TENDON GRAFT - MUSCLE OR FASCIA GRAFT	Between	8381	8382	Or
Any Procedure Code in List - INSERT SKEL MUSC STIMULA - REMOV SKEL MUSC STIMULAT	Between	8392	8393	Or
Any Procedure Code in List - IMPLNT/FIT PROS LIMB NOS	=	8440		Or
Any Procedure Code in List - IMPLANT ARM PROSTHESIS	=	8444		Or
Any Procedure Code in List - IMPLANT LEG PROSTHESIS	=	8448		Or
Any Procedure Code in List - UNIL SUBQ MAMMECT-IMPLNT	=	8533		Or
Any Procedure Code in List - BIL SUBQ MAMMECT-IMPLANT	=	8535		Or
Any Procedure Code in List - UNILAT BREAST IMPLANT	=	8553		Or
Any Procedure Code in List - BILATERAL BREAST IMPLANT	=	8554		Or
Any Procedure Code in List - BREAST SPLIT-THICK GRAFT - BREAST MUSCLE FLAP GRAFT	Between	8582	8585	Or
Any Procedure Code in List - BREAST IMPLANT REVISION - REMOV BREAST TISSU EXPAN	Between	8593	8596	Or
Any Procedure Code in List - INSERT INFUSION PUMP - INSERT VASC ACCESS DEV	Between	8606	8607	Or
Any Procedure Code in List - FREE SKIN GRAFT NOS - REVISION OF PEDICLE GRFT	Between	8660	8675	Or

Group Name: RG-05 Implanted Device or Graft				
Any Procedure Code in List - INSERT TISSUE EXPANDER	=	8693		Or
Any Procedure Code in List - PACEMAKER WAVE FORM CHCK - PACEMAKER VOLT THRESHOLD	Between	8946	8948	Or
Any Procedure Code in List - OCULAR PROSTHETICS	=	9534		Or
Any Procedure Code in List - INSERT NASOPHARYN AIRWAY - INSERT RECTAL TUBE	Between	9601	9609	Or
Any Procedure Code in List - GI OSTOMY IRRIGATION	=	9636		Or
Any Procedure Code in List - BILIARY TUBE IRRIGATION - PANCREATIC TUBE IRRIGAT	Between	9641	9642	Or
Any Procedure Code in List - NEPHROST/PYELOST IRRIGAT - INDWELL CATH IRRIG NEC	Between	9645	9648	Or
Any Procedure Code in List - VASCULAR CATH IRRIGATION - WOUND CATHETER IRRIGAT	Between	9657	9658	Or
Any Procedure Code in List - REPLACE GAST/ESOPH TUBE - REPL STENT IN BILE DUCT	Between	9701	9705	Or
Any Procedure Code in List - REPLACE WOUND CATHETER	=	9715		Or
Any Procedure Code in List - REPLACE TRACH TUBE	=	9723		Or
Any Procedure Code in List - REMOVE EYE PROSTHESIS	=	9731		Or
Any Procedure Code in List - REMOVE TRACHEOSTOMY TUBE	=	9737		Or
Any Procedure Code in List - REMOV THORACOTOMY TUBE - REMOV MEDIASTINAL DRAIN	Between	9741	9742	Or
Any Procedure Code in List - REMOV THOR THER DEV NEC	=	9749		Or
Any Procedure Code in List - REMOV GASTROSTOMY TUBE - REMOV OTHER GI DEVICE	Between	9751	9759	Or
Any Procedure Code in List - REMOV PYELOS/NEPHROS TUB - REMOV OTHER URIN DEVICE	Between	9761	9769	Or
Any Procedure Code in List - REMOV RETROPERITON DRAIN - REMOV THERAPEUT DEV NEC	Between	9781	9789	Or

Group Name: RG-05 Implanted Device or Graft

Any Procedure Code in List - NON-INVASIVE BONE STIMUL	=	9986		Or
Any Procedure Code in List - Implant cardiac resynch pacer w/o defib - Insert drug-eluding non-coronary stent	Between	0050	0055	Or
Any Procedure Code in List - Heart Transplantation - Replace other component heart system	Between	3751	3754	Or
Any Procedure Code in List - Insert drug-eluding coronary art stent	=	3607		Or
Any Procedure Code in List - Implant/revise artificial anal sphincter - Removal artificial anal sphincter	Between	4975	4976	Or
Any Procedure Code in List - Insert interspinal fusion device - Insert rhBMP	Between	8451	8452	Or
Any Procedure Code in List - Implant chemotherapy agent	=	0010		Or
Any Diagnosis Code in List - Infection of esophagostomy - Mechanical complication of esophagostomy	Between	53086	53087	Or
Any Procedure Code in List - Implant int limb lengthen w kinetic dist - Revise spinal disc prosthesis NOS	Between	8453	8469	Or
Any Procedure Code in List - Insert singl array neurostim pulse gener - Insert other neurostim pulse generator	Between	8694	8696	Or
Any Procedure Code in List - Slew rate check, pacemaker	=	8949		Or
Any Procedure Code in List - Percut insertion carotid artery stent - Percut insert intracranial vasc stent	Between	0063	0065	Or
Any Procedure Code in List - Insertion of palatal implant	=	2764		Or
Any Procedure Code in List - Insert percut ext heeart assist device	=	3768		Or
Any Procedure Code in List - Insert left atrial appendage device	=	3790		Or
Any Procedure Code in List - -	Between	0045	0048	Or
Any Procedure Code in List - -	Between	0070	0076	Or
Any Procedure Code in List - -	Between	0080	0084	Or

Group Name: RG-05 Implanted Device or Graft

Any Procedure Code in List - -	Between	0126	0127	Or
Any Procedure Code in List -	=	3741		Or
Any Procedure Code in List -	=	3973		Or
Any Procedure Code in List - -	Between	8697	8698	Or
Any Procedure Code in List -	=	3378		

Group Name: RG-06 Infusion or Transfusion

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - AIR EMBOL COMP MED CARE - TRANSFUSION REACTION NEC	Between	9991	9998	Or
Any Diagnosis Code in List - FAILURE STERILE INFUSION - FAIL STERILE INJECTION	Between	E8721	E8723	Or
Any Diagnosis Code in List - EXCESS FLUID IN INFUSION - INCOR DILUT INFUSN FLUID	Between	E8730	E8731	Or
Any Diagnosis Code in List - CONTAMINATED TRANSFUSION - CONTAMINATED DRUG NEC	Between	E8750	E8752	Or
Any Diagnosis Code in List - MISMATCH BLOOD-TRANSFUSN - WRONG FLUID IN INFUSION	Between	E8760	E8761	Or
Any Diagnosis Code in List - BLOOD TRANSFUSION, NO DX	=	V582		Or
Any Procedure Code in List - PERIOP AUT TRANS HOL BLD - INJECT/INF THROMBO AGENT	Between	9900	9910	Or
Any Procedure Code in List - PARENT INFUS NUTRIT SUB	=	9915		Or
Any Procedure Code in List - INJECT/INFUSE ELECTROLYT	=	9918		Or
Any Procedure Code in List - INJ/INF PLATELET INHIBIT	=	9920		Or
Any Procedure Code in List - INJECT CA CHEMOTHER NEC	=	9925		Or
Any Procedure Code in List - IONTOPHORESIS - INJECT/INFUSE NEC	Between	9927	9929	Or
Any Procedure Code in List - Infuse drotrecogin alfa (activated	=	0011		Or
Any Procedure Code in List - Inj or Infuse nesiritide - High dose infusion interleukin-2	Between	0013	0015	Or
Any Procedure Code in List - Infusion of vasopressor agent -	Between	0017	0018	Or
Any Procedure Code in List -	=	9220		

Group Name: RG-07 Cesarean Section

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Procedure Code in List - CLASSICAL C-SECTION - EXTRAPERITONEAL C-SECT	Between	740	742	Or
Any Procedure Code in List - CESAREAN SECTION NEC	=	744		Or
Any Procedure Code in List - CESAREAN SECTION NOS	=	7499		Or
Any Diagnosis Code in List - CESAREAN DELIVERY NOS	=	66971		

Group Name: RG-08 Vaginal Delivery

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Diagnosis Related Group - VAGINAL DELIVERY W COMPLICATING DIAGNOSE - VAGINAL DELIVERY W O.R. PROC EXCEPT STER	Between	372	375	And Not
Any Procedure Code in List - CLASSICAL C-SECTION - EXTRAPERITONEAL C-SECT	Between	740	742	And Not
Any Procedure Code in List - CESAREAN SECTION NEC	=	744		And Not
Any Procedure Code in List - CESAREAN SECTION NOS	=	7499		

Group Name: INF-1 Infection as Principal Diagnosis

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - MENINGOCOCCAL MENINGITIS - SEPTICEMIA NOS	Between	0360	0389	Or
Principal Diagnosis Code - GAS GANGRENE	=	0400		Or
Principal Diagnosis Code - STREPTOCOCCUS UNSPECF - HUMAN IMMUNO VIRUS DIS	Between	04100	042	Or
Principal Diagnosis Code - HEMOPHILUS MENINGITIS - POSTIMMUNIZAT ENCEPHALIT*	Between	3200	3235	Or
Principal Diagnosis Code - INTRACRANIAL ABSCESS - CNS ABSCESS NOS	Between	3240	3249	Or
Principal Diagnosis Code - ACUTE CONJUNCTIVITIS NOS - AC ATOPIC CONJUNCTIVITIS	Between	37200	37205	Or
Principal Diagnosis Code - AC/SUBAC BACT ENDOCARD - ACUTE MYOCARDITIS NOS	Between	4210	42290	Or
Principal Diagnosis Code - SEPTIC MYOCARDITIS	=	42292		Or
Principal Diagnosis Code - AC MAXILLARY SINUSITIS - AC EPIGLOTTITIS W OBSTR	Between	4610	46431	Or
Principal Diagnosis Code - ACUTE BRONCHITIS - ACU BRNCHLTS D/T OTH ORG	Between	4660	46619	Or
Principal Diagnosis Code - PERITONSILLAR ABSCESS	=	475		Or
Principal Diagnosis Code - PARAPHARYNGEAL ABSCESS	=	47822		Or
Principal Diagnosis Code - RETROPHARYNGEAL ABSCESS	=	47824		Or
Principal Diagnosis Code - ADENOVIRAL PNEUMONIA - BRONCHITIS NOS	Between	4800	490	Or
Principal Diagnosis Code - EMPYEMA WITH FISTULA	=	5100		Or
Principal Diagnosis Code - EMPYEMA W/O FISTULA	=	5109		Or
Principal Diagnosis Code - BACT PLEUR/EFFUS NOT TB	=	5111		Or

Group Name: INF-1 Infection as Principal Diagnosis

Principal Diagnosis Code - ABSCESS OF LUNG - ABSCESS OF MEDIASTINUM	Between	5130	5131	Or
Principal Diagnosis Code - SALIVARY GLAND ABSCESS	=	5273		Or
Principal Diagnosis Code - GASTROSTOMY INFECTION	=	53641		Or
Principal Diagnosis Code - ANAL & RECTAL ABSCESS	=	566		Or
Principal Diagnosis Code - PERITONITIS IN INFEC DIS - PERITONITIS NOS	Between	5670	5679	Or
Principal Diagnosis Code - COLOSTY/ENTEROST INFECTN	=	56961		Or
Principal Diagnosis Code - AC PYELONEPHRITIS NOS - INFECTION OF KIDNEY NOS	Between	59010	5909	Or
Principal Diagnosis Code - ACUTE CYSTITIS	=	5950		Or
Principal Diagnosis Code - URETHRAL ABSCESS	=	5970		Or
Principal Diagnosis Code - URETHR STRICT:INFECT NOS - URETH STRICT:OTH INFECT	Between	59800	59801	Or
Principal Diagnosis Code - URIN TRACT INFECTION NOS	=	5990		Or
Principal Diagnosis Code - ORCHITIS WITH ABSCESS	=	6040		Or
Principal Diagnosis Code - SEMINAL VESICULITIS	=	6080		Or
Principal Diagnosis Code - MALE GEN INFLAM DIS NEC	=	6084		Or
Principal Diagnosis Code - AC PELV PERITONITIS-FEM	=	6145		Or
Principal Diagnosis Code - BARTHOLIN'S GLND ABSCESS - ABSCESS OF VULVA NEC	Between	6163	6164	Or
Principal Diagnosis Code - SPON ABOR W PEL INF-UNSP - SPON ABOR W PEL INF-COMP	Between	63400	63402	Or
Principal Diagnosis Code - LEG ABOR W PELV INF-UNSP - LEG ABOR W PELV INF-COMP	Between	63500	63502	Or
Principal Diagnosis Code - ILLEG AB W PELV INF-UNSP - ILLEG AB W PELV INF-COMP	Between	63600	63602	Or

Group Name: INF-1 Infection as Principal Diagnosis

Principal Diagnosis Code - ABORT NOS W PEL INF-UNSP - ABORT NOS W PEL INF-COMP	Between	63700	63702	Or
Principal Diagnosis Code - ATTEM ABORT W PELVIC INF	=	6380		Or
Principal Diagnosis Code - POSTABORTION GU INFECT	=	6390		Or
Principal Diagnosis Code - GU INFECTION-DELIV W P/P	=	64662		Or
Principal Diagnosis Code - GU INFECTION-POSTPARTUM	=	64664		Or
Principal Diagnosis Code - OTH VIRAL DIS-DEL W P/P	=	64762		Or
Principal Diagnosis Code - OTH VIRAL DIS-POSTPARTUM	=	64764		Or
Principal Diagnosis Code - INFECT DIS NEC-DEL W P/P	=	64782		Or
Principal Diagnosis Code - INFECT DIS NEC-POSTPART	=	64784		Or
Principal Diagnosis Code - INFECT NOS-DELIVER W P/P	=	64792		Or
Principal Diagnosis Code - INFECT NOS-POSTPARTUM	=	64794		Or
Principal Diagnosis Code - AMNIOTIC INFECTION-UNSP - AMNIOTIC INFECTION-DELIV	Between	65840	65841	Or
Principal Diagnosis Code - AMNIOTIC INFECT-ANTEPART	=	65843		Or
Principal Diagnosis Code - SEPTICEMIA IN LABOR-UNSP - SEPTICEM IN LABOR-DELIV	Between	65930	65931	Or
Principal Diagnosis Code - MAJOR PUERP INF-DEL P/P	=	67002		Or
Principal Diagnosis Code - MAJOR PUERP INF-POSTPART	=	67004		Or
Principal Diagnosis Code - INFECT NIPPLE-DEL W P/P	=	67502		Or
Principal Diagnosis Code - INFECT NIPPLE-POSTPARTUM	=	67504		Or
Principal Diagnosis Code - BREAST ABSCESS-DEL W P/P	=	67512		Or
Principal Diagnosis Code - BREAST ABSCESS-POSTPART	=	67514		Or
Principal Diagnosis Code - MASTITIS-DELIV W P/P	=	67522		Or

Group Name: INF-1	Infection as Principal Diagnosis			
Principal Diagnosis Code - MASTITIS-POSTPARTUM	=	67524		Or
Principal Diagnosis Code - BREAST INF NEC-DEL W P/P	=	67582		Or
Principal Diagnosis Code - BREAST INF NEC-POSTPART	=	67584		Or
Principal Diagnosis Code - BREAST INF NOS-DEL W P/P	=	67592		Or
Principal Diagnosis Code - BREAST INF NOS-POSTPART	=	67594		Or
Principal Diagnosis Code - CARBUNCLE OF FACE - PILONIDAL CYST W ABSCESS	Between	6800	6850	Or
Principal Diagnosis Code - PYODERMA NOS - LOCAL SKIN INFECTION NOS	Between	68600	6869	Or
Principal Diagnosis Code - PYOGEN ARTHRITIS-UNSPEC - PYOGEN ARTHRITIS-MULT	Between	71100	71109	Or
Principal Diagnosis Code - BACT ARTHRITIS-UNSPEC - MYCOTIC ARTHRITIS-MULT	Between	71140	71169	Or
Principal Diagnosis Code - INF ARTHRITIS NEC-UNSPEC - INF ARTHRITIS NEC-MULT	Between	71180	71189	Or
Principal Diagnosis Code - AC OSTEOMYELITIS-UNSPEC - AC OSTEOMYELITIS-MULT	Between	73000	73009	Or
Principal Diagnosis Code - CHR OSTEOMYELITIS-UNSP - CHR OSTEOMYELIT-MULT	Between	73010	73019	Or
Principal Diagnosis Code - OSTEOMYELITIS NOS-UNSPEC - OSTEOMYELITIS NOS-MULT	Between	73020	73029	Or
Principal Diagnosis Code - MATERNAL INFEC AFF NB	=	7602		Or
Principal Diagnosis Code - CONGENITAL INFEC NEC - SEPTICEMIA (SEPSIS) OFNEWBORN	Between	7712	77181	Or
Principal Diagnosis Code - POSTTRAUM WND INFEC NEC	=	9583		Or
Principal Diagnosis Code - REACTION-UNSP DEVIC/GRFT - REACT-CARDIAC DEV/GRAFT	Between	99660	99661	Or
Principal Diagnosis Code - INFECTED POSTOP SEROMA - OTHER POSTOP INFECTION	Between	99851	99859	Or

Group Name: INF-1 Infection as Principal Diagnosis

Principal Diagnosis Code - INFECTION AMPUTAT STUMP	=	99762		Or
Principal Diagnosis Code - SARS-associated coronavirus	=	07982		Or
Principal Diagnosis Code - Septic shock	=	78552		Or
Principal Diagnosis Code - SYSTEMIC INFLAMM RESPONSE SYNDR UNSPEC - SYS INFLAM RESP SYND NONINF W/ ORG DYSFX	Between	99590	99594	Or
Principal Diagnosis Code - Toxic shock syndrome	=	04082		Or
Principal Diagnosis Code - West Nile fever	=	0664		Or
Principal Diagnosis Code -	=	0522		Or
Principal Diagnosis Code -	=	05314		Or
Principal Diagnosis Code -	=	05474		Or
Principal Diagnosis Code - -	Between	32351	32352	Or
Principal Diagnosis Code - -	Between	32361	32363	Or
Principal Diagnosis Code - -	Between	37960	37963	Or
Principal Diagnosis Code - -	Between	52300	52301	Or
Principal Diagnosis Code - -	Between	52310	52311	Or
Principal Diagnosis Code - -	Between	52330	52333	Or
Principal Diagnosis Code - -	Between	52340	52342	

Group Name: INF-2 Infection as Secondary Diagnosis

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - MENINGOCOCCAL MENINGITIS - SEPTICEMIA NOS	Between	0360	0389	Or
Any Secondary Diagnosis Code in List - GAS GANGRENE	=	0400		Or
Any Secondary Diagnosis Code in List - STREPTOCOCCUS UNSPECF - HUMAN IMMUNO VIRUS DIS	Between	04100	042	Or
Any Secondary Diagnosis Code in List - HEMOPHILUS MENINGITIS - POSTIMMUNIZAT ENCEPHALIT*	Between	3200	3235	Or
Any Secondary Diagnosis Code in List - INTRACRANIAL ABSCESS - CNS ABSCESS NOS	Between	3240	3249	Or
Any Secondary Diagnosis Code in List - ACUTE CONJUNCTIVITIS NOS - AC ATOPIC CONJUNCTIVITIS	Between	37200	37205	Or
Any Secondary Diagnosis Code in List - AC/SUBAC BACT ENDOCARD - ACUTE MYOCARDITIS NOS	Between	4210	42290	Or
Any Secondary Diagnosis Code in List - SEPTIC MYOCARDITIS	=	42292		Or
Any Secondary Diagnosis Code in List - AC MAXILLARY SINUSITIS - AC EPIGLOTTITIS W OBSTR	Between	4610	46431	Or
Any Secondary Diagnosis Code in List - ACUTE BRONCHITIS - ACU BRNCHLTS D/T OTH ORG	Between	4660	46619	Or
Any Secondary Diagnosis Code in List - PERITONSILLAR ABSCESS	=	475		Or
Any Secondary Diagnosis Code in List - PARAPHARYNGEAL ABSCESS	=	47822		Or
Any Secondary Diagnosis Code in List - RETROPHARYNGEAL ABSCESS	=	47824		Or
Any Secondary Diagnosis Code in List - ADENOVIRAL PNEUMONIA - BRONCHITIS NOS	Between	4800	490	Or
Any Secondary Diagnosis Code in List - EMPYEMA WITH FISTULA	=	5100		Or
Any Secondary Diagnosis Code in List - EMPYEMA W/O FISTULA	=	5109		Or
Any Secondary Diagnosis Code in List - BACT PLEUR/EFFUS NOT TB	=	5111		Or

