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HEALTHCARE COST AND UTILIZATION PROJECT

HCUP Methods Series

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INTRODUCTION

The present-on-admission (POA) indicator in hospital administrative data distinguishes medical conditions that are present when patients enter the hospital (i.e., comorbidities or pre-existing conditions) from those that first occur during the hospital stay (complications or in-hospital adverse events). This indicator improves the utility of administrative data for identifying patient safety events, improves risk-adjustment methodologies used for quality measurement, and enhances the measurement of hospital case-mix.

Hospitals use a standardized set of requirements and definitions to report the POA indicator on an inpatient billing record as specified in the National Uniform Billing Committee (NUBC) Official *UB-04 Data Specifications Manual* and the Centers for Medicare and Medicaid Services (CMS) *International Classification of Diseases, Ninth Revision, Clinical Modification* (*ICD-9-CM) Official Guidelines for Coding and Reporting*.[1] According to the NUBC manual, a diagnosis that is present on admission is defined as a condition that is present when the order for inpatient admission occurs, including conditions that develop during an outpatient encounter, such as an emergency department visit or outpatient surgery. POA indicators can be reported with principal and secondary diagnoses, in addition to external cause of injury codes.

In this report, we provide background on POA indicators, explore the coding of POA on the Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) in 2011, and discuss the development of hospital and discharge-level edits on the reporting of POA indicators. Flags for the POA edits have been added to the HCUP State Databases beginning in data year 2014.

The availability of POA indicators varies by State and data year. In data year 2005, only two HCUP States had POA indicators on their inpatient data. By data year 2010, over 30 States have POA indicators. The information on which States and data years include POA is available on the HCUP User Support Web site (www.hcup-us.ahrq.gov) under Database Documentation, Availability of Data Elements by Year, and the data element DXPOA. A list of the HCUP Partner Organizations is included in Appendix A.

BACKGROUND ON PRESENT ON ADMISSION INDICATORS

In 2006, Section 5001(c) of Deficit Reduction Act (DRA) required that CMS identify conditions that were: (a) high cost or high volume or both, (b) result in the assignment of a case to a Diagnosis Related Group (DRG) that has a higher payment when present as a secondary diagnosis, and (c) could reasonably have been prevented through the application of evidence-based guidelines. Beginning October 1, 2007, CMS required Inpatient Prospective Payment System (IPPS) hospitals to submit POA information on inpatient claims for both principal and secondary diagnoses. CMS used POA indicator data to deny higher payments associated with

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[1] The NUBC Data Specifications manual is not publicly available; it is only available by subscription. The CMS Coding Guidelines are available online at http://www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf (Accessed 4/5/2014).

complications or comorbidities that result from ten specified hospital-acquired conditions (HACs) that occurred during a hospital stay as of October 1, 2008.[2] In July 2011, CMS expanded nonpayment to the Medicaid program beyond the inpatient setting to outpatient visits but allowed States flexibility in how to verify Provider-Preventable Conditions (PPCs), whether through use of existing POA systems or another method.[3]

The importance of POA has prompted integration into software algorithms for hospital claims and discharge data, as seen with the Medicare-Severity Diagnostic Related Groups (MS-DRGs) and the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators (QIs). CMS incorporated the POA indicator in the MS-DRG version 26 grouping software (effective October 1, 2008) to support the new reimbursement policy related to HACs. AHRQ QIs use the POA indicator in its algorithms for identifying certain patient safety events and for risk adjustment of inpatient mortality.

Studies continue to demonstrate that the POA indicator is essential for accurate assessments of hospital quality when these evaluations are based on administrative data. However, because administrative data are increasingly being used for public reporting on hospital quality, researchers caution that using measures of quality without a POA indicator could inappropriately affect comparisons of institutions and determinations of pay-for-performance.