Group Name: INF-2 Infection as Secondary Diagnosis

Any Secondary Diagnosis Code in List - ABSCESS OF LUNG - ABSCESS OF MEDIASTINUM	Between	5130	5131	Or
Any Secondary Diagnosis Code in List - SALIVARY GLAND ABSCESS	=	5273		Or
Any Secondary Diagnosis Code in List - GASTROSTOMY INFECTION	=	53641		Or
Any Secondary Diagnosis Code in List - ANAL & RECTAL ABSCESS	=	566		Or
Any Secondary Diagnosis Code in List - PERITONITIS IN INFEC DIS - PERITONITIS NOS	Between	5670	5679	Or
Any Secondary Diagnosis Code in List - COLOSTY/ENTEROST INFECTN	=	56961		Or
Any Secondary Diagnosis Code in List - AC PYELONEPHRITIS NOS - INFECTION OF KIDNEY NOS	Between	59010	5909	Or
Any Secondary Diagnosis Code in List - ACUTE CYSTITIS	=	5950		Or
Any Secondary Diagnosis Code in List - URETHRAL ABSCESS	=	5970		Or
Any Secondary Diagnosis Code in List - URETHR STRICT:INFECT NOS - URETH STRICT:OTH INFECT	Between	59800	59801	Or
Any Secondary Diagnosis Code in List - URIN TRACT INFECTION NOS	=	5990		Or
Any Secondary Diagnosis Code in List - ORCHITIS WITH ABSCESS	=	6040		Or
Any Secondary Diagnosis Code in List - SEMINAL VESICULITIS	=	6080		Or
Any Secondary Diagnosis Code in List - MALE GEN INFLAM DIS NEC	=	6084		Or
Any Secondary Diagnosis Code in List - AC PELV PERITONITIS-FEM	=	6145		Or
Any Secondary Diagnosis Code in List - BARTHOLIN'S GLND ABSCESS - ABSCESS OF VULVA NEC	Between	6163	6164	Or
Any Secondary Diagnosis Code in List - SPON ABOR W PEL INF-UNSP - SPON ABOR W PEL INF-COMP	Between	63400	63402	Or
Any Secondary Diagnosis Code in List - LEG ABOR W PELV INF-UNSP - LEG ABOR W PELV INF-COMP	Between	63500	63502	Or
Any Secondary Diagnosis Code in List - ILLEG AB W PELV INF-UNSP - ILLEG AB W PELV INF-COMP	Between	63600	63602	Or

Group Name: INF-2 Infection as Secondary Diagnosis

Any Secondary Diagnosis Code in List - ABORT NOS W PEL INF-UNSP - ABORT NOS W PEL INF-COMP	Between	63700	63702	Or
Any Secondary Diagnosis Code in List - ATTEM ABORT W PELVIC INF	=	6380		Or
Any Secondary Diagnosis Code in List - POSTABORTION GU INFECT	=	6390		Or
Any Secondary Diagnosis Code in List - GU INFECTION-DELIV W P/P	=	64662		Or
Any Secondary Diagnosis Code in List - GU INFECTION-POSTPARTUM	=	64664		Or
Any Secondary Diagnosis Code in List - OTH VIRAL DIS-DEL W P/P	=	64762		Or
Any Secondary Diagnosis Code in List - OTH VIRAL DIS-POSTPARTUM	=	64764		Or
Any Secondary Diagnosis Code in List - INFECT DIS NEC-DEL W P/P	=	64782		Or
Any Secondary Diagnosis Code in List - INFECT DIS NEC-POSTPART	=	64784		Or
Any Secondary Diagnosis Code in List - INFECT NOS-DELIVER W P/P	=	64792		Or
Any Secondary Diagnosis Code in List - INFECT NOS-POSTPARTUM	=	64794		Or
Any Secondary Diagnosis Code in List - AMNIOTIC INFECTION-UNSP - AMNIOTIC INFECTION-DELIV	Between	65840	65841	Or
Any Secondary Diagnosis Code in List - AMNIOTIC INFECT-ANTEPART	=	65843		Or
Any Secondary Diagnosis Code in List - SEPTICEMIA IN LABOR-UNSP - SEPTICEM IN LABOR-DELIV	Between	65930	65931	Or
Any Secondary Diagnosis Code in List - MAJOR PUERP INF-DEL P/P	=	67002		Or
Any Secondary Diagnosis Code in List - MAJOR PUERP INF-POSTPART	=	67004		Or
Any Secondary Diagnosis Code in List - INFECT NIPPLE-DEL W P/P	=	67502		Or
Any Secondary Diagnosis Code in List - INFECT NIPPLE-POSTPARTUM	=	67504		Or
Any Secondary Diagnosis Code in List - BREAST ABSCESS-DEL W P/P	=	67512		Or
Any Secondary Diagnosis Code in List - BREAST ABSCESS-POSTPART	=	67514		Or
Any Secondary Diagnosis Code in List - MASTITIS-DELIV W P/P	=	67522		Or

Group Name: INF-2 Infection as Secondary Diagnosis

Any Secondary Diagnosis Code in List - MASTITIS-POSTPARTUM	=	67524		Or
Any Secondary Diagnosis Code in List - BREAST INF NEC-DEL W P/P	=	67582		Or
Any Secondary Diagnosis Code in List - BREAST INF NEC-POSTPART	=	67584		Or
Any Secondary Diagnosis Code in List - BREAST INF NOS-DEL W P/P	=	67592		Or
Any Secondary Diagnosis Code in List - BREAST INF NOS-POSTPART	=	67594		Or
Any Secondary Diagnosis Code in List - CARBUNCLE OF FACE - PILONIDAL CYST W ABSCESS	Between	6800	6850	Or
Any Secondary Diagnosis Code in List - PYODERMA NOS - LOCAL SKIN INFECTION NOS	Between	68600	6869	Or
Any Secondary Diagnosis Code in List - PYOGEN ARTHRITIS-UNSPEC - PYOGEN ARTHRITIS-MULT	Between	71100	71109	Or
Any Secondary Diagnosis Code in List - BACT ARTHRITIS-UNSPEC - MYCOTIC ARTHRITIS-MULT	Between	71140	71169	Or
Any Secondary Diagnosis Code in List - INF ARTHRITIS NEC-UNSPEC - INF ARTHRITIS NEC-MULT	Between	71180	71189	Or
Any Secondary Diagnosis Code in List - AC OSTEOMYELITIS-UNSPEC - AC OSTEOMYELITIS-MULT	Between	73000	73009	Or
Any Secondary Diagnosis Code in List - CHR OSTEOMYELITIS-UNSP - CHR OSTEOMYELIT-MULT	Between	73010	73019	Or
Any Secondary Diagnosis Code in List - OSTEOMYELITIS NOS-UNSPEC - OSTEOMYELITIS NOS-MULT	Between	73020	73029	Or
Any Secondary Diagnosis Code in List - MATERNAL INFEC AFF NB	=	7602		Or
Any Secondary Diagnosis Code in List - CONGENITAL INFEC NEC - PERINATAL INFECTION NEC	Between	7712	7718	Or
Any Secondary Diagnosis Code in List - POSTTRAUM WND INFEC NEC	=	9583		Or
Any Secondary Diagnosis Code in List - REACTION-UNSP DEVIC/GRFT - REACT-CARDIAC DEV/GRAFT	Between	99660	99661	Or
Any Secondary Diagnosis Code in List - INFECTED POSTOP SEROMA - OTHER POSTOP INFECTION	Between	99851	99859	Or

Group Name: INF-2	Infection as Secondary Diagnosis			
Any Secondary Diagnosis Code in List - INFECTION AMPUTAT STUMP	=	99762		Or
Any Secondary Diagnosis Code in List - SARS-associated coronavirus	=	07982		Or
Any Secondary Diagnosis Code in List - Septic shock	=	78552		Or
Any Secondary Diagnosis Code in List - West Nile fever	=	0664		Or
Any Secondary Diagnosis Code in List - SEPTICEMIA (SEPSIS) OFNEWBORN	=	77181		Or
Any Secondary Diagnosis Code in List - Septic shock	=	78552		Or
Any Secondary Diagnosis Code in List - SYSTEMIC INFLAMM RESPONSE SYNDR UNSPEC - SYS INFLAM RESP SYND NONINF W/ ORG DYSFX	Between	99590	99594	Or
Any Secondary Diagnosis Code in List - Toxic shock syndrome	=	04082		Or
Any Secondary Diagnosis Code in List -	=	0522		Or
Any Secondary Diagnosis Code in List -	=	05314		Or
Any Secondary Diagnosis Code in List -	=	05474		Or
Any Secondary Diagnosis Code in List - -	Between	32301	32302	Or
Any Secondary Diagnosis Code in List - -	Between	32341	32342	Or
Any Secondary Diagnosis Code in List - -	Between	32351	32352	Or
Any Secondary Diagnosis Code in List - -	Between	32361	32362	Or
Any Secondary Diagnosis Code in List - -	Between	37960	37963	Or
Any Secondary Diagnosis Code in List - -	Between	52300	52301	Or
Any Secondary Diagnosis Code in List - -	Between	52310	52311	Or

Group Name: INF-2 Infection as Secondary Diagnosis

Any Secondary Diagnosis Code in List - -	Between	52330	52333	Or
Any Secondary Diagnosis Code in List - -	Between	52340	52342	

Group Name: TR-1 Trauma as Principal Diagnosis

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - CLOSED SKULL VAULT FX - FX LEGS W ARM/RIB-OPEN	Between	80000	8281	Or
Principal Diagnosis Code - CONCUSSION W/O COMA - OPN BRAIN INJ-CONCUSSION	Between	8500	85419	Or
Principal Diagnosis Code - TRAUM PNEUMOTHORAX-CLOSE - INTERNAL INJURY NOS-OPEN	Between	8600	8691	Or
Principal Diagnosis Code - INJUR CAROTID ARTERY NOS - BLOOD VESSEL INJURY NOS	Between	90000	9049	Or
Principal Diagnosis Code - CRUSH INJ FACE SCALP - CRUSHING INJURY NOS	Between	9251	9299	Or
Principal Diagnosis Code - CHEMICAL BURN PERIOCULAR - 3RD BURN W LOSS-SITE NOS	Between	9400	9495	Or
Principal Diagnosis Code - OPTIC NERVE INJURY - EARLY COMPLIC TRAUMA NEC	Between	9500	9588	Or
Principal Diagnosis Code - Other injury of chest wall - Other injury of other sites of trunk	Between	95911	95919	

Group Name: TR-2 Trauma as a Secondary Diagnosis

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - CLOSED SKULL VAULT FX - FX LEGS W ARM/RIB-OPEN	Between	80000	8281	Or
Any Secondary Diagnosis Code in List - CONCUSSION W/O COMA - OPN BRAIN INJ-CONCUSSION	Between	8500	85419	Or
Any Secondary Diagnosis Code in List - TRAUM PNEUMOTHORAX-CLOSE - INTERNAL INJURY NOS-OPEN	Between	8600	8691	Or
Any Secondary Diagnosis Code in List - INJUR CAROTID ARTERY NOS - BLOOD VESSEL INJURY NOS	Between	90000	9049	Or
Any Secondary Diagnosis Code in List - CRUSH INJ FACE SCALP - CRUSHING INJURY NOS	Between	9251	9299	Or
Any Secondary Diagnosis Code in List - CHEMICAL BURN PERIOCULAR - 3RD BURN W LOSS-SITE NOS	Between	9400	9495	Or
Any Secondary Diagnosis Code in List - OPTIC NERVE INJURY - EARLY COMPLIC TRAUMA NEC	Between	9500	9588	Or
Any Secondary Diagnosis Code in List - Other injury of chest wall - Other injury of other sites of trunk	Between	95911	95919	

Group Name: LOS-4 Length of Stay = 4 days or more

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Length of Stay	>=	4		

Group Name: LOS-7 Length of Stay = 7 days or more

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Length of Stay	>=	7		

Group Name: TRANS Transfer from SNF or other facility

Comments: This category identifies patient who were transferred from a skilled nursing facility or other hospitals or health care facilities. Refer to HCFA 1450 (UB-92) form locator 20, source of admission, with value 4, 5, 6, or A to identify these patients. FL20 is also identified as EMC record field 20:11.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Source of Admission	Between	4	6	Or
Source of Admission	=	A		

COC Definitions

COC Number: 01 Postoperative Retained Foreign Body or Other Substance

Risk Group: RG-01 | Procedural Patient |

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - FB LEFT DURING PROCEDURE	=	9984		Or
Any Secondary Diagnosis Code in List - POSTOP FORGN SUBST REACT	=	9987		Or
Any Secondary Diagnosis Code in List - CTRCT FRGMT FRM CTR SURG	=	99882		Or (
Any Secondary Diagnosis Code in List - POST-SURGICAL FORGN BODY - POST-OP FOREIGN BODY NOS	Between	E8710	E8719	And Not
Principal Diagnosis Code - FB LEFT DURING PROCEDURE	=	9984		And Not
Principal Diagnosis Code - POSTOP FORGN SUBST REACT	=	9987		And Not
Principal Diagnosis Code - CTRCT FRGMT FRM CTR SURG	=	99882		)

COC Number: 02 Reopening, Reclosure, or Revision of Procedure

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Procedure Code in List - REOPEN CRANIOTOMY SITE	=	0123		Or
Any Procedure Code in List - REPLACE VENTRICLE SHUNT	=	0242		Or
Any Procedure Code in List - REOPEN LAMINECTOMY SITE	=	0302		Or
Any Procedure Code in List - REVISE SPINE THECA SHUNT	=	0397		Or
Any Procedure Code in List - POSTOP REVIS PER NERV OP	=	0475		Or
Any Procedure Code in List - REOPEN THYROID FIELD WND	=	0602		Or
Any Procedure Code in List - REDUC OVERCORRECT PTOSIS	=	0837		Or
Any Procedure Code in List - POSTOP REVIS SCL FISTUL	=	1266		Or
Any Procedure Code in List - REVIS ANT SEG OP WND NEC	=	1283		Or
Any Procedure Code in List - REVIS EXTRAOC MUSC SURG	=	156		Or
Any Procedure Code in List - REVIS/REINSERT OCUL IMP - ENUC SOCKET REVIS NEC	Between	1662	1664	Or
Any Procedure Code in List - REVIS EXENTER CAVITY NEC	=	1666		Or
Any Procedure Code in List - REV STAPDEC W INCUS REPL	=	1921		Or
Any Procedure Code in List - STAPEDECTOMY REVIS NEC	=	1929		Or
Any Procedure Code in List - TYMPANOPLASTY REVISION	=	196		Or
Any Procedure Code in List - REVIS INNER EAR FENESTRA	=	2062		Or
Any Procedure Code in List - MASTOIDECTOMY REVISION	=	2092		Or

Any Procedure Code in List - LARYNGOSTOMY REVISION	=	3163		Or
Any Procedure Code in List - REVISION OF TRACHEOSTOMY	=	3174		Or
Any Procedure Code in List - REOPEN THORACOTOMY SITE	=	3403		Or
Any Procedure Code in List - HEART REPAIR REVISION	=	3595		Or
Any Procedure Code in List - REVISION OF LEAD	=	3775		Or
Any Procedure Code in List - REVIS OR RELOCATE POCKET	=	3779		Or
Any Procedure Code in List - REVISE OR REMOVE PACEMAK	=	3789		Or
Any Procedure Code in List - REVIS REN DIALYSIS SHUNT	=	3942		Or
Any Procedure Code in List - VASC PROC REVISION NEC	=	3949		Or
Any Procedure Code in List - REPLAC VES-TO-VES CANNUL	=	3994		Or
Any Procedure Code in List - REVISION GASTRIC ANASTOM	=	445		Or
Any Procedure Code in List - INTEST STOMA REVIS NOS - LG BOWEL STOMA REVIS NEC	Between	4640	4643	Or
Any Procedure Code in List - REVISE SM BOWEL ANASTOM - REVISE LG BOWEL ANASTOM	Between	4693	4694	Or
Any Procedure Code in List - REVIS BILE TRACT ANASTOM	=	5194		Or
Any Procedure Code in List - REOPEN RECENT LAP SITE	=	5412		Or
Any Procedure Code in List - RECLOSE POST OP DISRUPT	=	5461		Or
Any Procedure Code in List - REVIS CUTAN ILEOURETEROS	=	5652		Or
Any Procedure Code in List - REVIS CUTAN URETEROS NEC	=	5662		Or
Any Procedure Code in List - REVIS URETEROENTEROSTOMY	=	5672		Or

Any Procedure Code in List - REVISE CLO VESICOSTOMY	=	5722		Or
Any Procedure Code in List - REVISE HIP REPLACEMENT	=	8153		Or
Any Procedure Code in List - REVISE KNEE REPLACEMENT	=	8155		Or
Any Procedure Code in List - REV JT REPL LOW EXT NEC	=	8159		Or
Any Procedure Code in List - REV JT REPL UPPER EXTREM	=	8197		Or
Any Procedure Code in List - AMPUTATION STUMP REVIS	=	843		Or
Any Procedure Code in List - REVISION OF PEDICLE GRFT	=	8675		Or
Any Procedure Code in List - Heart Transplantation - Replace other component heart system	Between	3751	3754	Or
Any Procedure Code in List - -	Between	0070	0073	Or
Any Procedure Code in List - -	Between	0080	0084	

COC Number: 03 Procedure Related Hemorrhage or Hematoma

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - HEMORRHAGE COMPLIC PROC	=	99811		Or
Any Diagnosis Code in List - HEMATOMA COMPLIC PROC	=	99812		Or
Any Secondary Procedure Code in List - HEMORR CONTRL POST T & A	=	287		Or
Any Secondary Procedure Code in List - POSTOP VASC OP HEM CONTR	=	3941		Or
Any Secondary Procedure Code in List - HEMORRHAGE CONTROL NOS	=	3998		Or
Any Secondary Procedure Code in List - CONTROL ANAL HEMORRHAGE	=	4995		Or
Any Secondary Procedure Code in List - CONTROL BLADD HEMORRHAGE	=	5793		Or
Any Secondary Procedure Code in List - CONTROL PROSTATE HEMORR	=	6094		Or (
				(
Any Secondary Procedure Code in List - SUTURE PEPTIC ULCER NOS	=	4440		Or
Any Secondary Procedure Code in List - SUT GASTRIC ULCER SITE	=	4441		Or
Any Secondary Procedure Code in List - SUTURE DUODEN ULCER SITE	=	4442		Or
Any Secondary Procedure Code in List - ENDOSC CONTROL GAST HEM	=	4443		Or
Any Secondary Procedure Code in List - TRANSCATH EMBO GAST HEM	=	4444		Or
Any Secondary Procedure Code in List - OTHER CONTROL GAST HEM	=	4449		)
				And Not
Principal Diagnosis Code - AC STOMACH ULCER W HEM - GASTROJEJUN ULC NOS-OBST	Between	53100	53491	)

COC Number: 04 Postoperative Aspiration Pneumonia

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - FOOD/VOMIT PNEUMONITIS	=	5070		

COC Number: 05 Postoperative Pneumonia (non-aspiration)

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - K. PNEUMONIAE PNEUMONIA - PNEUMON OTH SPEC ORGNSM	Between	4820	4838	Or
Any Secondary Diagnosis Code in List - BRONCHOPNEUMONIA ORG NOS - PNEUMONIA, ORGANISM NOS	Between	485	486	

COC Number: 06 Postoperative Urinary Tract Infection

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - AC PYELONEPHRITIS NOS	=	59010		Or
Any Secondary Diagnosis Code in List - INFECTION OF KIDNEY NOS	=	5909		Or
Any Secondary Diagnosis Code in List - ACUTE CYSTITIS	=	5950		Or
Any Secondary Diagnosis Code in List - TRIGONITIS	=	5953		Or
Any Secondary Diagnosis Code in List - CYSTITIS NOS	=	5959		Or
Any Secondary Diagnosis Code in List - URIN TRACT INFECTION NOS	=	5990		

COC Number: 07 Postoperative Septicemia

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - STREPTOCOCCAL SEPTICEMIA - SEPTICEMIA NOS	Between	0380	0389	

COC Number: 08 Postoperative Infection, other

Risk Group:

Comments: Infections following transfusion, infusion, or injection are in COC 20. Obstetric wound infections are in COC 34.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				Not
Group - Infection as Principal Diagnosis	=	INF-1		And (
Group - Infection as Secondary Diagnosis	=	INF-2		Or
Any Secondary Diagnosis Code in List - FAILURE STERILE SURGERY	=	E8720		Or
Any Secondary Diagnosis Code in List - FAIL STERILE ENDOSCOPY - FAIL STERILE HEART CATH	Between	E8724	E8726	Or
Any Secondary Diagnosis Code in List - FAIL STERILE PROCED NEC - FAIL STERILE PROCED NOS	Between	E8728	E8729	)
				Or
Any Diagnosis Code in List - Mechanical complication of esophagostomy	=	53087		

COC Number: 09 Postoperative Myocardial Infarction

Risk Group:

Comments: Only the initial episode of care for an AMI is pertinent here. Risk Group includes all procedures and all surgery types, including cardiac.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - AMI ANTEROLATERAL, INIT	=	41001		Or
Any Secondary Diagnosis Code in List - AMI ANTERIOR WALL, INIT	=	41011		Or
Any Secondary Diagnosis Code in List - AMI INFEROLATERAL, INIT	=	41021		Or
Any Secondary Diagnosis Code in List - AMI INFEROPOST, INITIAL	=	41031		Or
Any Secondary Diagnosis Code in List - AMI INFERIOR WALL, INIT	=	41041		Or
Any Secondary Diagnosis Code in List - AMI LATERAL NEC, INITIAL	=	41051		Or
Any Secondary Diagnosis Code in List - TRUE POST INFARCT, INIT	=	41061		Or
Any Secondary Diagnosis Code in List - SUBENDO INFARCT, INITIAL	=	41071		Or
Any Secondary Diagnosis Code in List - AMI NEC, INITIAL	=	41081		Or
Any Secondary Diagnosis Code in List - AMI NOS, INITIAL	=	41091		

COC Number: 10 Postoperative Cardiopulmonary Complications Except AMI

Risk Group:

Comments: Iatrogenic (postop) pneumothorax (512.1) is included here, but spontaneous pneumothorax (512.0 or 512.8) is not.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - IATROGEN PULM EMB/INFARC	=	41511		Or
Any Secondary Diagnosis Code in List - PULM EMBOL/INFARCT NEC	=	41519		Or
Any Secondary Diagnosis Code in List - ATRIOVENT BLOCK COMPLETE	=	4260		Or
Any Secondary Diagnosis Code in List - VENTRICULAR FIBRILLATION - VENTRICULAR FLUTTER	Between	42741	42742	Or
Any Secondary Diagnosis Code in List - CARDIAC ARREST	=	4275		Or
Any Secondary Diagnosis Code in List - CONGESTIVE HEART FAILURE - Combined syst/diast hrt failure ac/chr	Between	4280	42843	Or
Any Secondary Diagnosis Code in List - HRT DIS POSTCARDIAC SURG	=	4294		Or
Any Secondary Diagnosis Code in List - IATROGENIC PNEUMOTHORAX	=	5121		Or
Any Secondary Diagnosis Code in List - PULMONARY COLLAPSE	=	5180		Or
Any Secondary Diagnosis Code in List - ACUTE LUNG EDEMA NOS - POST TRAUM PULM INSUFFIC	Between	5184	5185	Or
Any Secondary Diagnosis Code in List - ACUTE RESPIRATRY FAILURE - OTHER PULMONARY INSUFF	Between	51881	51882	Or
Any Secondary Diagnosis Code in List - ACUTE & CHRONC RESP FAIL	=	51884		Or
Any Secondary Diagnosis Code in List - RESPIRATORY ARREST	=	7991		Or
Any Secondary Diagnosis Code in List - SURG COMPL-HEART	=	9971		Or
Any Secondary Diagnosis Code in List - SURG COMPLIC-RESPIR SYST	=	9973		

COC Number: 11 Postoperative Cerebral Infarction

Risk Group:

Comments: Research by L. Iezzoni finds this to be a valid and reliable category to examine for complications of care. This definition is similar to Iezzoni's, but does not exclude patients in MDC 1 and adds code 436 for unspecified CVA.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - OCL BSLR ART W INFRCT	=	43301		Or
Any Secondary Diagnosis Code in List - OCL CRTD ART W INFRCT	=	43311		Or
Any Secondary Diagnosis Code in List - OCL VRTB ART W INFRCT	=	43321		Or
Any Secondary Diagnosis Code in List - OCL MLT BI ART W INFRCT	=	43331		Or
Any Secondary Diagnosis Code in List - OCL SPCF ART W INFRCT	=	43381		Or
Any Secondary Diagnosis Code in List - OCL ART NOS W INFRCT	=	43391		Or
Any Secondary Diagnosis Code in List - CRBL THRMBS W INFRCT	=	43401		Or
Any Secondary Diagnosis Code in List - CRBL EMBLSM W INFRCT	=	43411		Or
Any Secondary Diagnosis Code in List - CRBL ART OCL NOS W INFRC	=	43491		Or
Any Secondary Diagnosis Code in List - CVA	=	436		Or
Any Secondary Diagnosis Code in List - IATROGEN CV INFARC/HMRHG	=	99702		

COC Number: 12 Postoperative or Postanesthetic Shock

Risk Group:

Comments: This COC is qualified to exclude any patient with any diagnosis code for traumatic shock.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				Not
Any Diagnosis Code in List - TRAUMATIC SHOCK	=	9584		And (
Any Secondary Diagnosis Code in List - SHOCK NOS - Septic shock	Between	78550	78552	Or
Any Secondary Diagnosis Code in List - SHOCK W/O TRAUMA NEC	=	78559		Or
Any Secondary Diagnosis Code in List - SHOCK DUE TO ANESTHESIA	=	9954		Or
Any Secondary Diagnosis Code in List - POSTOPERATIVE SHOCK	=	9980		)

COC Number: 13 Postoperative Thrombophlebitis or Phlebitis

Risk Group:

Comments: Postpartum Deep Phlebothrombosis is in COC 35.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - SUPERFIC PHLEBITIS-LEG - DEEP PHLEBITIS-LEG NEC	Between	4510	45119	Or
Any Secondary Diagnosis Code in List - SURG COMP-PERI VASC SYST	=	9972		

COC Number: 14 Postoperative Wound Disruption

Risk Group:

Comments: Obstetric wound disruptions are in COC 34.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - POSTOP WOUND DISRUPTION - DISRUPTION OF EXTERNAL OPERATION WOUND	Between	9983	99832	

COC Number: 15 Accidental Puncture or Laceration During Procedure

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - ACCIDENTAL OP LACERATION	=	9982		Or
Any Secondary Diagnosis Code in List - ACC CUT/HEM IN INFUSION - ACC CUT IN MED CARE NOS	Between	E8701	E8709	

COC Number: 16 Complication of Tracheostomy

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - TRACHEOSTOMY COMP NOS - TRACHEOSTOMY COMP NEC	Between	51900	51909	

COC Number: 17 Mechanical Complications of Implanted Device or Graft

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - COMPLICATION CNS DEVICE	=	3491		Or
Any Diagnosis Code in List - GASTROSTOMY COMP - MECH	=	53642		Or
Any Diagnosis Code in List - COLOSTY/ENTER COMP-MECH	=	56962		Or
Any Diagnosis Code in List - MALFUNC CARD DEV/GRF NOS - MALFUNC OTH DEVICE/GRAFT	Between	99600	99659	Or
Any Diagnosis Code in List - Mechanical complication of esophagostomy	=	53087		

COC Number: 18 Abnormal Reaction and Late Complications of Procedures

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - LUMBAR PUNCTURE REACTION	=	3490		Or
Any Secondary Diagnosis Code in List - GASTROSTOMY COMP NOS	=	53640		Or
Any Secondary Diagnosis Code in List - GASTROSTOMY COMP NEC	=	53649		Or
Any Secondary Diagnosis Code in List - COLSTOMY/ENTER COMP NOS	=	56960		Or
Any Secondary Diagnosis Code in List - COLSTMY/ENTEROS COMP NEC	=	56969		Or
Any Secondary Diagnosis Code in List - MALIGNANT HYPERTHERMIA	=	99586		Or
Any Secondary Diagnosis Code in List - ADVERSE EFFECT NEC	=	99589		Or
Any Secondary Diagnosis Code in List - SEROMA COMPLICTING PROC	=	99813		Or
Any Secondary Diagnosis Code in List - PERSIST POSTOP FISTULA	=	9986		Or
Any Secondary Diagnosis Code in List - EMPHYSEMA RSULT FRM PROC	=	99881		Or
Any Secondary Diagnosis Code in List - NON-HEALING SURGCL WOUND	=	99883		Or
Any Secondary Diagnosis Code in List - OTH SPCF CMPLC PROCD NEC	=	99889		Or
Any Secondary Diagnosis Code in List - SURGICAL COMPLICAT NOS	=	9989		Or
Any Secondary Diagnosis Code in List - GENERALIZED VACCINIA	=	9990		Or
Any Secondary Diagnosis Code in List - COMPLIC MED CARE NEC/NOS	=	9999		Or
Any Secondary Diagnosis Code in List - RESP OBSTR-FOOD INHAL - RESP OBSTR-INHAL OBJ NEC	Between	E911	E912	Or
Any Secondary Diagnosis Code in List - FAILURE IN SUTURE - MEDICAL MISADVENTURE NOS	Between	E8762	E8769	Or

Any Secondary Diagnosis Code in List - ABN REACT-ORG TRANSPLANT - ABN REACT-SURG PROC NOS	Between	E8780	E8789	Or
Any Secondary Diagnosis Code in List -	=	33812		Or
Any Secondary Diagnosis Code in List -	=	33818		Or
Any Secondary Diagnosis Code in List -	=	33822		Or
Any Secondary Diagnosis Code in List -	=	33828		

COC Number: 19 Postoperative Complications Affecting Body Systems

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - HRT DIS POSTCARDIAC SURG	=	4294		Or
Any Secondary Diagnosis Code in List - STRICTURE OF URETER	=	5933		Or
Any Secondary Diagnosis Code in List - URETERIC OBSTRUCTION NEC	=	5934		Or
Any Secondary Diagnosis Code in List - POSTOP URETHRAL STRICTUR	=	5982		Or
Any Secondary Diagnosis Code in List - COMP-UNSP DEVICE/GRAFT - COMP OTH ORGAN TRANSPLNT	Between	99670	99689	Or
Any Secondary Diagnosis Code in List - NERVOUS SYST COMPLC NOS	=	99700		Or
Any Secondary Diagnosis Code in List - SURG COMPLICATION - CNS	=	99701		Or
Any Secondary Diagnosis Code in List - SURG COMP NERV SYSTM NEC	=	99709		Or
Any Secondary Diagnosis Code in List - SURG COMP-DIGESTV SYSTEM - SURG COMPL-URINARY TRACT	Between	9974	9975	Or
Any Secondary Diagnosis Code in List - AMPUTAT STUMP COMPL NOS - INFECTION AMPUTAT STUMP	Between	99760	99762	Or
Any Secondary Diagnosis Code in List - AMPUTAT STUMP COMPL NEC	=	99769		Or
Any Secondary Diagnosis Code in List - SURG COMP - HYPERTENSION	=	99791		Or
Any Secondary Diagnosis Code in List - SURG COMPL-BODY SYST NEC	=	99799		Or
Any Secondary Diagnosis Code in List - CONTAMINATION NEC - CONTAMINATION NOS	Between	E8758	E8759	Or
Any Secondary Diagnosis Code in List - VASC COMP MESENTERIC ART - VASCULAR COMP VESSEL NEC	Between	99771	99779	

COC Number: 20 Vascular or Infectious Complications Following Infusion, Transfusion, Injection

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - CELLULITIS OF ARM - CELLULITIS OF HAND	Between	6823	6824	Or
Any Secondary Diagnosis Code in List - AIR EMBOL COMP MED CARE - INFEC COMPL MED CARE NEC	Between	9991	9993	Or
Any Secondary Diagnosis Code in List - FAILURE STERILE INFUSION - FAIL STERILE INJECTION	Between	E8721	E8723	Or
Any Secondary Diagnosis Code in List - CONTAMINATED TRANSFUSION - CONTAMINATED DRUG NEC	Between	E8750	E8752	Or
Any Secondary Diagnosis Code in List - -	Between	32351	32352	

COC Number: 21 Infusion or Transfusion Reactions

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - ANAPHYLACTIC SHOCK-SERUM - TRANSFUSION REACTION NEC	Between	9994	9998	Or
Any Secondary Diagnosis Code in List - MISMATCH BLOOD-TRANSFUSN - WRONG FLUID IN INFUSION	Between	E8760	E8761	Or
Any Secondary Diagnosis Code in List -	=	5187		

COC Number: 22 Fluid Overload Following Infusion or Transfusion

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - FLUID OVERLOAD	=	2766		Or
Any Secondary Diagnosis Code in List - EXCESS FLUID IN INFUSION - INCOR DILUT INFUSN FLUID	Between	E8730	E8731	

COC Number: 23 Decubitus Ulcer

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - DECUBITUS ULCER - Decubitus ulcer, other site	Between	7070	70709	

COC Number: 24 Trauma to Hospitalized Patient

Risk Group:

Comments: This COC may identify some cases of multiple trauma that can be further examined to see if the secondary trauma was present on admission or not. Included here are only fractures, head injuries, internal injuries, burns and injuries to nerves, spinal cord and blood vessels. Not included are sprains, strains, lacerations, contusions, foreign body in an orifice, and late effects of traumas.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				Not
Group - Trauma as Principal Diagnosis	=	TR-1		And (
Group - Trauma as a Secondary Diagnosis	=	TR-2		Or
Any Secondary Diagnosis Code in List - THERAP RADIATION OVERDOS - WRNG TEMP IN APPLIC/PACK	Between	E8732	E8735	)

COC Number: 25 Anaphylactic Shock due to Medications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List - ANAPHYLACTIC SHOCK	=	9950		

COC Number: 26 Medication Reactions and Poisonings

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Secondary Diagnosis Code in List -	=	28803		Or
Any Secondary Diagnosis Code in List - POISONING-PENICILLINS - POIS-VACCINE/BIOLOG NEC	Between	9600	9799	Or
Any Secondary Diagnosis Code in List - ANGIONEUROTIC EDEMA -	Between	9951	99529	Or
Any Secondary Diagnosis Code in List - NONADMIN NECESS MEDICINE	=	E8736		Or
Any Secondary Diagnosis Code in List - FAILURE IN DOSAGE NEC - FAILURE IN DOSAGE NOS	Between	E8738	E8739	Or (
				(
Any Secondary Diagnosis Code in List - ACC POISON-HEROIN - ACC POISONING-DRUG NOS	Between	E8500	E8589	Or
Any Secondary Diagnosis Code in List - ADV EFF PENICILLINS - ADV EFF BIOLOGIC NEC/NOS	Between	E9300	E9499	)
				And Not
Principal Diagnosis Code - POISONING-PENICILLINS - POIS-VACCINE/BIOLOG NEC	Between	9600	9799	)

COC Number: 27 Advanced Perineal Laceration

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - DEL W 3 DEG LACERAT-UNSP - DEL W 3 DEG LACERAT-DEL	Between	66420	66421	Or
Any Diagnosis Code in List - DEL W 3 DEG LAC-POSTPART	=	66424		Or
Any Diagnosis Code in List - DEL W 4 DEG LACERAT-UNSP - DEL W 4 DEG LACERAT-DEL	Between	66430	66431	Or
Any Diagnosis Code in List - DEL W 4 DEG LAC-POSTPART	=	66434		

COC Number: 28 Rupture of Uterus During or After Labor

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - RUPTURE UTERUS NOS-UNSP - RUPTURE UTERUS NOS-DELIV	Between	66510	66511	

COC Number: 29 Shock During or Following Labor and Delivery

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - OBSTETRIC SHOCK-UNSPEC - OBSTETRIC SHOCK-POSTPART	Between	66910	66914	

COC Number: 30 Cesarean Section with Anesthesia or Sedation Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - PULM COMPL IN DEL-DELIV - PULM COMPLIC-DEL W P/P	Between	66801	66802	Or
Any Diagnosis Code in List - HEART COMPL IN DEL-DELIV - HEART COMPL-DEL W P/P	Between	66811	66812	Or
Any Diagnosis Code in List - CNS COMPL LAB/DEL-DELIV - CNS COMPLIC-DEL W P/P	Between	66821	66822	Or
Any Diagnosis Code in List - ANESTH COMPL NEC-DELIVER - ANESTH COMPL NEC-DEL P/P	Between	66881	66882	Or
Any Diagnosis Code in List - ANESTH COMPL NOS-DELIVER - ANESTH COMPL NOS-DEL P/P	Between	66891	66892	

COC Number: 31 Cesarean Section with Major Puerperal Infection

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - MAJOR PUERP INFECT-UNSP	=	67000		Or
Any Diagnosis Code in List - MAJOR PUERP INF-DEL P/P	=	67002		Or
Any Diagnosis Code in List - MAJOR PUERP INF-POSTPART	=	67004		

COC Number: 32 Vaginal Delivery with Anesthesia or Sedation Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - PULM COMPL IN DEL-DELIV - PULM COMPLIC-DEL W P/P	Between	66801	66802	Or
Any Diagnosis Code in List - HEART COMPL IN DEL-DELIV - HEART COMPL-DEL W P/P	Between	66811	66812	Or
Any Diagnosis Code in List - CNS COMPL LAB/DEL-DELIV - CNS COMPLIC-DEL W P/P	Between	66821	66822	Or
Any Diagnosis Code in List - ANESTH COMPL NEC-DELIVER - ANESTH COMPL NEC-DEL P/P	Between	66881	66882	Or
Any Diagnosis Code in List - ANESTH COMPL NOS-DELIVER - ANESTH COMPL NOS-DEL P/P	Between	66891	66892	

COC Number: 33 Vaginal Delivery with Major Puerperal Infection

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - MAJOR PUERP INFECT-UNSP	=	67000		Or
Any Diagnosis Code in List - MAJOR PUERP INF-DEL P/P	=	67002		Or
Any Diagnosis Code in List - MAJOR PUERP INF-POSTPART	=	67004		