For an extensive literature review related to POA data published through 2011, please see the Healthcare Cost and Utilization Project (HCUP) Methods Series Report on *The Case for the POA Indicator: Update 2011.*[4] A few additional studies that have been published since 2011 are discussed here. For example, Dalton et al.[5] critiqued the Risk Stratification Index that was developed from Medicare data, which uses all diagnosis and procedure codes associated with each stay, but does not distinguish POA diagnoses from hospital-acquired diagnoses. Dalton et al. sought to develop and validate a risk index for in-hospital mortality using only POA diagnoses, principal procedures, and secondary procedures occurring before the date of the principal procedure (POARisk) and to compare hospital performance metrics obtained using the POARisk model with those obtained using a similarly derived model that ignored the timing of diagnoses and procedures (AllCodeRisk). Dalton et al. concluded that POA coding meaningfully improves hospital performance measurement and recommended that the POARisk model be used for risk adjustment when POA data are available.

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[2] CMS Hospital-Acquired Conditions (Present on Admission Indicator) Statute Regulations Program Instructions http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/Statute_Regulations_Program_Instructions.html (Accessed 4/5/2014)

[3] References to POA and Coding Systems are stated on page 32824 of the Federal Register: Centers for Medicare and Medicaid Services (CMS, 2011c). 42 Federal Register. 76(108): 32816-32838. June 6, 2011. (Search for at: http://www.gpoaccess.gov/fr/.)

[4] Kassed C, Kowlessar N, Pfunter A, Parlato J, Andrews RM. *The Case for the POA Indicator: Update 2011.* ONLINE November 1, 2011. U.S. Agency for Healthcare Research and Quality. Available: http://www.hcupus.ahrq.gov/reports/methods/methods.jsp.

[5] Dalton JE, Glance LG, Mascha EJ, Ehrlinger J, Chamoun N, Sessler DI. Impact of present-on-admission indicators on risk-adjusted hospital mortality measurement. Anesthesiology. 2013 Jun;118(6):1298-306.

Many studies have used POA information to investigate potential savings realized by modifying reimbursement of hospital stays involving complications and hospital-acquired conditions. Pre-screening strategies, diligent documentation, and improved guidelines for combination diagnosis codes are factors that can influence the accuracy of POA coding. Sufficient clinical detail and accurate coding are paramount for use of claims and administrative data to measure quality and identify patient safety events using POA. The accuracy of POA coding is increasingly the focus of quality studies that use administrative data, recognizing that without accurate reporting, the benefits of including POA cannot be achieved. For example, Cram et al.[6] used Medicare Part A data from 2008 to 2009 to examine POA coding for primary and revision total knee arthroplasty (TKA). There was no evidence that higher TKA volume hospitals or major teaching hospitals were more likely to accurately code POA data. Cram et al. concluded that POA coding can significantly enhance the value of Medicare data for evaluating TKA outcomes.

Other studies have explored the improvement of accuracy in POA data reporting. Fokkema et al.[7] evaluated the limitations of administrative data for assignment of symptom status and nonfatal perioperative outcomes, exploring specifically whether the introduction of the POA indicator improved outcome analysis of carotid endarterectomy (CEA) and carotid angioplasty and stenting (CAS) using administrative data. Fokkema et al. concluded that given the uncertain timing of POA events and its apparent underestimation of the perioperative stroke rate, the use of administrative data for detecting symptom status and nonfatal outcomes after CEA and CAS using POA indicators is limited.

Assessing the quality of POA data and potential areas for improvement in POA data reporting and processing is critical. Efforts to improve the accuracy of POA coding is likely to continue to be a focal point over the near term for researchers, hospitals, payers, and statewide data organizations interested in POA collection and use.

POA REPORTNG REQUIREMENTS

The CMS requirements for POA reporting include the following:[8]

- POA indicator reporting is mandatory for all claims involving inpatient admissions to general acute care hospitals or other facilities.
- POA is defined as present at the time the order for inpatient admission occurs. Conditions that develop during an outpatient encounter, including emergency department, observation, or outpatient surgery, are considered POA.