COC Number: 34 Delivery Wound Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - DISRUPT C-SECT WND-UNSP	=	67410		Or
Any Diagnosis Code in List - DISRUPT C-SECT-DEL W P/P	=	67412		Or
Any Diagnosis Code in List - DISRUPT C-SECT-POSTPART	=	67414		Or
Any Diagnosis Code in List - DISRUPT PERINEUM-UNSPEC	=	67420		Or
Any Diagnosis Code in List - DISRUPT PERIN-DEL W P/P	=	67422		Or
Any Diagnosis Code in List - DISRUPT PERINEUM-POSTPAR	=	67424		Or
Any Diagnosis Code in List - OB SURG COMPL NEC-UNSPEC	=	67430		Or
Any Diagnosis Code in List - OB SURG COMPL-DEL W P/P	=	67432		Or
Any Diagnosis Code in List - OB SURG COMP NEC-POSTPAR	=	67434		

COC Number: 35 Postpartum Deep Phlebothrombosis

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - DEEP THROMB POSTPAR-UNSP	=	67140		Or
Any Diagnosis Code in List - THROMB POSTPAR-DEL W P/P	=	67142		Or
Any Diagnosis Code in List - DEEP VEIN THROMB-POSTPAR	=	67144		Or (
Group - Obstetrical Patients	=	RG-03		And
Any Diagnosis Code in List - Ven embol/thrombus, unspec deep vessel - Ven embol/thrombus, distal deep vessel	Between	45340	45342	)
				Or (
Group - Cesarean Section	=	RG-07		And
Any Diagnosis Code in List - Ven embol/thrombus, unspec deep vessel - Ven embol/thrombus, distal deep vessel	Between	45340	45342	)
				Or (
Group - Vaginal Delivery	=	RG-08		And
Any Diagnosis Code in List - Ven embol/thrombus, unspec deep vessel - Ven embol/thrombus, distal deep vessel	Between	45340	45342	)

COC Number: 36 Postpartum Pulmonary Embolism

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - OB AIR EMBOL-DELIV W P/P	=	67302		Or
Any Diagnosis Code in List - OB AIR EMBOLISM-POSTPART	=	67304		Or
Any Diagnosis Code in List - AMNIOT EMBOL-DELIV W P/P	=	67312		Or
Any Diagnosis Code in List - AMNIOTIC EMBOL-POSTPART	=	67314		Or
Any Diagnosis Code in List - PULM EMBOL NOS-DEL W P/P	=	67322		Or
Any Diagnosis Code in List - PULM EMBOL NOS-POSTPART	=	67324		Or
Any Diagnosis Code in List - OB PYEM EMBOL-DEL W P/P	=	67332		Or
Any Diagnosis Code in List - OB PYEMIC EMBOL-POSTPART	=	67334		Or
Any Diagnosis Code in List - PULM EMBOL NEC-DEL W P/P	=	67382		Or
Any Diagnosis Code in List - PULMON EMBOL NEC-POSTPAR	=	67384		

COC Number: 37 Other Obstetrical Trauma

Risk Group:

Comments: First and second degree lacerations, and other minor trauma, such as hematoma to vulva or perineum, are not included in this COC.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - LACERAT OF CERVIX-UNSPEC - LACERAT OF CERVIX-DELIV	Between	66530	66531	Or
Any Diagnosis Code in List - LACER OF CERVIX-POSTPART	=	66534		Or
Any Diagnosis Code in List - HIGH VAGINAL LACER-UNSP - HIGH VAGINAL LACER-DELIV	Between	66540	66541	Or
Any Diagnosis Code in List - HIGH VAGINAL LAC-POSTPAR	=	66544		Or
Any Diagnosis Code in List - OB INJ PELV ORG NEC-UNSP - OB INJ PELV ORG NEC-DEL	Between	66550	66551	Or
Any Diagnosis Code in List - INJ PELV ORG NEC-POSTPAR	=	66554		Or
Any Diagnosis Code in List - DAMAGE TO PELVIC JT-UNSP - DAMAGE TO PELVIC JT-DEL	Between	66560	66561	Or
Any Diagnosis Code in List - DAMAGE PELVIC JT-POSTPAR	=	66564		Or
Any Diagnosis Code in List - OB PELVIC HEMATOMA-UNSP - PELVIC HEMATOM-DEL W PP	Between	66570	66572	Or
Any Diagnosis Code in List - PELVIC HEMATOMA-POSTPART	=	66574		Or
Any Diagnosis Code in List - OB TRAUMA NEC-UNSPEC - OB TRAUMA NEC-POSTPARTUM	Between	66580	66584	Or
Any Diagnosis Code in List - OB TRAUMA NOS-UNSPEC - OB TRAUMA NOS-POSTPARTUM	Between	66590	66594	Or
Any Diagnosis Code in List - THIRD-STAGE HEM-UNSPEC	=	66600		Or
Any Diagnosis Code in List - THRD-STAGE HEM-DEL W P/P	=	66602		Or
Any Diagnosis Code in List - THIRD-STAGE HEM-POSTPART	=	66604		Or

Any Diagnosis Code in List - POSTPARTUM HEM NEC-UNSP	=	66610	Or
Any Diagnosis Code in List - POSTPA HEM NEC-DEL W P/P	=	66612	Or
Any Diagnosis Code in List - POSTPART HEM NEC-POSTPAR	=	66614	Or
Any Diagnosis Code in List - DELAY P/PART HEM-UNSPEC	=	66620	Or
Any Diagnosis Code in List - DELAY P/P HEM-DEL W P/P	=	66622	Or
Any Diagnosis Code in List - DELAY P/PART HEM-POSTPAR	=	66624	Or
Any Diagnosis Code in List - POSTPART COAGUL DEF-UNSP	=	66630	Or
Any Diagnosis Code in List - P/P COAG DEF-DEL W P/P	=	66632	Or
Any Diagnosis Code in List - POSTPART COAG DEF-POSTPA	=	66634	Or
Any Diagnosis Code in List - RETAIN PLACENTA NOS-UNSP	=	66700	Or
Any Diagnosis Code in List - RETND PLAC NOS-DEL W P/P	=	66702	Or
Any Diagnosis Code in List - RETAIN PLAC NOS-POSTPART	=	66704	Or
Any Diagnosis Code in List - RETAIN PROD CONCEPT-UNSP	=	66710	Or
Any Diagnosis Code in List - RET PROD CONC-DEL W P/P	=	66712	Or
Any Diagnosis Code in List - RET PROD CONCEPT-POSTPAR	=	66714	

Risk Group Definitions With Titles

Group Name: G01 All Patients

Comments: Index Admission Rules for multiple Readmission categories

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List	Is Present			

Group Name: G02 Planned Readmissions

Comments: Intentional error in rule code to force this categoory to not transfer into the RDL.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code	Is Present			

Group Name: G03 Diabetes Mellitus

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				((
Any Diagnosis Code in List - DMII WO CMP NT ST UNCNTR - DMI UNSPF UNCNTRLD	Between	25000	25093	Or
Any Diagnosis Code in List - DYSMETABOLIC SYNDROME X	=	2777		)
				And Not (
Any Procedure Code in List - CHORIORET LES DIATHERMY - CHORIORET LES RAD IMPLAN	Between	1421	1427	Or
Any Procedure Code in List - CHORIORET LES DESTR NEC	=	1429		))

Group Name: G04 COPD

Comments: Included emphysema here because number of cases are very small and it is a type of COPD

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - BRONCHITIS NOS	=	490		Or
Any Diagnosis Code in List - SIMPLE CHR BRONCHITIS - MUCOPURUL CHR BRONCHITIS	Between	4910	4911	Or
Any Diagnosis Code in List - OBS CHR BRNC W/O ACT EXA - Obstructive chr bronchitis with acute br	Between	49120	49122	Or
Any Diagnosis Code in List - CHRONIC BRONCHITIS NEC - CHRONIC BRONCHITIS NOS	Between	4918	4919	Or
Any Diagnosis Code in List - EMPHYSEMATOUS BLEB - EMPHYSEMA NEC	Between	4920	4928	Or
Any Diagnosis Code in List - BRONCHIECTAS W/O AC EXAC - BRONCHIECTASIS W AC EXAC	Between	4940	4941	Or
Any Diagnosis Code in List - FARMERS' LUNG - ALLERG ALVEOL/PNEUM NOS	Between	4950	4959	Or
Any Diagnosis Code in List - CHR AIRWAY OBSTRUCT NEC	=	496		

Group Name: G05 Heart Failure

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - RHEUMATIC HEART FAILURE	=	39891		Or
Any Diagnosis Code in List - MAL HYPERT HRT DIS W CHF	=	40201		Or
Any Diagnosis Code in List - BENIGN HYP HRT DIS W CHF	=	40211		Or
Any Diagnosis Code in List - HYPERTEN HEART DIS W CHF	=	40291		Or
Any Diagnosis Code in List - MAL HYPER HRT/REN W CHF	=	40401		Or
Any Diagnosis Code in List - MAL HYP HRT/REN W CHF&RF	=	40403		Or
Any Diagnosis Code in List - BEN HYPER HRT/REN W CHF	=	40411		Or
Any Diagnosis Code in List - BEN HYP HRT/REN W CHF&RF	=	40413		Or
Any Diagnosis Code in List - HYPER HRT/REN NOS W CHF	=	40491		Or
Any Diagnosis Code in List - HYP HT/REN NOS W CHF&RF	=	40493		Or
Any Diagnosis Code in List - CONGESTIVE HEART FAILURE - MYOCARDITIS NOS	Between	4280	4290	

Group Name: G06 Pneumonia

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - Pneumonia of SARS-associated coronavirus	=	4803		Or
Principal Diagnosis Code - VIRAL PNEUMONIA NOS - PNEUMONIA OTH SPCF BACT	Between	4809	48289	Or
Principal Diagnosis Code - PNEU MYCPLSM PNEUMONIAE - PNEUMONIA D/T CHLAMYDIA	Between	4830	4831	Or
Principal Diagnosis Code - PNEUMON OTH SPEC ORGNSM	=	4838		Or
Principal Diagnosis Code - BRONCHOPNEUMONIA ORG NOS - INFLUENZA WITH PNEUMONIA	Between	485	4870	Or
Principal Diagnosis Code - FOOD/VOMIT PNEUMONITIS	=	5070		Or
Principal Diagnosis Code - EMPYEMA WITH FISTULA	=	5100		Or
Principal Diagnosis Code - EMPYEMA W/O FISTULA	=	5109		Or
Principal Diagnosis Code - BACT PLEUR/EFFUS NOT TB	=	5111		Or
Principal Diagnosis Code - ABSCESS OF LUNG	=	5130		

Group Name: G07 Acute Myocardial Infarction

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - AMI ANTEROLATERAL,UNSPEC - AMI ANTEROLATERAL,SUBSEQ	Between	41000	41002	Or
Any Diagnosis Code in List - AMI ANTERIOR WALL,UNSPEC - AMI ANTERIOR WALL,SUBSEQ	Between	41010	41012	Or
Any Diagnosis Code in List - AMI INFEROLATERAL,UNSPEC - AMI INFEROLATERAL,SUBSEQ	Between	41020	41022	Or
Any Diagnosis Code in List - AMI INFEROPOST, UNSPEC - AMI INFEROPOST, SUBSEQ	Between	41030	41032	Or
Any Diagnosis Code in List - AMI INFERIOR WALL,UNSPEC - AMI INFERIOR WALL,SUBSEQ	Between	41040	41042	Or
Any Diagnosis Code in List - AMI LATERAL NEC, UNSPEC - AMI LATERAL NEC, SUBSEQ	Between	41050	41052	Or
Any Diagnosis Code in List - TRUE POST INFARCT,UNSPEC - TRUE POST INFARCT,SUBSEQ	Between	41060	41062	Or
Any Diagnosis Code in List - SUBENDO INFARCT, UNSPEC - SUBENDO INFARCT, SUBSEQ	Between	41070	41072	Or
Any Diagnosis Code in List - AMI NEC, UNSPECIFIED - AMI NEC, SUBSEQUENT	Between	41080	41082	Or
Any Diagnosis Code in List - AMI NOS, UNSPECIFIED - AMI NOS, SUBSEQUENT	Between	41090	41092	

Group Name: G08 Asthma

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - EXT AST W/O STAT AST NOS - EXT ASTHMA W ACUTE EXAC	Between	49300	49302	Or
Any Diagnosis Code in List - INT AST W/O STAT AST NOS - INT ASTHMA W ACUTE EXAC	Between	49310	49312	Or
Any Diagnosis Code in List - CH OB AST W/O STA AS NOS - CH OBS ASTH W ACUTE EXAC	Between	49320	49322	Or
Any Diagnosis Code in List - Exercise induced bronchospasm - Cough variant asthma	Between	49381	49382	Or
Any Diagnosis Code in List - ASTH W/O STAT ASTHM NOS - ASTHMA W ACUTE EXACERBTN	Between	49390	49392	

Group Name: G09 Atrial Fibrillation

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - ATRIAL FIBRILLATION	=	42731		

Group Name: G10 Coronary Artery Disease With Angina

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - INTERMED CORONARY SYND	=	4111		Or
Any Diagnosis Code in List - ANGINA DECUBITUS - PRINZMETAL ANGINA	Between	4130	4131	Or
Any Diagnosis Code in List - ANGINA PECTORIS NEC/NOS	=	4139		

Group Name: G11 Depression

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - DEPRESS PSYCHOSIS-UNSPEC - DEPRESS PSYCHOSIS-SEVERE	Between	29620	29623	Or
Any Diagnosis Code in List - DEPR PSYCHOS-PART REMISS - DEPR PSYCHOS-FULL REMISS	Between	29625	29626	Or
Any Diagnosis Code in List - RECURR DEPR PSYCHOS-UNSP - RECUR DEPR PSYCH-SEVERE	Between	29630	29633	Or
Any Diagnosis Code in List - RECUR DEPR PSYC-PART REM - RECUR DEPR PSYC-FULL REM	Between	29635	29636	Or
Any Diagnosis Code in List - RECUR DEPR PSYC-FULL REM	=	29636		Or
Any Diagnosis Code in List - NEUROTIC DEPRESSION	=	3004		Or
Any Diagnosis Code in List - STRESS REACT, EMOTIONAL	=	3080		Or
Any Diagnosis Code in List - BRIEF DEPRESSIVE REACT - PROLONG DEPRESSIVE REACT	Between	3090	3091	Or
Any Diagnosis Code in List - ADJ REACT-EMOTION/CONDUC	=	3094		Or
Any Diagnosis Code in List - DEPRESSIVE DISORDER NEC	=	311		Or
Any Diagnosis Code in List - MISERY & UNHAPPINESS DIS	=	3131		

Group Name: G12 Peptic Ulcer Disease

Comments: Included esophageal ulcer here because it can be caused by reflux of stomach acid, therefore can be considered a peptic-type ulcer, per D. Schutt

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - Ulcer of esophagus without bleeding - Ulcer of esophagus with bleeding	Between	53020	53021	Or
Any Diagnosis Code in List - Barrett's esophagus	=	53085		Or
Any Diagnosis Code in List - AC STOMACH ULCER W HEM - AC STOMAC ULC W HEM-OBST	Between	53100	53101	Or
Any Diagnosis Code in List - AC STOMACH ULCER W PERF - AC STOM ULC W PERF-OBST	Between	53110	53111	Or
Any Diagnosis Code in List - AC STOMAC ULC W HEM/PERF - AC STOM ULC HEM/PERF-OBS	Between	53120	53121	Or
Any Diagnosis Code in List - ACUTE STOMACH ULCER NOS - AC STOMACH ULC NOS-OBSTR	Between	53130	53131	Or
Any Diagnosis Code in List - CHR STOMACH ULC W HEM - CHR STOM ULC W HEM-OBSTR	Between	53140	53141	Or
Any Diagnosis Code in List - CHR STOMACH ULCER W PERF - CHR STOM ULC W PERF-OBST	Between	53150	53151	Or
Any Diagnosis Code in List - CHR STOMACH ULC HEM/PERF - CHR STOM ULC HEM/PERF-OB	Between	53160	53161	Or
Any Diagnosis Code in List - CHR STOMACH ULCER NOS - CHR STOMACH ULC NOS-OBST	Between	53170	53171	Or
Any Diagnosis Code in List - STOMACH ULCER NOS - STOMACH ULCER NOS-OBSTR	Between	53190	53191	Or
Any Diagnosis Code in List - AC DUODENAL ULCER W HEM - AC DUODEN ULC W HEM-OBST	Between	53200	53201	Or
Any Diagnosis Code in List - AC DUODENAL ULCER W PERF - AC DUODEN ULC PERF-OBSTR	Between	53210	53211	Or
Any Diagnosis Code in List - AC DUODEN ULC W HEM/PERF - AC DUOD ULC HEM/PERF-OBS	Between	53220	53221	Or

Group Name: G12	Peptic Ulcer Disease			
Any Diagnosis Code in List - ACUTE DUODENAL ULCER NOS - AC DUODENAL ULC NOS-OBST	Between	53230	53231	Or
Any Diagnosis Code in List - CHR DUODEN ULCER W HEM - CHR DUODEN ULC HEM-OBSTR	Between	53240	53241	Or
Any Diagnosis Code in List - CHR DUODEN ULCER W PERF - CHR DUODEN ULC PERF-OBST	Between	53250	53251	Or
Any Diagnosis Code in List - CHR DUODEN ULC HEM/PERF - CHR DUOD ULC HEM/PERF-OB	Between	53260	53261	Or
Any Diagnosis Code in List - CHR DUODENAL ULCER NOS - CHR DUODEN ULC NOS-OBSTR	Between	53270	53271	Or
Any Diagnosis Code in List - DUODENAL ULCER NOS - DUODENAL ULCER NOS-OBSTR	Between	53290	53291	Or
Any Diagnosis Code in List - AC PEPTIC ULCER W HEMORR - AC PEPTIC ULC W HEM-OBST	Between	53300	53301	Or
Any Diagnosis Code in List - AC PEPTIC ULCER W PERFOR - AC PEPTIC ULC W PERF-OBS	Between	53310	53311	Or
Any Diagnosis Code in List - AC PEPTIC ULC W HEM/PERF - AC PEPT ULC HEM/PERF-OBS	Between	53320	53321	Or
Any Diagnosis Code in List - ACUTE PEPTIC ULCER NOS - AC PEPTIC ULCER NOS-OBST	Between	53330	53331	Or
Any Diagnosis Code in List - CHR PEPTIC ULCER W HEM - CHR PEPTIC ULC W HEM-OBS	Between	53340	53341	Or
Any Diagnosis Code in List - CHR PEPTIC ULCER W PERF - CHR PEPTIC ULC PERF-OBST	Between	53350	53351	Or
Any Diagnosis Code in List - CHR PEPT ULC W HEM/PERF - CHR PEPT ULC HEM/PERF-OB	Between	53360	53361	Or
Any Diagnosis Code in List - CHRONIC PEPTIC ULCER NOS - CHR PEPTIC ULCER NOS-OBS	Between	53370	53371	Or
Any Diagnosis Code in List - PEPTIC ULCER NOS - PEPTIC ULCER NOS-OBSTRUC	Between	53390	53391	Or
Any Diagnosis Code in List - AC MARGINAL ULCER W HEM - AC MARGIN ULC W HEM-OBST	Between	53400	53401	Or

Group Name: G12	Peptic Ulcer Disease			
Any Diagnosis Code in List - AC MARGINAL ULCER W PERF - AC MARGIN ULC W PERF-OBS	Between	53410	53411	Or
Any Diagnosis Code in List - AC MARGIN ULC W HEM/PERF - AC MARG ULC HEM/PERF-OBS	Between	53420	53421	Or
Any Diagnosis Code in List - AC MARGINAL ULCER NOS - AC MARGINAL ULC NOS-OBST	Between	53430	53431	Or
Any Diagnosis Code in List - CHR MARGINAL ULCER W HEM - CHR MARGIN ULC W HEM-OBS	Between	53440	53441	Or
Any Diagnosis Code in List - CHR MARGINAL ULC W PERF - CHR MARGIN ULC PERF-OBST	Between	53450	53451	Or
Any Diagnosis Code in List - CHR MARGIN ULC HEM/PERF - CHR MARG ULC HEM/PERF-OB	Between	53460	53461	Or
Any Diagnosis Code in List - CHR MARGINAL ULCER NOS - CHR MARGINAL ULC NOS-OBS	Between	53470	53471	Or
Any Diagnosis Code in List - GASTROJEJUNAL ULCER NOS - GASTROJEJUN ULC NOS-OBST	Between	53490	53491	

Group Name: G13 Stroke or Transient Ischemic Attack

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - OCL BSLR ART W INFRCT	=	43301		Or
Any Diagnosis Code in List - OCL CRTD ART W INFRCT	=	43311		Or
Any Diagnosis Code in List - OCL VRTB ART W INFRCT	=	43321		Or
Any Diagnosis Code in List - OCL MLT BI ART W INFRCT	=	43331		Or
Any Diagnosis Code in List - OCL SPCF ART W INFRCT	=	43381		Or
Any Diagnosis Code in List - OCL ART NOS W INFRCT	=	43391		Or
Any Diagnosis Code in List - CRBL THRMBS W INFRCT	=	43401		Or
Any Diagnosis Code in List - CRBL EMBLSM W INFRCT	=	43411		Or
Any Diagnosis Code in List - CRBL ART OCL NOS W INFRC	=	43491		Or
Any Diagnosis Code in List - BASILAR ARTERY SYNDROME - VERTBROBASLR ARTERY SYND	Between	4350	4353	Or
Any Diagnosis Code in List - TRANS CEREB ISCHEMIA NEC - TRANS CEREB ISCHEMIA NOS	Between	4358	4359	

Group Name: G19 HIV or AIDS

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - HUMAN IMMUNO VIRUS DIS	=	042		Or
Any Diagnosis Code in List - ASYMP HIV INFECTN STATUS	=	V08		

Group Name: G20 Hypertension

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - MALIGNANT HYPERTENSION - BENIGN HYPERTENSION	Between	4010	4011	Or
Principal Diagnosis Code - HYPERTENSION NOS	=	4019		Or
Principal Diagnosis Code - MAL HYPERTEN HRT DIS NOS - MAL HYPERT HRT DIS W CHF	Between	40200	40201	Or
Principal Diagnosis Code - BEN HYPERTEN HRT DIS NOS - BENIGN HYP HRT DIS W CHF	Between	40210	40211	Or
Principal Diagnosis Code - HYPERTENSIVE HRT DIS NOS - HYPERTEN HEART DIS W CHF	Between	40290	40291	Or
Principal Diagnosis Code - MAL HYP REN W/O REN FAIL - MAL HYP REN W RENAL FAIL	Between	40300	40301	Or
Principal Diagnosis Code - BEN HYP REN W/O REN FAIL - BEN HYP RENAL W REN FAIL	Between	40310	40311	Or
Principal Diagnosis Code - HYP REN NOS W/O REN FAIL - HYP RENAL NOS W REN FAIL	Between	40390	40391	Or
Principal Diagnosis Code - MAL HY HT/REN W/O CHF/RF - MAL HYP HRT/REN W CHF&RF	Between	40400	40403	Or
Principal Diagnosis Code - BEN HY HT/REN W/O CHF/RF - BEN HYP HRT/REN W CHF&RF	Between	40410	40413	Or
Principal Diagnosis Code - HY HT/REN NOS W/O CHF/RF - HYP HT/REN NOS W CHF&RF	Between	40490	40493	

Group Name: G21 Infections After Discharge for Infection

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - GAS GANGRENE	=	0400		Or
Any Diagnosis Code in List - Toxic shock syndrome	=	04082		Or
Any Diagnosis Code in List - STREPTOCOCCUS UNSPECF - STREPTOCOCCUS GROUP G	Between	04100	04105	Or
Any Diagnosis Code in List - OTHER STREPTOCOCCUS - STAPHYLOCOCCUS AUREUS	Between	04109	04111	Or
Any Diagnosis Code in List - OTHER STAPHYLOCOCCUS	=	04119		Or
Any Diagnosis Code in List - PNEUMOCOCCUS INFECT NOS - PSEUDOMONAS INFECT NOS	Between	0412	0417	Or
Any Diagnosis Code in List - MYCOPLASMA - HELICOBACTER PYLORI	Between	04181	04186	Or
Any Diagnosis Code in List - OTH SPECF BACTERIA	=	04189		Or
Any Diagnosis Code in List - BACTERIAL INFECTION NOS	=	0419		Or
Any Diagnosis Code in List - West Nile fever	=	0664		Or
Any Diagnosis Code in List - SARS-associated coronavirus	=	07982		Or
Any Diagnosis Code in List - HEMOPHILUS MENINGITIS - STAPHYLOCOCC MENINGITIS	Between	3200	3203	Or
Any Diagnosis Code in List - MENING IN OTH BACT DIS	=	3207		Or
Any Diagnosis Code in List - ANAEROBIC MENINGITIS - MNINGTS GRAM-NEG BCT NEC	Between	32081	32082	Or
Any Diagnosis Code in List - MENINGITIS OTH SPCF BACT	=	32089		Or
Any Diagnosis Code in List - BACTERIAL MENINGITIS NOS	=	3209		Or
Any Diagnosis Code in List - CRYPTOCOCCAL MENINGITIS - MENINGIT D/T SARCOIDOSIS	Between	3210	3214	Or

Group Name: G21	Infections After Discharge for Infection			
Any Diagnosis Code in List - MENING IN OTH NONBAC DIS	=	3218		Or
Any Diagnosis Code in List - NONPYOGENIC MENINGITIS - CHRONIC MENINGITIS	Between	3220	3222	Or
Any Diagnosis Code in List - MENINGITIS NOS	=	3229		Or
Any Diagnosis Code in List - ENCEPHALIT IN VIRAL DIS* - PROTOZOAL ENCEPHALITIS	Between	3230	3232	Or
Any Diagnosis Code in List - OTH ENCEPHALIT D/T INFEC* - POSTIMMUNIZAT ENCEPHALIT*	Between	3234	3235	Or
Any Diagnosis Code in List - INTRACRANIAL ABSCESS - INTRASPINAL ABSCESS	Between	3240	3241	Or
Any Diagnosis Code in List - CNS ABSCESS NOS	=	3249		Or
Any Diagnosis Code in List - ACUTE CONJUNCTIVITIS NOS - AC ATOPIC CONJUNCTIVITIS	Between	37200	37205	Or
Any Diagnosis Code in List - AC MYOCARDIT IN OTH DIS	=	4220		Or
Any Diagnosis Code in List - ACUTE MYOCARDITIS NOS	=	42290		Or
Any Diagnosis Code in List - SEPTIC MYOCARDITIS	=	42292		Or
Any Diagnosis Code in List - AC MAXILLARY SINUSITIS - AC SPHENOIDAL SINUSITIS	Between	4610	4613	Or
Any Diagnosis Code in List - OTHER ACUTE SINUSITIS - ACUTE SINUSITIS NOS	Between	4618	4619	Or
Any Diagnosis Code in List - ACUTE PHARYNGITIS - AC EPIGLOTTITIS W OBSTR	Between	462	46431	Or
Any Diagnosis Code in List - ACUTE BRONCHITIS	=	4660		Or
Any Diagnosis Code in List - ACU BRONCHOLITIS D/T RSV	=	46611		Or
Any Diagnosis Code in List - ACU BRNCHLTS D/T OTH ORG	=	46619		Or
Any Diagnosis Code in List - PERITONSILLAR ABSCESS	=	475		Or
Any Diagnosis Code in List - PARAPHARYNGEAL ABSCESS	=	47822		Or

Any Diagnosis Code in List - RETROPHARYNGEAL ABSCESS	=	47824		Or
Any Diagnosis Code in List - FLU W RESP MANIFEST NEC	=	4871		Or
Any Diagnosis Code in List - FLU W MANIFESTATION NEC	=	4878		Or
Any Diagnosis Code in List - BRONCHITIS NOS	=	490		Or
Any Diagnosis Code in List - ABSCESS OF MEDIASTINUM	=	5131		Or
Any Diagnosis Code in List - SALIVARY GLAND ABSCESS	=	5273		Or
Any Diagnosis Code in List - GASTROSTOMY INFECTION	=	53641		Or
Any Diagnosis Code in List - ANAL & RECTAL ABSCESS	=	566		Or
Any Diagnosis Code in List - PERITONITIS IN INFEC DIS - Other retroperitoneal infections	Between	5670	56739	Or
Any Diagnosis Code in List - PERITONITIS NEC - PERITONITIS NOS	Between	5678	5679	Or
Any Diagnosis Code in List - COLOSTY/ENTEROST INFECTN	=	56961		Or
Any Diagnosis Code in List - ORCHITIS WITH ABSCESS	=	6040		Or
Any Diagnosis Code in List - SEMINAL VESICULITIS	=	6080		Or
Any Diagnosis Code in List - MALE GEN INFLAM DIS NEC	=	6084		Or
Any Diagnosis Code in List - AC PELV PERITONITIS-FEM	=	6145		Or
Any Diagnosis Code in List - BARTHOLIN'S GLND ABSCESS - ABSCESS OF VULVA NEC	Between	6163	6164	Or
Any Diagnosis Code in List - CARBUNCLE OF FACE - CARBUNCLE NOS	Between	6800	6809	Or
Any Diagnosis Code in List - CELLULITIS, FINGER NOS - ONYCHIA OF FINGER	Between	68100	68102	Or
Any Diagnosis Code in List - CELLULITIS, TOE NOS - ONYCHIA OF TOE	Between	68110	68111	Or

Group Name: G21	Infections After Discharge for Infection			
Any Diagnosis Code in List - CELLULITIS OF DIGIT NOS	=	6819		Or
Any Diagnosis Code in List - CELLULITIS OF FACE - PILONIDAL CYST W ABSCESS	Between	6820	6850	Or
Any Diagnosis Code in List - PYODERMA NOS - PYODERMA GANGRENOSUM	Between	68600	68601	Or
Any Diagnosis Code in List - PYODERMA NEC	=	68609		Or
Any Diagnosis Code in List - PYOGENIC GRANULOMA	=	6861		Or
Any Diagnosis Code in List - LOCAL SKIN INFECTION NEC - LOCAL SKIN INFECTION NOS	Between	6868	6869	Or
Any Diagnosis Code in List - MATERNAL INFEC AFF NB	=	7602		Or
Any Diagnosis Code in List - CONGENITAL INFEC NEC - OTHER INFECTIONS SPEC TO PERINATL PERIOD	Between	7712	77189	Or
Any Diagnosis Code in List - POSTTRAUM WND INFEC NEC	=	9583		Or
Any Diagnosis Code in List - SYS INFLAM RESP SYND INFXN W/O ORG DYSFX - SYS INFLAM RESP SYND INFXN W/ ORG DYSFXN	Between	99591	99592	Or
Any Diagnosis Code in List - REACTION-UNSP DEVIC/GRFT - REACT-CARDIAC DEV/GRAFT	Between	99660	99661	Or
Any Diagnosis Code in List - INFECTION AMPUTAT STUMP	=	99762		Or
Any Diagnosis Code in List - INFECTED POSTOP SEROMA	=	99851		Or
Any Diagnosis Code in List - OTHER POSTOP INFECTION	=	99859		

Group Name: G22 Infusion, Transfusion Complication

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Procedure Code in List - Infuse drotrecogin alfa (activated - Inj/Infuse oxazolidinone antibiotic	Between	0011	0014	Or
Any Procedure Code in List - Infusion of vasopressor agent	=	0017		Or
Any Procedure Code in List - PERIOP AUT TRANS HOL BLD - INJECT/INF THROMBO AGENT	Between	9900	9910	Or
Any Procedure Code in List - PARENT INFUS NUTRIT SUB	=	9915		Or
Any Procedure Code in List - INJECT/INFUSE ELECTROLYT	=	9918		Or
Any Procedure Code in List - INJ/INF PLATELET INHIBIT	=	9920		Or
Any Procedure Code in List - INJECT CA CHEMOTHER NEC	=	9925		Or
Any Procedure Code in List - IONTOPHORESIS - INJECT/INFUSE NEC	Between	9927	9929	Or
Any Procedure Code in List - THERAPEU PLASMAPHERESIS - 03AppAdhesionBar87Inhibdemsenspacer	Between	9971	9977	Or
Any Procedure Code in List - OTHER THERAPEU APHERESIS	=	9979		

Group Name: G26 Obstetric Complications

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - SPON ABOR W PEL INF-UNSP - LATE EFFCT CMPLCATN PREG	Between	63400	677	

Group Name: G28 Neonatal and Infant Conditions

Comments: Age can only be expressed in years - changed category title to show that infants up to 1 year old are included

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Age at Admission	<	1		

Group Name: G29 Post-Procedure Complications

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Procedure Code in List - Implant chemotherapy agent	=	0010		Or
Any Procedure Code in List - High dose infusion interleukin-2	=	0015		Or
Any Procedure Code in List - Implant cardiac resynch pacer w/o defib - Insert/replace subcutaneous device for intracardiac hemodynamic monitoring	Between	0050	0057	Or
Any Procedure Code in List - CISTERNAL PUNCTURE - MANUAL ROTAT FETAL HEAD	Between	0101	7351	Or
Any Procedure Code in List - EPISIOTOMY - BRAIN/SKULL CONTRST XRAY	Between	736	8702	Or
Any Procedure Code in List - CONTRAST DACRYOCYSTOGRAM - CERVICAL LYMPHANGIOGRAM	Between	8705	8708	Or
Any Procedure Code in List - TM CONTRAST ARTHROGRAM - CONTRAST X-RAY OF SINUS	Between	8713	8715	Or
Any Procedure Code in List - CONTRAST MYELOGRAM	=	8721		Or
Any Procedure Code in List - ENDOTRACHEAL BRONCHOGRAM - CONTR MAMMARY DUCTOGRAM	Between	8731	8735	Or
Any Procedure Code in List - PERC HEPAT CHOLANGIOGRAM - CONTRAST PANCREATOGRAM	Between	8751	8766	Or
Any Procedure Code in List - CHEST WALL SINOGRAM	=	8738		Or
Any Procedure Code in List - C.A.T. SCAN OF KIDNEY - ILEAL CONDUITOGRAM	Between	8771	8778	Or
Any Procedure Code in List - X-RAY OF GRAVID UTERUS - PERCUTANEOUS HYSTEROGRAM	Between	8781	8784	Or
Any Procedure Code in List - CONTR SEMIN VESICULOGRAM	=	8791		Or
Any Procedure Code in List - CONTRAST EPIDIDYMOGRAM - CONTRAST VASOGRAM	Between	8793	8794	Or
Any Procedure Code in List - ABDOMINAL WALL SINOGRAM - ABDOMINAL LYMPHANGIOGRAM	Between	8803	8804	Or

Group Name: G29	Post-Procedure Complications			
Any Procedure Code in List - PELVIC DYE CONTRAST XRAY - RETROPERITON PNEUMOGRAM	Between	8811	8815	Or
Any Procedure Code in List - CONTRAST ARTHROGRAM	=	8832		Or
Any Procedure Code in List - UPPER LIMB LYMPHANGIOGRM	=	8834		Or
Any Procedure Code in List - LOWER LIMB LYMPHANGIOGRM	=	8836		Or
Any Procedure Code in List - CONTRAST ARTERIOGRAM NOS - IMPEDANCE PHLEBOGRAM	Between	8840	8868	Or
Any Procedure Code in List - ARTERIAL PRESSURE MONIT - CORONARY BLD FLOW MONIT	Between	8961	8969	Or
Any Procedure Code in List - INTRACAROT AMOBARB TEST	=	8910		Or
Any Procedure Code in List - THYROID SCAN/ISOTOP FUNC - STEREO RADIOSURGERY NEC	Between	9201	9239	Or
Any Procedure Code in List - P32 & EYE TRACER NEC	=	9516		Or
Any Procedure Code in List - INSERT NASOPHARYN AIRWAY - INSERT RECTAL TUBE	Between	9601	9609	Or
Any Procedure Code in List - PERIOP AUT TRANS HOL BLD - VACCINATION NEC	Between	9900	9955	Or
Any Procedure Code in List - THERAPEU PLASMAPHERESIS - OTHER THERAPEU APHERESIS	Between	9971	9979	Or
Any Procedure Code in List - THERAPEUTC PHOTOPHERESIS	=	9988		Or
Any Procedure Code in List - Intravac imaging extracranial vessels - Intravascular imaging unspecified vessel	Between	0021	0029	Or
Any Procedure Code in List - Percut angioplasty precerebral vessel - Percut insert intracranial vasc stent	Between	0061	0065	Or
Any Procedure Code in List - Insertion of palatal implant	=	2764		Or
Any Procedure Code in List - Insert percut ext heeart assist device	=	3768		Or
Any Procedure Code in List - Insert left atrial appendage device	=	3790		Or

Group Name: G29	Post-Procedure Complications			
Any Procedure Code in List - Implant prosthetic cardiac support devic	=	3741		Or
Any Procedure Code in List - Other repair of heart and pericardium	=	3749		Or
Any Procedure Code in List - Endovascular impantation of graft in tho	=	3973		Or
Any Procedure Code in List - MICRO EXAM-PERITON NEC	=	9119		Or
Any Procedure Code in List - Insertion of (cement) spacer - Implantation interspinous process decomp	Between	8456	8458	Or
Any Procedure Code in List - Adjunct codes for external fixator devic - Application of hybrid external fixator d	Between	8471	8473	Or
Any Procedure Code in List - Insert/replace single array rechargeable - Insert/replace dual array rechargeable n	Between	8697	8698	Or
Any Procedure Code in List - Insertion of liquid brachytherapy radioi	=	9220		Or
Any Procedure Code in List - Infuse immunosuppressive antibody during	=	0018		Or
Any Procedure Code in List - Adjunct Procedure on single vessel - Adjunct Insertion 4 or more vasular sten	Between	0040	0048	Or
Any Procedure Code in List - PTCA or coronary atherectomy	=	0066		Or
Any Procedure Code in List - Rev hip replacement, both acetabular & f - Hip replacement bearing surface, ceramic on polyethylene	Between	0070	0077	Or
Any Procedure Code in List - Revision of knee replacement total (all - Resurfacing hip, partial, acetabulum	Between	0080	0087	

Readmission Definitions with Title

Readmission Number: 01 All Patients

Risk Group:	G01	All Patients	

Comments: This general category identifies all readmissions, regardless of reason for either index or readmission. User has option to set time intervals between the two admissions.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group	=	G01		
- All Patients				

Strength	Label
1	Descriptive Measures
Notes	Captures readmits as a rate based descriptive measure with time intervals between admits set by user. The need to examine readmissions is broadly discussed in the literature.