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[6] Cram P, Bozic KJ, Callaghan JJ, Lu X, Li Y. Use of Present-On-Admission Indicators for Complications After Total Knee Arthroplasty: An Analysis of Medicare Administrative Data. J Arthroplasty. 2013 Nov 8. pii: S0883-5403(13)00821-8. doi: 10.1016/j.arth.2013.11.002.

[7] Fokkema M, Hurks R, Curran T, Bensley RP, Hamdan AD, Wyers MC, Moll FL, Schermerhorn ML. The impact of the present on admission indicator on the accuracy of administrative data for carotid endarterectomy and stenting. J Vasc Surg. 2014 Jan;59(1):32-8.e1.

[8] CMS Hospital-Acquired Conditions (Present on Admission Indicator) Reporting http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/Reporting.html (Accessed 4/5/2014)

- A POA Indicator must be assigned to principal and secondary diagnoses and the external cause of injury codes. CMS does not require a POA Indicator for an external cause of injury code unless it is being reported as an "other diagnosis".
- Issues related to inconsistent, missing, conflicting, or unclear documentation must be resolved by the provider.

Hospitals Exempt from POA Reporting

CMS considers the following types of hospitals exempt from the POA reporting:[9]

1. Critical Access Hospitals
2. Long-term Care Hospitals
3. Maryland Waiver Hospitals (prior to October 2014)[10]
4. Cancer Hospitals
5. Children's Inpatient Facilities
6. Rural Health Clinics
7. Federally Qualified Health Centers
8. Religious Non-Medical Health Care Institutions
9. Inpatient Psychiatric Hospitals
10. Inpatient Rehabilitation Facilities
11. Veterans Administration/Department of Defense Hospitals.

Diagnoses Exempt from POA Reporting

The ICD-9-CM Official Guidelines for Coding and Reporting identifies diagnoses that are exempt from POA reporting for one of the following reasons: (1) they represent circumstances regarding the health care encounter, (2) they indicate factors influencing health status that do not represent a current disease or injury, or (3) they are always present on admission. Some examples of the exempt diagnosis codes include old myocardial infarction, normal delivery, congenital anomalies, "V" diagnosis codes indicating a history of disease, and external cause of injury codes specific to accidents. Appendix B includes the complete list of ICD-9-CM diagnosis codes that are exempt from POA reporting, as specified in the ICD-9-CM Official Guidelines for Coding and Reporting, Appendix I - Present on Admission Reporting Guidelines.[11]

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[9] CMS Hospital-Acquired Conditions (Present on Admission Indicator) Affected Hospitals http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/AffectedHospitals.html (Accessed 4/5/2014)

[10] CMS Transmittal 1380 One-Time Notification http://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/Downloads/R1380OTN.pdf (Accessed 6/9/2015)

[11] ICD-9-CM Official Guidelines for Coding and Reporting, Appendix I - Present on Admission Reporting Guidelines http://www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf (Accessed 4/5/2014)

POA Codes

Table 1 defines the POA reporting values specified by UB-04 Data Specifications Manual and used by CMS.[12]

Table 1. POA Codes and Descriptions

POA Code	Description
Y	Condition was present at the time of inpatient admission (i.e., acquired prior to admission to the hospital).
N	Condition was not present at the time of inpatient admission (i.e., acquired during hospital stay).
U	Documentation is insufficient to determine if condition is present on admission.
W	Clinically undetermined. Provider unable to clinically determine whether the condition was present at the time of inpatient admission.
1 or Blank	Diagnosis is exempt from POA reporting. On the 4010 electronic claim for CMS, a "1" is to be reported for exempt diagnoses. Effective July 1, 2011, POA is to be left blank for exempt diagnoses on the UB-04 form and the 5010 electronic claim.