Readmission Number: 02 Post Procedure Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				(
				(
Principal Diagnosis Code - GAS GANGRENE	=	0400		Or
Principal Diagnosis Code - STREPTOCOCCUS UNSPECF - STREPTOCOCCUS GROUP G	Between	04100	04105	Or
Principal Diagnosis Code - OTHER STREPTOCOCCUS - STAPHYLOCOCCUS AUREUS	Between	04109	04111	Or
Principal Diagnosis Code - OTHER STAPHYLOCOCCUS	=	04119		Or
Principal Diagnosis Code - PNEUMOCOCCUS INFECT NOS - PSEUDOMONAS INFECT NOS	Between	0412	0417	Or
Principal Diagnosis Code - MYCOPLASMA - HELICOBACTER PYLORI	Between	04181	04186	Or
Principal Diagnosis Code - OTH SPECF BACTERIA	=	04189		Or
Principal Diagnosis Code - BACTERIAL INFECTION NOS	=	0419		Or
Principal Diagnosis Code - HUMAN IMMUNO VIRUS DIS	=	042		Or
Principal Diagnosis Code - Postvaricella myelitis	=	0522		Or
Principal Diagnosis Code - Herpes zoster myelitis	=	05314		Or
Principal Diagnosis Code - Herpes simplex myelitis	=	05474		Or
Principal Diagnosis Code - HEMOPHILUS MENINGITIS - STAPHYLOCOCC MENINGITIS	Between	3200	3203	Or
Principal Diagnosis Code - MENING IN OTH BACT DIS	=	3207		Or
Principal Diagnosis Code - ANAEROBIC MENINGITIS - MNINGTS GRAM-NEG BCT NEC	Between	32081	32082	Or

Principal Diagnosis Code - MENINGITIS OTH SPCF BACT - MENINGIT D/T SARCOIDOSIS	Between	32089	3214	Or
Principal Diagnosis Code - MENING IN OTH NONBAC DIS	=	3218		Or
Principal Diagnosis Code - NONPYOGENIC MENINGITIS - CHRONIC MENINGITIS	Between	3220	3222	Or
Principal Diagnosis Code - MENINGITIS NOS - PROTOZOAL ENCEPHALITIS	Between	3229	3232	Or
Principal Diagnosis Code - OTH ENCEPHALIT D/T INFEC* - POSTIMMUNIZAT ENCEPHALIT*	Between	3234	3235	Or
Principal Diagnosis Code - POSTINFECT ENCEPHALITIS* - Postinfectious myelitis	Between	3236	32363	Or
Principal Diagnosis Code - INTRACRANIAL ABSCESS - INTRASPINAL ABSCESS	Between	3240	3241	Or
Principal Diagnosis Code - CNS ABSCESS NOS	=	3249		Or
Principal Diagnosis Code - Acute (transverse) myelitis - Acute myelitis in oth conditions	Between	34120	34121	Or
Principal Diagnosis Code - LUMBAR PUNCTURE REACTION	=	3490		Or
Principal Diagnosis Code - ACUTE CONJUNCTIVITIS NOS - AC ATOPIC CONJUNCTIVITIS	Between	37200	37205	Or
Principal Diagnosis Code - Inflammation (inf) postproc bleb, unspec - Inflamation (inf) postproc bleb, stage 3	Between	37960	37963	Or
Principal Diagnosis Code - AMI ANTEROLATERAL, INIT	=	41001		Or
Principal Diagnosis Code - AMI ANTERIOR WALL, INIT	=	41011		Or
Principal Diagnosis Code - AMI INFEROLATERAL, INIT	=	41021		Or
Principal Diagnosis Code - AMI INFEROPOST, INITIAL	=	41031		Or
Principal Diagnosis Code - AMI INFERIOR WALL, INIT	=	41041		Or

Principal Diagnosis Code - AMI LATERAL NEC, INITIAL	=	41051		Or
Principal Diagnosis Code - TRUE POST INFARCT, INIT	=	41061		Or
Principal Diagnosis Code - SUBENDO INFARCT, INITIAL	=	41071		Or
Principal Diagnosis Code - AMI NEC, INITIAL	=	41081		Or
Principal Diagnosis Code - AMI NOS, INITIAL	=	41091		Or
Principal Diagnosis Code - IATROGEN PULM EMB/INFARC	=	41511		Or
Principal Diagnosis Code - PULM EMBOL/INFARCT NEC	=	41519		Or
Principal Diagnosis Code - AC MYOCARDIT IN OTH DIS	=	4220		Or
Principal Diagnosis Code - ACUTE MYOCARDITIS NOS	=	42290		Or
Principal Diagnosis Code - SEPTIC MYOCARDITIS	=	42292		Or
Principal Diagnosis Code - ATRIOVENT BLOCK COMPLETE	=	4260		Or
Principal Diagnosis Code - VENTRICULAR FIBRILLATION - VENTRICULAR FLUTTER	Between	42741	42742	Or
Principal Diagnosis Code - CARDIAC ARREST	=	4275		Or
Principal Diagnosis Code - CONGESTIVE HEART FAILURE - LEFT HEART FAILURE	Between	4280	4281	Or
Principal Diagnosis Code - HRT DIS POSTCARDIAC SURG	=	4294		Or
Principal Diagnosis Code - OCL BSLR ART W INFRCT	=	43301		Or
Principal Diagnosis Code - OCL CRTD ART W INFRCT	=	43311		Or
Principal Diagnosis Code - OCL VRTB ART W INFRCT	=	43321		Or
Principal Diagnosis Code - OCL MLT BI ART W INFRCT	=	43331		Or
Principal Diagnosis Code - OCL SPCF ART W INFRCT	=	43381		Or

Principal Diagnosis Code - OCL ART NOS W INFRCT	=	43391		Or
Principal Diagnosis Code - CRBL THRMBS W INFRCT	=	43401		Or
Principal Diagnosis Code - CRBL EMBLSM W INFRCT	=	43411		Or
Principal Diagnosis Code - CRBL ART OCL NOS W INFRC	=	43491		Or
Principal Diagnosis Code - CVA	=	436		Or
Principal Diagnosis Code - SUPERFIC PHLEBITIS-LEG	=	4510		Or
Principal Diagnosis Code - FEMORAL VEIN PHLEBITIS	=	45111		Or
Principal Diagnosis Code - DEEP PHLEBITIS-LEG NEC	=	45119		Or
Principal Diagnosis Code - AC MAXILLARY SINUSITIS - AC SPHENOIDAL SINUSITIS	Between	4610	4613	Or
Principal Diagnosis Code - OTHER ACUTE SINUSITIS - ACUTE SINUSITIS NOS	Between	4618	4619	Or
Principal Diagnosis Code - ACUTE PHARYNGITIS - AC EPIGLOTTITIS W OBSTR	Between	462	46431	Or
Principal Diagnosis Code - ACUTE BRONCHITIS	=	4660		Or
Principal Diagnosis Code - ACU BRONCHOLITIS D/T RSV	=	46611		Or
Principal Diagnosis Code - ACU BRNCHLTS D/T OTH ORG	=	46619		Or
Principal Diagnosis Code - PERITONSILLAR ABSCESS	=	475		Or
Principal Diagnosis Code - PARAPHARYNGEAL ABSCESS	=	47822		Or
Principal Diagnosis Code - RETROPHARYNGEAL ABSCESS	=	47824		Or
Principal Diagnosis Code - K. PNEUMONIAE PNEUMONIA - H.INFLUENZAE PNEUMONIA	Between	4820	4822	Or
Principal Diagnosis Code - STREPTOCOCCAL PNEUMN NOS - PNEUMONIA STRPTOCOCCUS B	Between	48230	48232	Or

Principal Diagnosis Code - PNEUMONIA OTH STREP - STAPH AUREUS PNEUMONIA	Between	48239	48241	Or
Principal Diagnosis Code - STAPH PNEUMONIA NEC	=	48249		Or
Principal Diagnosis Code - PNEUMONIA ANAEROBES - LEGIONNAIRES' DISEASE	Between	48281	48284	Or
Principal Diagnosis Code - PNEUMONIA OTH SPCF BACT	=	48289		Or
Principal Diagnosis Code - PNEU MYCPLSM PNEUMONIAE - PNEUMONIA D/T CHLAMYDIA	Between	4830	4831	Or
Principal Diagnosis Code - PNEUMON OTH SPEC ORGNSM	=	4838		Or
Principal Diagnosis Code - BRONCHOPNEUMONIA ORG NOS - PNEUMONIA, ORGANISM NOS	Between	485	486	Or
Principal Diagnosis Code - INFLUENZA WITH PNEUMONIA - FLU W RESP MANIFEST NEC	Between	4870	4871	Or
Principal Diagnosis Code - FLU W MANIFESTATION NEC	=	4878		Or
Principal Diagnosis Code - BRONCHITIS NOS	=	490		Or
Principal Diagnosis Code - FOOD/VOMIT PNEUMONITIS	=	5070		Or
Principal Diagnosis Code - IATROGENIC PNEUMOTHORAX	=	5121		Or
Principal Diagnosis Code - ABSCESS OF MEDIASTINUM	=	5131		Or
Principal Diagnosis Code - PULMONARY COLLAPSE	=	5180		Or
Principal Diagnosis Code - ACUTE LUNG EDEMA NOS	=	5184		Or
Principal Diagnosis Code - POST TRAUM PULM INSUFFIC	=	5185		Or
Principal Diagnosis Code - ACUTE RESPIRATRY FAILURE - OTHER PULMONARY INSUFF	Between	51881	51882	Or
Principal Diagnosis Code - ACUTE & CHRONC RESP FAIL	=	51884		Or

Principal Diagnosis Code - TRACHEOSTOMY COMP NOS - TRACHEOSTOMY - MECH COMP	Between	51900	51902	Or
Principal Diagnosis Code - TRACHEOSTOMY COMP NEC	=	51909		Or
Principal Diagnosis Code - Acute gingivitis, plaque induced - Chronic periodontiits, generalized	Between	52300	52342	Or
Principal Diagnosis Code - SALIVARY GLAND ABSCESS	=	5273		Or
Principal Diagnosis Code - Infection of esophagostomy - Mechanical complication of esophagostomy	Between	53086	53087	Or
Principal Diagnosis Code - GASTROSTOMY COMP NOS - GASTROSTOMY COMP - MECH	Between	53640	53642	Or
Principal Diagnosis Code - GASTROSTOMY COMP NEC	=	53649		Or
Principal Diagnosis Code - ANAL & RECTAL ABSCESS	=	566		Or
Principal Diagnosis Code - PERITONITIS IN INFEC DIS - SUPPURAT PERITONITIS NEC	Between	5670	5672	Or
Principal Diagnosis Code - PERITONITIS NEC - PERITONITIS NOS	Between	5678	5679	Or
Principal Diagnosis Code - COLSTOMY/ENTER COMP NOS - COLOSTY/ENTER COMP-MECH	Between	56960	56962	Or
Principal Diagnosis Code - COLSTMY/ENTEROS COMP NEC	=	56969		Or
Principal Diagnosis Code - STRICTURE OF URETER - URETERIC OBSTRUCTION NEC	Between	5933	5934	Or
Principal Diagnosis Code - POSTOP URETHRAL STRICTUR	=	5982		Or
Principal Diagnosis Code - ORCHITIS WITH ABSCESS	=	6040		Or
Principal Diagnosis Code - SEMINAL VESICULITIS	=	6080		Or
Principal Diagnosis Code - MALE GEN INFLAM DIS NEC	=	6084		Or

Principal Diagnosis Code - AC PELV PERITONITIS-FEM	=	6145		Or
Principal Diagnosis Code - BARTHOLIN'S GLND ABSCESS - ABSCESS OF VULVA NEC	Between	6163	6164	Or
Principal Diagnosis Code - CARBUNCLE OF FACE - CARBUNCLE NOS	Between	6800	6809	Or
Principal Diagnosis Code - CELLULITIS, FINGER NOS - ONYCHIA OF FINGER	Between	68100	68102	Or
Principal Diagnosis Code - CELLULITIS, TOE NOS - ONYCHIA OF TOE	Between	68110	68111	Or
Principal Diagnosis Code - CELLULITIS OF DIGIT NOS - PILONIDAL CYST W ABSCESS	Between	6819	6850	Or
Principal Diagnosis Code - PYODERMA NOS - PYODERMA GANGRENOSUM	Between	68600	68601	Or
Principal Diagnosis Code - PYODERMA NEC	=	68609		Or
Principal Diagnosis Code - PYOGENIC GRANULOMA	=	6861		Or
Principal Diagnosis Code - LOCAL SKIN INFECTION NEC - LOCAL SKIN INFECTION NOS	Between	6868	6869	Or
Principal Diagnosis Code - LOCAL SKIN INFECTION NOS	=	6869		Or
Principal Diagnosis Code - MATERNAL INFEC AFF NB	=	7602		Or
Principal Diagnosis Code - CONGENITAL INFEC NEC - PERINATAL INFECTION NEC	Between	7712	7718	Or
Principal Diagnosis Code - SHOCK NOS - CARDIOGENIC SHOCK	Between	78550	78551	Or
Principal Diagnosis Code - SHOCK W/O TRAUMA NEC	=	78559		Or
Principal Diagnosis Code - RESPIRATORY ARREST	=	7991		Or
Principal Diagnosis Code - POSTTRAUM WND INFEC NEC - TRAUMATIC SHOCK	Between	9583	9584	Or

Principal Diagnosis Code - SHOCK DUE TO ANESTHESIA	=	9954		Or
Principal Diagnosis Code - MALIGNANT HYPERTHERMIA	=	99586		Or
Principal Diagnosis Code - ADVERSE EFFECT NEC	=	99589		Or
Principal Diagnosis Code - MALFUNC CARD DEV/GRF NOS - MCH CMP AUTM MPLNT DFBRL	Between	99600	99604	Or
Principal Diagnosis Code - MALFUNC CARD DEV/GRF NEC	=	99609		Or
Principal Diagnosis Code - MALFUNC VASC DEVICE/GRAF - MALFUN NEURO DEVICE/GRAF	Between	9961	9962	Or
Principal Diagnosis Code - MALFUNC GU DEV/GRAFT NOS - MALFUNCTION IUD	Between	99630	99632	Or
Principal Diagnosis Code - MALFUNC GU DEV/GRAFT NEC	=	99639		Or
Principal Diagnosis Code - MALF INT ORTHPED DEV/GRF	=	9964		Or
Principal Diagnosis Code - CORNEAL GRFT MALFUNCTION - OTH TISSUE GRAFT MALFUNC	Between	99651	99652	Or
Principal Diagnosis Code - BREAST PROSTH MALFUNC - COMP-PERITON DIALYS CATH	Between	99654	99656	Or
Principal Diagnosis Code - Complication, Due to insulin pump - REACT-CARDIAC DEV/GRAFT	Between	99657	99661	Or
Principal Diagnosis Code - COMP-UNSP DEVICE/GRAFT - COMP OTH ORGAN TRANSPLNT	Between	99670	99689	Or
Principal Diagnosis Code - NERVOUS SYST COMPLC NOS - IATROGEN CV INFARC/HMRHG	Between	99700	99702	Or
Principal Diagnosis Code - SURG COMP NERV SYSTM NEC	=	99709		Or
Principal Diagnosis Code - SURG COMPL-HEART - SURG COMPL-URINARY TRACT	Between	9971	9975	Or
Principal Diagnosis Code - AMPUTAT STUMP COMPL NOS - INFECTION AMPUTAT STUMP	Between	99760	99762	Or

Principal Diagnosis Code - AMPUTAT STUMP COMPL NEC	=	99769		Or
Principal Diagnosis Code - VASC COMP MESENTERIC ART - VASCULAR COMP VESSEL NEC	Between	99771	99779	Or
Principal Diagnosis Code - SURG COMP - HYPERTENSION	=	99791		Or
Principal Diagnosis Code - SURG COMPL-BODY SYST NEC	=	99799		Or
Principal Diagnosis Code - POSTOPERATIVE SHOCK	=	9980		Or
Principal Diagnosis Code - HEMORRHAGE COMPLIC PROC - SEROMA COMPLICTING PROC	Between	99811	99813	Or
Principal Diagnosis Code - ACCIDENTAL OP LACERATION - FB LEFT DURING PROCEDURE	Between	9982	9984	Or
Principal Diagnosis Code - INFECTED POSTOP SEROMA	=	99851		Or
Principal Diagnosis Code - OTHER POSTOP INFECTION	=	99859		Or
Principal Diagnosis Code - PERSIST POSTOP FISTULA - POSTOP FORGN SUBST REACT	Between	9986	9987	Or
Principal Diagnosis Code - EMPHYSEMA RSULT FRM PROC - NON-HEALING SURGCL WOUND	Between	99881	99883	Or
Principal Diagnosis Code - OTH SPCF CMPLC PROCD NEC	=	99889		Or
Principal Diagnosis Code - SURGICAL COMPLICAT NOS	=	9989		Or
Principal Diagnosis Code - GENERALIZED VACCINIA	=	9990		Or
Principal Diagnosis Code - COMPLIC MED CARE NEC/NOS	=	9999		Or
Principal Procedure Code - REOPEN CRANIOTOMY SITE	=	0123		Or
Principal Procedure Code - REPLACE VENTRICLE SHUNT	=	0242		Or
Principal Procedure Code - REOPEN LAMINECTOMY SITE	=	0302		Or
Principal Procedure Code - REVISE SPINE THECA SHUNT	=	0397		Or

Principal Procedure Code - POSTOP REVIS PER NERV OP	=	0475		Or
Principal Procedure Code - REOPEN THYROID FIELD WND	=	0602		Or
Principal Procedure Code - REDUC OVERCORRECT PTOSIS	=	0837		Or
Principal Procedure Code - POSTOP REVIS SCL FISTUL	=	1266		Or
Principal Procedure Code - REVIS ANT SEG OP WND NEC	=	1283		Or
Principal Procedure Code - REVIS EXTRAOC MUSC SURG	=	156		Or
Principal Procedure Code - REVIS/REINSERT OCUL IMP - ENUC SOCKET REVIS NEC	Between	1662	1664	Or
Principal Procedure Code - REVIS EXENTER CAVITY NEC	=	1666		Or
Principal Procedure Code - REV STAPDEC W INCUS REPL	=	1921		Or
Principal Procedure Code - STAPEDECTOMY REVIS NEC	=	1929		Or
Principal Procedure Code - TYMPANOPLASTY REVISION	=	196		Or
Principal Procedure Code - REVIS INNER EAR FENESTRA	=	2062		Or
Principal Procedure Code - MASTOIDECTOMY REVISION	=	2092		Or
Principal Procedure Code - HEMORR CONTRL POST T & A	=	287		Or
Principal Procedure Code - LARYNGOSTOMY REVISION	=	3163		Or
Principal Procedure Code - REVISION OF TRACHEOSTOMY	=	3174		Or
Principal Procedure Code - REOPEN THORACOTOMY SITE	=	3403		Or
Principal Procedure Code - HEART REPAIR REVISION	=	3595		Or
Principal Procedure Code - REVISION OF LEAD	=	3775		Or
Principal Procedure Code - REVIS OR RELOCATE CARDIAC DEVICE POCKET	=	3779		Or

Principal Procedure Code - REVISE OR REMOVE PACEMAK	=	3789		Or
Principal Procedure Code - POSTOP VASC OP HEM CONTR - REVIS REN DIALYSIS SHUNT	Between	3941	3942	Or
Principal Procedure Code - VASC PROC REVISION NEC	=	3949		Or
Principal Procedure Code - REPLAC VES-TO-VES CANNUL	=	3994		Or
Principal Procedure Code - HEMORRHAGE CONTROL NOS	=	3998		Or
Principal Procedure Code - REVISION GASTRIC ANASTOM	=	445		Or
Principal Procedure Code - INTEST STOMA REVIS NOS - LG BOWEL STOMA REVIS NEC	Between	4640	4643	Or
Principal Procedure Code - REVISE SM BOWEL ANASTOM - REVISE LG BOWEL ANASTOM	Between	4693	4694	Or
Principal Procedure Code - CONTROL ANAL HEMORRHAGE	=	4995		Or
Principal Procedure Code - REVIS BILE TRACT ANASTOM	=	5194		Or
Principal Procedure Code - REOPEN RECENT LAP SITE	=	5412		Or
Principal Procedure Code - RECLOSE POST OP DISRUPT	=	5461		Or
Principal Procedure Code - REVIS CUTAN ILEOURETEROS	=	5652		Or
Principal Procedure Code - REVIS CUTAN URETEROS NEC	=	5662		Or
Principal Procedure Code - REVIS URETEROENTEROSTOMY	=	5672		Or
Principal Procedure Code - REVISE CLO VESICOSTOMY	=	5722		Or
Principal Procedure Code - CONTROL BLADD HEMORRHAGE	=	5793		Or
Principal Procedure Code - CONTROL PROSTATE HEMORR	=	6094		Or
Principal Procedure Code - REVISE HIP REPLACEMENT NOS	=	8153		Or