Although not recognized by CMS or UB-04 coding guidelines, some HCUP Partner organizations use other values for exempt diagnoses. The California Office of Statewide Planning and Development[13] and the Maryland Health Services Cost Review Commission[14] specify the use of the value E for exempt diagnoses. The New York Statewide Planning and Research Cooperative System (SPARCS) recodes the standard values of 1 or blank to an X in their inpatient data set.[15]

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[12] CMS Hospital-Acquired Conditions (Present on Admission Indicator) Coding
http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/HospitalAcqCond/Coding.html
(Accessed 4/5/2014)
[13] California Office of Statewide Planning and Development, Patient Discharge Data, File Documentation, 2010-2012.
http://www.oshpd.ca.gov/HID/Data_Request_Center/documents/puf/PDD_PublicFileDocumentation_2010_2012.pdf (Accessed 4/11/2014)
[14] Maryland Health Care Commission, Medical Care Data Base, Data Base Submission Manual, 2014.
http://mhcc.dhmh.maryland.gov/payercompliance/Documents/mcdb_datsubman_2014.pdf (Accessed 4/11/2014)
[15] New York Statewide Planning and Research Cooperative System (SPARCS), Present on Admission Reporting, 2009-2012.
http://www.health.ny.gov/statistics/sparcs/reports/poa/sparcs_operations_poa_assessment_feb2014_final_02042014.pdf

HCUP STATE INPATIENT DATABASES USED TO EXAMINE POA INDICATORS IN 2011

To explore the coding of POA, we needed to limit the analysis to 2011 SID from 35 States that included POA indicators on principal and secondary diagnoses. We applied a set of hospital and discharge-level exclusions to the 35 SID in 2011 to create a POA analysis file that was consistently defined across States. Table 2 lists the exclusion criteria and the reason for which the exclusion was made.

Table 2. Exclusion Criteria Applied to the 35 State Inpatient Databases with POA Indicators, 2011

Exclusion	Reason for Exclusion
Hospital-Level Exclusions – All Discharges from the Hospital are Excluded	
1. Exclude noncommunity and rehabilitation hospitals.	Noncommunity and rehabilitation hospitals were excluded to focus the analysis on general acute care hospitals required to report.
2. Exclude hospitals exempt from reporting POA to CMS.	Hospitals exempt from reporting POA to CMS were excluded because we wanted to limit the analysis to a subset of hospitals with the best possibility of reporting POA.[16] Information from the American Hospital Association (AHA) Annual Survey was used to identify certain types of hospitals (e.g. critical access hospitals, cancer hospitals, children's facilities). It should be noted that although these hospitals were exempt from reporting POA to CMS, there may be State-specific mandates that require POA reporting. For example, all California and New York hospitals have been required to report POA since the mid 1990s.
3. Exclude hospitals with POA reported as present on admission (POA=Y) on all diagnoses on all discharges.	These hospitals were excluded because we suspected the coding of POA was inaccurate. It is unrealistic that all diagnoses on all discharges would be present on admission.
4. Exclude hospitals with POA reported as missing on all non-Medicare discharges in a hospital.	These hospitals were excluded because they were not reporting POA for discharges for other payers such as Medicaid, the privately insured, and the uninsured.

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[16] The one exception to this exclusion was that we retained Maryland waiver hospitals because while they are exempt from reporting to CMS, they are required by State mandate to report POA indicators.

Exclusion	Reason for Exclusion
5. Exclude hospitals with more than 20 percent of total discharges in the year missing POA on all nonexempt diagnoses.	These hospitals were excluded because we suspected the coding of POA was incomplete. POA is required on nonexempt diagnoses; it should not be missing.
Discharge-Level Exclusions	
6. Exclude discharges with POA missing on all nonexempt diagnoses.	These discharges were excluded because we were evaluating POA reporting on nonexempt diagnoses.
7. Exclude discharges with POA missing on all nonexempt secondary diagnoses.	These discharges were excluded because we were evaluating POA reporting on nonexempt diagnoses.