Principal Procedure Code - REVISE KNEE REPLACEMENT NOS	=	8155		Or
Principal Procedure Code - REV JT REPL LOW EXT NEC	=	8159		Or
Principal Procedure Code - REV JT REPL UPPER EXTREM	=	8197		Or
Principal Procedure Code - AMPUTATION STUMP REVIS	=	843		Or
Principal Procedure Code - REVISION OF PEDICLE GRFT	=	8675		) Or (
				(
Principal Procedure Code - ENDOSC CONTROL GAST HEM - TRANSCATH EMBO GAST HEM	Between	4443	4444	Or
Principal Procedure Code - OTHER CONTROL GAST HEM	=	4449		)
				And Not (
Principal Diagnosis Code - AC STOMACH ULCER W HEM - AC STOMAC ULC W HEM-OBST	Between	53100	53101	Or
Principal Diagnosis Code - AC STOMACH ULCER W PERF - AC STOM ULC W PERF-OBST	Between	53110	53111	Or
Principal Diagnosis Code - AC STOMAC ULC W HEM/PERF - AC STOM ULC HEM/PERF-OBS	Between	53120	53121	Or
Principal Diagnosis Code - ACUTE STOMACH ULCER NOS - AC STOMACH ULC NOS-OBSTR	Between	53130	53131	Or
Principal Diagnosis Code - CHR STOMACH ULC W HEM - CHR STOM ULC W HEM-OBSTR	Between	53140	53141	Or
Principal Diagnosis Code - CHR STOMACH ULCER W PERF - CHR STOM ULC W PERF-OBST	Between	53150	53151	Or
Principal Diagnosis Code - CHR STOMACH ULC HEM/PERF - CHR STOM ULC HEM/PERF-OB	Between	53160	53161	Or
Principal Diagnosis Code - CHR STOMACH ULCER NOS - CHR STOMACH ULC NOS-OBST	Between	53170	53171	Or
Principal Diagnosis Code - STOMACH ULCER NOS - STOMACH ULCER NOS-OBSTR	Between	53190	53191	Or

Principal Diagnosis Code - AC DUODENAL ULCER W HEM - AC DUODEN ULC W HEM-OBST	Between	53200	53201	Or
Principal Diagnosis Code - AC DUODENAL ULCER W PERF - AC DUODEN ULC PERF-OBSTR	Between	53210	53211	Or
Principal Diagnosis Code - AC DUODEN ULC W HEM/PERF - AC DUOD ULC HEM/PERF-OBS	Between	53220	53221	Or
Principal Diagnosis Code - ACUTE DUODENAL ULCER NOS - AC DUODENAL ULC NOS-OBST	Between	53230	53231	Or
Principal Diagnosis Code - CHR DUODEN ULCER W HEM - CHR DUODEN ULC HEM-OBSTR	Between	53240	53241	Or
Principal Diagnosis Code - CHR DUODEN ULCER W PERF - CHR DUODEN ULC PERF-OBST	Between	53250	53251	Or
Principal Diagnosis Code - CHR DUODEN ULC HEM/PERF - CHR DUOD ULC HEM/PERF-OB	Between	53260	53261	Or
Principal Diagnosis Code - CHR DUODENAL ULCER NOS - CHR DUODEN ULC NOS-OBSTR	Between	53270	53271	Or
Principal Diagnosis Code - DUODENAL ULCER NOS - DUODENAL ULCER NOS-OBSTR	Between	53290	53291	Or
Principal Diagnosis Code - AC PEPTIC ULCER W HEMORR - AC PEPTIC ULC W HEM-OBST	Between	53300	53301	Or
Principal Diagnosis Code - AC PEPTIC ULCER W PERFOR - AC PEPTIC ULC W PERF-OBS	Between	53310	53311	Or
Principal Diagnosis Code - AC PEPTIC ULC W HEM/PERF - AC PEPT ULC HEM/PERF-OBS	Between	53320	53321	Or
Principal Diagnosis Code - ACUTE PEPTIC ULCER NOS - AC PEPTIC ULCER NOS-OBST	Between	53330	53331	Or
Principal Diagnosis Code - CHR PEPTIC ULCER W HEM - CHR PEPTIC ULC W HEM-OBS	Between	53340	53341	Or
Principal Diagnosis Code - CHR PEPTIC ULCER W PERF - CHR PEPTIC ULC PERF-OBST	Between	53350	53351	Or

Principal Diagnosis Code - CHR PEPT ULC W HEM/PERF - CHR PEPT ULC HEM/PERF-OB	Between	53360	53361	Or
Principal Diagnosis Code - CHRONIC PEPTIC ULCER NOS - CHR PEPTIC ULCER NOS-OBS	Between	53370	53371	Or
Principal Diagnosis Code - PEPTIC ULCER NOS - PEPTIC ULCER NOS-OBSTRUC	Between	53390	53391	Or
Principal Diagnosis Code - AC MARGINAL ULCER W HEM - AC MARGIN ULC W HEM-OBST	Between	53400	53401	Or
Principal Diagnosis Code - AC MARGINAL ULCER W PERF - AC MARGIN ULC W PERF-OBS	Between	53410	53411	Or
Principal Diagnosis Code - AC MARGIN ULC W HEM/PERF - AC MARG ULC HEM/PERF-OBS	Between	53420	53421	Or
Principal Diagnosis Code - AC MARGINAL ULCER NOS - AC MARGINAL ULC NOS-OBST	Between	53430	53431	Or
Principal Diagnosis Code - CHR MARGINAL ULCER W HEM - CHR MARGIN ULC W HEM-OBS	Between	53440	53441	Or
Principal Diagnosis Code - CHR MARGINAL ULC W PERF - CHR MARGIN ULC PERF-OBST	Between	53450	53451	Or
Principal Diagnosis Code - CHR MARGIN ULC HEM/PERF - CHR MARG ULC HEM/PERF-OB	Between	53460	53461	Or
Principal Diagnosis Code - CHR MARGINAL ULCER NOS - CHR MARGINAL ULC NOS-OBS	Between	53470	53471	Or
Principal Diagnosis Code - GASTROJEJUNAL ULCER NOS - GASTROJEJUN ULC NOS-OBST	Between	53490	53491	)))
				End
Principal Diagnosis Code - Acute post-thoracotomy pain	=	33812		Or
Principal Diagnosis Code - Other acute postoperative pain	=	33818		Or
Principal Diagnosis Code - Chronic post-thoracotomy pain	=	33822		Or

Principal Diagnosis Code - Other chronic postoperative pain	=	33828		Or
Principal Diagnosis Code - Inflammation (inf) postproc bleb, unspec - Inflamation (inf) postproc bleb, stage 3	Between	37960	37963	End

Readmission Number: 03 Diabetes Mellitus

Risk Group:

Comments: This category excludes admissions for destruction of lesions of retina and choroid by any means. The procedure codes used include destruction of chorioretinopathy only, and no other retinal surgeries.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
				(
Principal Diagnosis Code - DMII WO CMP NT ST UNCNTR - DMI UNSPF UNCNTRLD	Between	25000	25093	Or
Principal Diagnosis Code - DYSMETABOLIC SYNDROME X	=	2777		)
				And Not (
Any Procedure Code in List - CHORIORET LES DIATHERMY - CHORIORET LES RAD IMPLAN	Between	1421	1427	Or
Any Procedure Code in List - CHORIORET LES DESTR NEC	=	1429		)

Readmission Number: 04 COPD

Risk Group:

Comments: Rules for this category are based on Aston reference, except for new codes added since that study, and excluding asthma, which is in a separate category.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - IATROGEN PULM EMB/INFARC	=	41511		Or
Group - COPD	=	G04		Or
Principal Diagnosis Code - PULM EMBOL/INFARCT NEC	=	41519		Or
Principal Diagnosis Code - CHR PULMON HEART DIS NEC - CHR PULMON HEART DIS NOS	Between	4168	4169	Or
Principal Diagnosis Code - ACUTE BRONCHITIS	=	4660		Or
Principal Diagnosis Code - ACU BRONCHOLITIS D/T RSV	=	46611		Or
Principal Diagnosis Code - ACU BRNCHLTS D/T OTH ORG	=	46619		Or
Principal Diagnosis Code - ADENOVIRAL PNEUMONIA - INFLUENZA WITH PNEUMONIA	Between	4800	4870	Or
Principal Diagnosis Code - SPONT TENS PNEUMOTHORAX - IATROGENIC PNEUMOTHORAX	Between	5120	5121	Or
Principal Diagnosis Code - SPONT PNEUMOTHORAX NEC	=	5128		Or
Principal Diagnosis Code - PULMONARY COLLAPSE	=	5180		Or
Principal Diagnosis Code - ACUTE RESPIRATRY FAILURE - OTHER PULMONARY INSUFF	Between	51881	51882	Or
Principal Diagnosis Code - ACUTE & CHRONC RESP FAIL	=	51884		Or
Principal Diagnosis Code - RESPIRATORY ABNORM NOS - HYPERVENTILATION	Between	78600	78601	Or
Principal Diagnosis Code - APNEA - WHEEZING	Between	78603	78607	Or

Readmission Number: 04 COPD

Principal Diagnosis Code - RESPIRATORY ABNORM NEC	=	78609	Or
Principal Diagnosis Code - RESPIRATORY ARREST	=	7991	

Readmission Number: 05 Heart Failure

Risk Group:

Comments: This category includes all codes used by Ashton except fluid overload (276.6), edema (782.3) and orthopnea (786.02). We used fluid overload only in category of transfusion and infusion complications.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - RHEUMATIC HEART FAILURE	=	39891		Or
Principal Diagnosis Code - MAL HYPERT HRT DIS W CHF	=	40201		Or
Principal Diagnosis Code - BENIGN HYP HRT DIS W CHF	=	40211		Or
Principal Diagnosis Code - HYPERTEN HEART DIS W CHF	=	40291		Or
Principal Diagnosis Code - MAL HYPER HRT/REN W CHF	=	40401		Or
Principal Diagnosis Code - MAL HYP HRT/REN W CHF&RF	=	40403		Or
Principal Diagnosis Code - BEN HYPER HRT/REN W CHF	=	40411		Or
Principal Diagnosis Code - BEN HYP HRT/REN W CHF&RF	=	40413		Or
Principal Diagnosis Code - HYPER HRT/REN NOS W CHF	=	40491		Or
Principal Diagnosis Code - HYP HT/REN NOS W CHF&RF	=	40493		Or
Principal Diagnosis Code - CONGESTIVE HEART FAILURE - HEART FAILURE NOS	Between	4280	4289	

Readmission Number: 06 Pneumonia

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Pneumonia	=	G06		

Readmission Number: 07 Acute Myocardial Infarction

Risk Group:

Comments: This category uses any AMI as principal or secondary diagnosis on index admission, but only principal diagnosis on readmit. Readmit also limits this to only unspecified or initial episode of care for the readmit. We also added other principal diagnoses on readmit based on complications of AMI listed in Disease Staging.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - AMI ANTEROLATERAL,UNSPEC - AMI ANTEROLATERAL, INIT	Between	41000	41001	Or
Principal Diagnosis Code - AMI ANTERIOR WALL,UNSPEC - AMI ANTERIOR WALL, INIT	Between	41010	41011	Or
Principal Diagnosis Code - AMI INFEROLATERAL,UNSPEC - AMI INFEROLATERAL, INIT	Between	41020	41021	Or
Principal Diagnosis Code - AMI INFEROPOST, UNSPEC - AMI INFEROPOST, INITIAL	Between	41030	41031	Or
Principal Diagnosis Code - AMI INFERIOR WALL,UNSPEC - AMI INFERIOR WALL, INIT	Between	41040	41041	Or
Principal Diagnosis Code - AMI LATERAL NEC, UNSPEC - AMI LATERAL NEC, INITIAL	Between	41050	41051	Or
Principal Diagnosis Code - TRUE POST INFARCT,UNSPEC - TRUE POST INFARCT, INIT	Between	41060	41061	Or
Principal Diagnosis Code - SUBENDO INFARCT, UNSPEC - SUBENDO INFARCT, INITIAL	Between	41070	41071	Or
Principal Diagnosis Code - AMI NEC, UNSPECIFIED - AMI NEC, INITIAL	Between	41080	41081	Or
Principal Diagnosis Code - AMI NOS, UNSPECIFIED - AMI NOS, INITIAL	Between	41090	41091	Or
Principal Diagnosis Code - POST MI SYNDROME	=	4110		Or
Principal Diagnosis Code - ANEURYSM, HEART (WALL)	=	41410		Or
Principal Diagnosis Code - IATROGEN PULM EMB/INFARC	=	41511		Or

Principal Diagnosis Code - PULM EMBOL/INFARCT NEC	=	41519		Or
Principal Diagnosis Code - ACUTE PERICARDITIS NOS - AC IDIOPATH PERICARDITIS	Between	42090	42091	Or
Principal Diagnosis Code - ACUTE PERICARDITIS NEC	=	42099		Or
Principal Diagnosis Code - ATRIOVENT BLOCK COMPLETE	=	4260		Or
Principal Diagnosis Code - ATRIOVENT BLOCK NOS - AV BLOCK-2ND DEGREE NEC	Between	42610	42613	Or
Principal Diagnosis Code - LEFT BB HEMIBLOCK - RT BUNDLE BRANCH BLOCK	Between	4262	4264	Or
Principal Diagnosis Code - BUNDLE BRANCH BLOCK NOS - TRIFASCICULAR BLOCK	Between	42650	42654	Or
Principal Diagnosis Code - OTHER HEART BLOCK	=	4266		Or
Principal Diagnosis Code - CONDUCTION DISORDER NOS	=	4269		Or
Principal Diagnosis Code - PAROX ATRIAL TACHYCARDIA - PAROX TACHYCARDIA NOS	Between	4270	4272	Or
Principal Diagnosis Code - ATRIAL FIBRILLATION - ATRIAL FLUTTER	Between	42731	42732	Or
Principal Diagnosis Code - VENTRICULAR FIBRILLATION - VENTRICULAR FLUTTER	Between	42741	42742	Or
Principal Diagnosis Code - CARDIAC ARREST	=	4275		Or
Principal Diagnosis Code - PREMATURE BEATS NOS	=	42760		Or
Principal Diagnosis Code - ATRIAL PREMATURE BEATS	=	42761		Or
Principal Diagnosis Code - PREMATURE BEATS NEC	=	42769		Or
Principal Diagnosis Code - SINOATRIAL NODE DYSFUNCT	=	42781		Or
Principal Diagnosis Code - CARDIAC DYSRHYTHMIAS NEC	=	42789		Or

Principal Diagnosis Code - CARDIAC DYSRHYTHMIA NOS	=	4279	Or
Principal Diagnosis Code - CONGESTIVE HEART FAILURE	=	4280	Or
Principal Diagnosis Code - LEFT HEART FAILURE	=	4281	Or
Principal Diagnosis Code - PAPILLARY MUSCLE RUPTURE	=	4296	Or
Principal Diagnosis Code - OTHER SEQUELAE OF MI NEC	=	42979	Or
Principal Diagnosis Code - CRBL THRMBS W INFRCT	=	43401	Or
Principal Diagnosis Code - CRBL EMBLSM W INFRCT	=	43411	Or
Principal Diagnosis Code - CRBL ART OCL NOS W INFRC	=	43491	Or
Principal Diagnosis Code - CVA	=	436	Or
Principal Diagnosis Code - ACUTE LUNG EDEMA NOS	=	5184	Or
Principal Diagnosis Code - CARDIOGENIC SHOCK	=	78551	

Readmission Number: 08 Asthma

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Asthma	=	G08		

Readmission Number: 09 Atrial Fibrillation

Risk Group:

Comments: Readmission uses any principal diagnosis of atrial fibrillation, as well as pulmonary embolism or embolic stroke.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - ATRIAL FIBRILLATION	=	42731		Or
Principal Diagnosis Code - IATROGEN PULM EMB/INFARC	=	41511		Or
Principal Diagnosis Code - PULM EMBOL/INFARCT NEC	=	41519		Or
Principal Diagnosis Code - OCL BSLR ART W INFRCT	=	43301		Or
Principal Diagnosis Code - OCL CRTD ART W INFRCT	=	43311		Or
Principal Diagnosis Code - OCL VRTB ART W INFRCT	=	43321		Or
Principal Diagnosis Code - OCL MLT BI ART W INFRCT	=	43331		Or
Principal Diagnosis Code - OCL SPCF ART W INFRCT	=	43381		Or
Principal Diagnosis Code - OCL ART NOS W INFRCT	=	43391		Or
Principal Diagnosis Code - CRBL THRMBS W INFRCT	=	43401		Or
Principal Diagnosis Code - CRBL EMBLSM W INFRCT	=	43411		Or
Principal Diagnosis Code - CRBL ART OCL NOS W INFRC	=	43491		Or
Principal Diagnosis Code - CVA	=	436		

Readmission Number: 10 Coronary Artery Disease With Angina

Risk Group:

Comments: This uses any angina on index admission and any angina or acute myocardial infarction on the readmission.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - INTERMED CORONARY SYND	=	4111		Or
Any Diagnosis Code in List - ANGINA DECUBITUS	=	4130		Or
Any Diagnosis Code in List - PRINZMETAL ANGINA	=	4131		Or
Any Diagnosis Code in List - ANGINA PECTORIS NEC/NOS	=	4139		Or
Group - Coronary Artery Disease With Angina	=	G10		

Readmission Number: 11 Depression

Risk Group:

Comments: This category includes any depression, including major depression, but excluding major depression with mention of psychotic behavior

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Depression	=	G11		

Readmission Number: 12 Peptic Ulcer Disease

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Peptic Ulcer Disease	=	G12		

Readmission Number: 13 Stroke or Transient Ischemic Attack

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - OCL BSLR ART W INFRCT	=	43301		Or
Principal Diagnosis Code - OCL CRTD ART W INFRCT	=	43311		Or
Principal Diagnosis Code - OCL VRTB ART W INFRCT	=	43321		Or
Principal Diagnosis Code - OCL MLT BI ART W INFRCT	=	43331		Or
Principal Diagnosis Code - OCL SPCF ART W INFRCT	=	43381		Or
Principal Diagnosis Code - OCL ART NOS W INFRCT	=	43391		Or
Principal Diagnosis Code - CRBL THRMBS W INFRCT	=	43401		Or
Principal Diagnosis Code - CRBL EMBLSM W INFRCT	=	43411		Or
Principal Diagnosis Code - CRBL ART OCL NOS W INFRC	=	43491		Or
Principal Diagnosis Code - BASILAR ARTERY SYNDROME - VERTBROBASLR ARTERY SYND	Between	4350	4353	Or
Principal Diagnosis Code - TRANS CEREB ISCHEMIA NEC - TRANS CEREB ISCHEMIA NOS	Between	4358	4359	Or
Principal Diagnosis Code - CVA	=	436		