Final POA Analysis File

The 35 SID in 2011 included 30.3 million discharges from 4,537 hospitals (defined using the State-hospital identifier DSHOSPID). Twelve percent of all hospitals were excluded because they were noncommunity or rehabilitation hospitals. Twenty-seven percent of all hospitals were excluded because they were exempt from CMS reporting. Of the CMS exempt hospitals, 79.8 percent were critical access hospitals, 94.0 percent had less than 100 acute care beds, and 67.1 percent were located in nonmetropolitan areas. Two percent of all hospitals were excluded for other reasons (i.e., exclusions 3-5).   Although 41.2 percent of all hospitals in the 35 SID were excluded, only 8.7 percent of the discharges were excluded.

The final POA analysis file included 27.7 million discharges from 2,421 hospitals in 2011 (47.2 percent of all community, non-rehabilitation hospitals in the United States). The following highlights some differences in hospital characteristics between the POA analysis file and all community, non-rehabilitation hospitals in the United States:

- The POA analysis file had proportionally more hospitals from the Northeast (19.5 percent in the POA analysis file and 12.3 percent in the U.S.).
- The POA analysis file had proportionally less hospitals from the Midwest (20.7 percent in the POA analysis file and 29.2 percent in the US).
- The POA analysis file had proportionally more general medical/surgical hospitals (97.7 percent in the POA analysis file and 89.4 percent in the US).
- The POA analysis file had proportionally more teaching hospitals (26.8 percent in the POA analysis file and 18.0 percent in the US).
- The POA analysis file had proportionally less hospitals with less than 100 acute care beds (31.6 percent in the POA analysis file and 56.4 percent in the US).
- The POA analysis file had proportionally less public hospitals (11.5 percent in the POA analysis file and 20.6 percent in the US).

- The POA analysis file had proportionally less hospitals located in nonmetropolitan areas (22.3 percent in the POA analysis file and 39.8 percent in the US).

The 27.7 discharges included 248.7 million ICD-9-CM diagnosis codes. Figure 1 shows the distribution of diagnosis codes nonexempt and exempt from POA reporting by principal and secondary diagnoses. If a discharge had more than one diagnosis, then each diagnosis was counted separately, including external cause of injury codes (E Codes).

Figure 1. Percentage of Principal and Secondary Diagnoses that are Exempt and Nonexempt from Having Present on Admission (POA) Indicators Reported
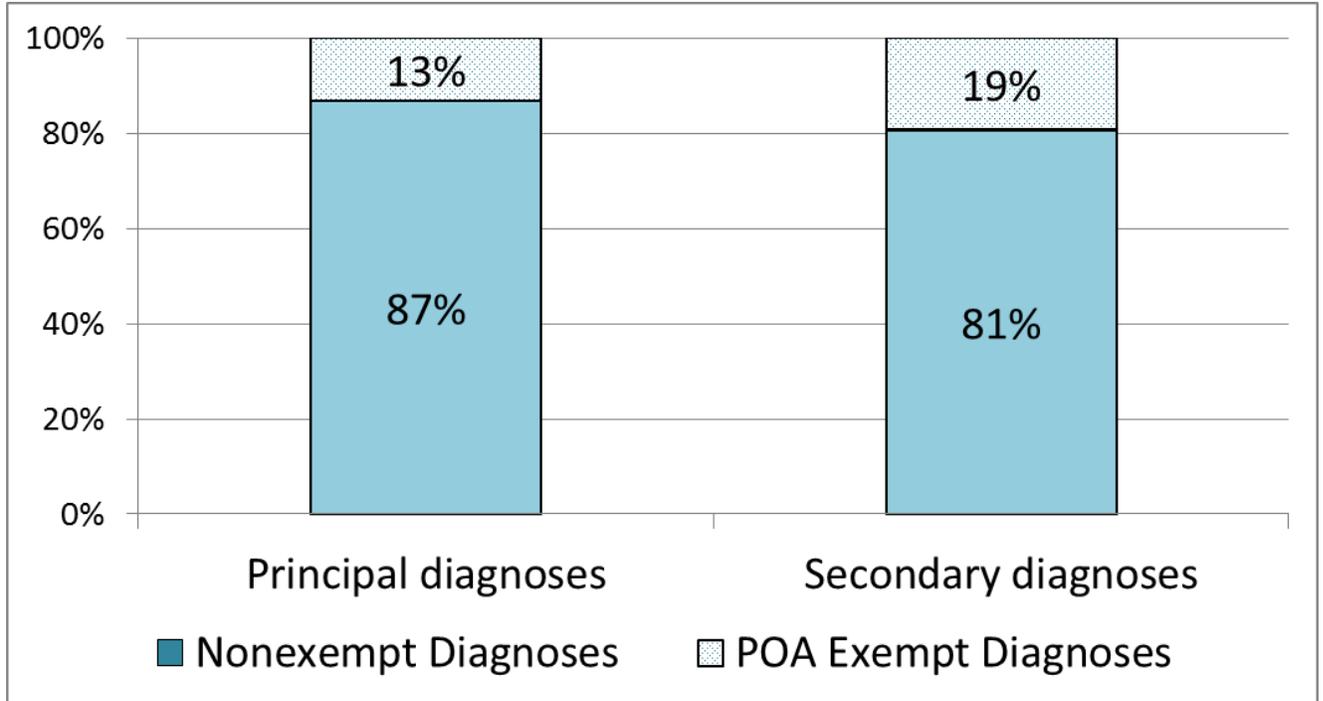
Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