Readmission Number: 14 Decubitus Ulcers

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - DECUBITUS ULCER - Decubitus ulcer, other site	Between	7070	70709	

Readmission Number: 15 Dehydration

Risk Group:

Comments: This category also includes readmissions for hypernatremia, acidosis, alkalosis, hyperpotassemia, mixed acid-base balance, and nonspecific electrolyte imbalances.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Any Diagnosis Code in List - HYPEROSMOLALITY	=	2760		Or
Any Diagnosis Code in List - ACIDOSIS - Hypovolemia	Between	2762	27652	Or
Any Diagnosis Code in List - HYPERPOTASSEMIA	=	2767		Or
Any Diagnosis Code in List - ELECTROLYT/FLUID DIS NEC	=	2769		

Readmission Number: 16 Drug Poisoning

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - POISONING-PENICILLINS - POISONING-VITAMINS NEC	Between	9600	9635	Or
Principal Diagnosis Code - POISONING-SYSTEM AGT NEC - POISONING-METHADONE	Between	9638	96502	Or
Principal Diagnosis Code - POISONING-OPIATES NEC	=	96509		Or
Principal Diagnosis Code - POISONING-SALICYLATES	=	9651		Or
Principal Diagnosis Code - POIS-AROM ANALGESICS NEC - POISONING-PYRAZOLE DERIV	Between	9654	9655	Or
Principal Diagnosis Code - POIS-PROPIONIC ACID DERV	=	96561		Or
Principal Diagnosis Code - POISON-ANTIRHEUMATIC NEC	=	96569		Or
Principal Diagnosis Code - POIS-NO-NARC ANALGES NEC - POIS-ANTI-PARKINSON DRUG	Between	9657	9664	Or
Principal Diagnosis Code - POISONING-BARBITURATES - POISON-MIX SEDATIVE NEC	Between	9670	9676	Or
Principal Diagnosis Code - POIS-SEDATIVE/HYPNOT NEC - POISON-SPINAL ANESTHETIC	Between	9678	9687	Or
Principal Diagnosis Code - POIS-LOCAL ANEST NEC/NOS - POISON-OPIATE ANTAGONIST	Between	9689	9701	Or
Principal Diagnosis Code - POIS-CNS STIMULANTS NEC - POISONING-SYMPATHOLYTICS	Between	9708	9713	Or
Principal Diagnosis Code - POIS-AUTONOMIC AGENT NOS - POISONING-EMETICS	Between	9719	9736	Or
Principal Diagnosis Code - POISONING-GI AGENTS NEC - POIS-URIC ACID METABOL	Between	9738	9747	Or

Principal Diagnosis Code - ACC POISON-ANALGESIC NOS - POIS-RESPIR DRUG NEC/NOS	Between	E8509	9758	Or
Principal Diagnosis Code - POIS-LOCAL ANTI-INFECT - POIS-PHARMACEUT EXCIPIEN	Between	9760	9774	Or
Principal Diagnosis Code - POISON-MEDICINAL AGT NEC - POIS-PERTUSSIS VACCINE	Between	9778	9786	Or
Principal Diagnosis Code - POIS-BACT VACCIN NEC/NOS - POISONING-MIXED VACCINE	Between	9788	9797	Or
Principal Diagnosis Code - POIS-VACCINE/BIOLOG NEC	=	9799		Or
Any Secondary Diagnosis Code in List - ACC POISON-HEROIN - ACC POISON-BARBITURATES	Between	E8500	E851	Or
Any Secondary Diagnosis Code in List - ACC POISON-BARBITURATES	=	E851		Or
Any Secondary Diagnosis Code in List - ACC POISN-CHLORL HYDRATE - ACC POISON-MIX SEDTV NEC	Between	E8520	E8525	Or
Any Secondary Diagnosis Code in List - ACC POISON-SEDATIVES NEC - ACC POISN-BENZDIAZ TRANQ	Between	E8528	E8532	Or
Any Secondary Diagnosis Code in List - ACC POISN-TRANQUILZR NEC - ACC POISON-CNS STIMULANT	Between	E8538	E8543	Or
Any Secondary Diagnosis Code in List - ACC POISN PSYCHOTROP NEC	=	E8548		Or
Any Secondary Diagnosis Code in List - ACC POISN-ANTICONVULSANT - ACC POISN-SYMPATHOLYTICS	Between	E8550	E8556	Or
Any Secondary Diagnosis Code in List - ACC POISON-CNS DRUG NEC - ACC POISON-CNS DRUG NOS	Between	E8558	E8559	Or
Any Secondary Diagnosis Code in List - ACC POISON-ANTIBIOTICS - ACC POISONING-DRUG NOS	Between	E856	E8589	Or
Any Secondary Diagnosis Code in List - FAIL STERILE INJECTION	=	E8723		Or
Any Secondary Diagnosis Code in List - NONADMIN NECESS MEDICINE	=	E8736		Or

Any Secondary Diagnosis Code in List - FAILURE IN DOSAGE NEC - FAILURE IN DOSAGE NOS	Between	E8738	E8739	Or
Any Secondary Diagnosis Code in List - CONTAMINATION NEC - CONTAMINATION NOS	Between	E8758	E8759	

Readmission Number: 17 Endocarditis

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - AC/SUBAC BACT ENDOCARD - AC ENDOCARDIT IN OTH DIS	Between	4210	4211	Or
Principal Diagnosis Code - AC/SUBAC ENDOCARDIT NOS	=	4219		

Readmission Number: 18 Septicemia

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - STREPTOCOCCAL SEPTICEMIA	=	0380		Or
Principal Diagnosis Code - STAPHYLCOCC SEPTICEM NOS - STAPH AUREUS SEPTICEMIA	Between	03810	03811	Or
Principal Diagnosis Code - STAPHYLCOCC SEPTICEM NEC	=	03819		Or
Principal Diagnosis Code - PNEUMOCOCCAL SEPTICEMIA - ANAEROBIC SEPTICEMIA	Between	0382	0383	Or
Principal Diagnosis Code - GRAM-NEG SEPTICEMIA NOS - SERRATIA SEPTICEMIA	Between	03840	03844	Or
Principal Diagnosis Code - GRAM-NEG SEPTICEMIA NEC	=	03849		Or
Principal Diagnosis Code - SEPTICEMIA NEC - SEPTICEMIA NOS	Between	0388	0389	Or
Principal Diagnosis Code - SALMONELLA SEPTICEMIA	=	0031		Or
Principal Diagnosis Code - SEPTICEMIC PLAGUE	=	0202		Or
Principal Diagnosis Code - ANTHRAX SEPTICEMIA	=	0223		Or
Principal Diagnosis Code - MENINGOCOCCEMIA	=	0362		Or
Principal Diagnosis Code - HERPETIC SEPTICEMIA	=	0545		

Readmission Number: 19 HIV or AIDS

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - HIV or AIDS	=	G19		

Readmission Number: 20 Hypertension

Risk Group:

Comments: This category excludes secondary hypertension and includes readmissions for either hypertension or hemorrhagic stroke.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Hypertension	=	G20		Or
Principal Diagnosis Code - SUBARACHNOID HEMORRHAGE - INTRACEREBRAL HEMORRHAGE	Between	430	431	Or
Principal Diagnosis Code - NONTRAUM EXTRADURAL HEM - SUBDURAL HEMORRHAGE	Between	4320	4321	Or
Principal Diagnosis Code - INTRACRANIAL HEMORR NOS	=	4329		Or
Principal Diagnosis Code - CVA	=	436		

Readmission Number: 21 Infections After Discharge for Infection

Risk Group:

Comments: This category excludes infections that have a separate readmission category (septicemia, endocarditis, kidney infection, pneumonia, UTI, osteomyelitis, septic arthritis, and HIV/AIDS).

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - GAS GANGRENE	=	0400		Or
Principal Diagnosis Code - Toxic shock syndrome	=	04082		Or
Principal Diagnosis Code - STREPTOCOCCUS UNSPECF - STREPTOCOCCUS GROUP G	Between	04100	04105	Or
Principal Diagnosis Code - OTHER STREPTOCOCCUS - STAPHYLOCOCCUS AUREUS	Between	04109	04111	Or
Principal Diagnosis Code - OTHER STAPHYLOCOCCUS	=	04119		Or
Principal Diagnosis Code - PNEUMOCOCCUS INFECT NOS - PSEUDOMONAS INFECT NOS	Between	0412	0417	Or
Principal Diagnosis Code - MYCOPLASMA - HELICOBACTER PYLORI	Between	04181	04186	Or
Principal Diagnosis Code - OTH SPECF BACTERIA	=	04189		Or
Principal Diagnosis Code - BACTERIAL INFECTION NOS	=	0419		Or
Principal Diagnosis Code - Postvaricella myelitis	=	0522		Or
Principal Diagnosis Code - Herpes zoster myelitis	=	05314		Or
Principal Diagnosis Code - Herpes simplex myelitis	=	05474		Or
Principal Diagnosis Code - West Nile fever	=	0664		Or
Principal Diagnosis Code - SARS-associated coronavirus	=	07982		Or
Principal Diagnosis Code - HEMOPHILUS MENINGITIS - STAPHYLOCOCC MENINGITIS	Between	3200	3203	Or
Principal Diagnosis Code - MENING IN OTH BACT DIS	=	3207		Or

Principal Diagnosis Code - ANAEROBIC MENINGITIS - MNINGTS GRAM-NEG BCT NEC	Between	32081	32082	Or
Principal Diagnosis Code - MENINGITIS OTH SPCF BACT - MENINGIT D/T SARCOIDOSIS	Between	32089	3214	Or
Principal Diagnosis Code - MENING IN OTH NONBAC DIS	=	3218		Or
Principal Diagnosis Code - NONPYOGENIC MENINGITIS - CHRONIC MENINGITIS	Between	3220	3222	Or
Principal Diagnosis Code - MENINGITIS NOS - PROTOZOAL ENCEPHALITIS	Between	3229	3232	Or
Principal Diagnosis Code - OTH ENCEPHALIT D/T INFEC* - POSTIMMUNIZAT ENCEPHALIT*	Between	3234	3235	Or
Principal Diagnosis Code - POSTINFECT ENCEPHALITIS* - Postinfectious myelitis	Between	3236	32363	Or
Principal Diagnosis Code - INTRACRANIAL ABSCESS - INTRASPINAL ABSCESS	Between	3240	3241	Or
Principal Diagnosis Code - CNS ABSCESS NOS	=	3249		Or
Principal Diagnosis Code - Acute (transverse) myelitis - Acute myelitis in oth conditions	Between	34120	34121	Or
Principal Diagnosis Code - ACUTE CONJUNCTIVITIS NOS - AC ATOPIC CONJUNCTIVITIS	Between	37200	37205	Or
Principal Diagnosis Code - Inflammation (inf) postproc bleb, unspec - Inflamation (inf) postproc bleb, stage 3	Between	37960	37963	Or
Principal Diagnosis Code - AC MYOCARDIT IN OTH DIS	=	4220		Or
Principal Diagnosis Code - ACUTE MYOCARDITIS NOS	=	42290		Or
Principal Diagnosis Code - SEPTIC MYOCARDITIS	=	42292		Or
Principal Diagnosis Code - AC MAXILLARY SINUSITIS - AC SPHENOIDAL SINUSITIS	Between	4610	4613	Or

Principal Diagnosis Code - OTHER ACUTE SINUSITIS - ACUTE SINUSITIS NOS	Between	4618	4619	Or
Principal Diagnosis Code - ACUTE PHARYNGITIS - AC EPIGLOTTITIS W OBSTR	Between	462	46431	Or
Principal Diagnosis Code - ACUTE BRONCHITIS	=	4660		Or
Principal Diagnosis Code - ACU BRONCHOLITIS D/T RSV	=	46611		Or
Principal Diagnosis Code - ACU BRNCHLTS D/T OTH ORG	=	46619		Or
Principal Diagnosis Code - PERITONSILLAR ABSCESS	=	475		Or
Principal Diagnosis Code - PARAPHARYNGEAL ABSCESS	=	47822		Or
Principal Diagnosis Code - RETROPHARYNGEAL ABSCESS	=	47824		Or
Principal Diagnosis Code - FLU W RESP MANIFEST NEC	=	4871		Or
Principal Diagnosis Code - FLU W MANIFESTATION NEC	=	4878		Or
Principal Diagnosis Code - BRONCHITIS NOS	=	490		Or
Principal Diagnosis Code - ABSCESS OF MEDIASTINUM	=	5131		Or
Principal Diagnosis Code - Acute gingivitis, plaque induced - Chronic periodontiits, generalized	Between	52300	52342	Or
Principal Diagnosis Code - SALIVARY GLAND ABSCESS	=	5273		Or
Principal Diagnosis Code - GASTROSTOMY INFECTION	=	53641		Or
Principal Diagnosis Code - ANAL & RECTAL ABSCESS	=	566		Or
Principal Diagnosis Code - PERITONITIS IN INFEC DIS - Other retroperitoneal infections	Between	5670	56739	Or
Principal Diagnosis Code - PERITONITIS NEC - PERITONITIS NOS	Between	5678	5679	Or
Principal Diagnosis Code - COLOSTY/ENTEROST INFECTN	=	56961		Or

Principal Diagnosis Code - ORCHITIS WITH ABSCESS	=	6040		Or
Principal Diagnosis Code - SEMINAL VESICULITIS	=	6080		Or
Principal Diagnosis Code - MALE GEN INFLAM DIS NEC	=	6084		Or
Principal Diagnosis Code - AC PELV PERITONITIS-FEM	=	6145		Or
Principal Diagnosis Code - BARTHOLIN'S GLND ABSCESS - ABSCESS OF VULVA NEC	Between	6163	6164	Or
Principal Diagnosis Code - CARBUNCLE OF FACE - CARBUNCLE NOS	Between	6800	6809	Or
Principal Diagnosis Code - CELLULITIS, FINGER NOS - ONYCHIA OF FINGER	Between	68100	68102	Or
Principal Diagnosis Code - CELLULITIS, TOE NOS - ONYCHIA OF TOE	Between	68110	68111	Or
Principal Diagnosis Code - CELLULITIS OF DIGIT NOS - PILONIDAL CYST W ABSCESS	Between	6819	6850	Or
Principal Diagnosis Code - PYODERMA NOS - PYODERMA GANGRENOSUM	Between	68600	68601	Or
Principal Diagnosis Code - PYODERMA NEC	=	68609		Or
Principal Diagnosis Code - PYOGENIC GRANULOMA	=	6861		Or
Principal Diagnosis Code - LOCAL SKIN INFECTION NEC - LOCAL SKIN INFECTION NOS	Between	6868	6869	Or
Principal Diagnosis Code - MATERNAL INFEC AFF NB	=	7602		Or
Principal Diagnosis Code - CONGENITAL INFEC NEC - OTHER INFECTIONS SPEC TO PERINATL PERIOD	Between	7712	77189	Or
Principal Diagnosis Code - POSTTRAUM WND INFEC NEC	=	9583		Or
Principal Diagnosis Code - SYS INFLAM RESP SYND INFXN W/O ORG DYSFX - SYS INFLAM RESP SYND INFXN W/ ORG DYSFXN	Between	99591	99592	Or

Principal Diagnosis Code - REACTION-UNSP DEVIC/GRFT - REACT-CARDIAC DEV/GRAFT	Between	99660	99661	Or
Principal Diagnosis Code - INFECTION AMPUTAT STUMP	=	99762		Or
Principal Diagnosis Code - INFECTED POSTOP SEROMA	=	99851		Or
Principal Diagnosis Code - OTHER POSTOP INFECTION	=	99859		

Readmission Number: 22 Infusion or Transfusion Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - FLUID OVERLOAD	=	2766		Or
Principal Diagnosis Code - Transfuse related acute lung inj (TRALI)	=	5187		Or
Principal Diagnosis Code - CELLULITIS OF ARM - CELLULITIS OF HAND	Between	6823	6824	Or
Principal Diagnosis Code - AIR EMBOL COMP MED CARE - TRANSFUSION REACTION NEC	Between	9991	9998	Or
Principal Diagnosis Code - FAILURE STERILE INFUSION - FAIL STERILE PERFUSN NEC	Between	E8721	E8722	Or
Principal Diagnosis Code - EXCESS FLUID IN INFUSION - INCOR DILUT INFUSN FLUID	Between	E8730	E8731	Or
Principal Diagnosis Code - CONTAMINATED TRANSFUSION - CONTAMINATED DRUG NEC	Between	E8750	E8752	Or
Principal Diagnosis Code - MISMATCH BLOOD-TRANSFUSN - WRONG FLUID IN INFUSION	Between	E8760	E8761	

Readmission Number: 23 Kidney and Urinary Tract Infections

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - CHR PYELONEPHRITIS NOS - CHR PYELONEPH W MED NECR	Between	59000	59001	Or
Principal Diagnosis Code - AC PYELONEPHRITIS NOS - AC PYELONEPHR W MED NECR	Between	59010	59011	Or
Principal Diagnosis Code - RENAL/PERIRENAL ABSCESS - PYELOURETERITIS CYSTICA	Between	5902	5903	Or
Principal Diagnosis Code - PYELONEPHRITIS NOS - PYELONEPHRIT IN OTH DIS	Between	59080	59081	Or
Principal Diagnosis Code - INFECTION OF KIDNEY NOS	=	5909		Or
Principal Diagnosis Code - ACUTE CYSTITIS	=	5950		Or
Principal Diagnosis Code - CYSTITIS NOS	=	5959		Or
Principal Diagnosis Code - URETHRAL ABSCESS	=	5970		Or
Principal Diagnosis Code - URETHR STRICT:INFECT NOS - URETH STRICT:OTH INFECT	Between	59800	59801	Or
Principal Diagnosis Code - URIN TRACT INFECTION NOS	=	5990		

Readmission Number: 24 Osteomyelitis and Septic Arthritis

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - PYOGEN ARTHRITIS-UNSPEC - PYOGEN ARTHRITIS-MULT	Between	71100	71109	Or
Principal Diagnosis Code - BACT ARTHRITIS-UNSPEC - MYCOTIC ARTHRITIS-MULT	Between	71140	71169	Or
Principal Diagnosis Code - INF ARTHRITIS NEC-UNSPEC - INF ARTHRITIS NEC-MULT	Between	71180	71189	Or
Principal Diagnosis Code - AC OSTEOMYELITIS-UNSPEC - OSTEOMYELITIS NOS-MULT	Between	73000	73029	

Readmission Number: 25 Respiratory Complications

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Principal Diagnosis Code - SPONT TENS PNEUMOTHORAX - IATROGENIC PNEUMOTHORAX	Between	5120	5121	Or
Principal Diagnosis Code - SPONT PNEUMOTHORAX NEC	=	5128		Or
Principal Diagnosis Code - PULMONARY COLLAPSE	=	5180		Or
Principal Diagnosis Code - ACUTE LUNG EDEMA NOS - POST TRAUM PULM INSUFFIC	Between	5184	5185	Or
Principal Diagnosis Code - ACUTE RESPIRATRY FAILURE - OTHER PULMONARY INSUFF	Between	51881	51882	Or
Principal Diagnosis Code - ACUTE & CHRONC RESP FAIL	=	51884		Or
Principal Diagnosis Code - PRIMARY APNEA OF NEWBORN - OTHER RESPIRATORY PROBLEMS AFTER BIRTH	Between	77081	77089	

Readmission Number: 26 Obstetric Complications

Risk Group:

Comments: Testing on hold - will test in the future to determine if there are other ways to categorize OB complications.

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Obstetric Complications	=	G26		

Readmission Number: 27 Neonatal and Infant Conditions

Risk Group:

Comments:

Variable	Relational Operand	(From) Value	(To) Value	Logical Operand
Group - Neonatal and Infant Conditions	=	G28		