NONEXEMPT DIAGNOSES: REPORTING OF PRESENT ON ADMISSION INDICATORS

The following section examines the coding of POA on diagnoses that are nonexempt for reporting (i.e., CMS requires POA to be reported). Table 3 lists the percentage of nonexempt diagnoses by the different POA values and for all, principal, and secondary diagnoses separately. Across all nonexempt diagnoses (90.3 percent) were reported as present on admission (POA=Y). Most of the remaining nonexempt diagnosis (8.3 percent) were reported as not present on admission (POA=N). A small percentage of nonexempt diagnoses (1.0 percent) had POA values expected on *exempt* diagnosis (POA=1 or blank).

Table 3. Coding of POA on Nonexempt Diagnoses by Position

POA Indicator	POA Value	Percentage of Nonexempt Diagnoses		
		All Diagnoses	Principal Diagnoses	Secondary Diagnoses
Present on admission	POA=Y	90.3	97.0	89.4
Not present on admission	POA=N	8.3	2.6	9.1
Insufficient documentation	POA=U	0.2	0.2	0.2
Clinically undetermined	POA=W	0.1	0.2	0.1
Codes expected on exempt diagnoses, but reported on nonexempt diagnoses	POA=1, blank, or other State-specific values	1.0	0.1	1.1

Abbreviations: POA, present on admission
Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

The percentages for the different values of POA varied by whether the nonexempt diagnosis was a principal or secondary code (Table 3). More nonexempt principal diagnosis were reported as present on admission (POA=Y) than secondary diagnoses (97.0 percent versus 89.4 percent). Less nonexempt principal diagnosis were reported as *not* present on admission (POA=N) than secondary diagnoses (2.6 percent versus 9.1 percent).

We also examined whether the coding of POA on nonexempt diagnoses changed by the position in the array. The principal diagnosis is in position 1, the first secondary diagnosis is in position two, the next secondary diagnosis is in position three, and so on for a total of 30 diagnoses, excluding E Codes. Table 4 lists the coding of POA on nonexempt diagnoses by position. Nonexempt diagnoses later in the array as less likely to have POA reported as present on admission (POA=Y) and more likely to have POA reported as not present on admission (POA=N).

Table 4. Coding of POA on Nonexempt Diagnoses by Position

Position of Diagnosis	Total number of nonexempt diagnoses	Percentage of nonexempt diagnoses					
		POA=Y Present on admission	POA=N Not present on admission	POA=W clinically undetermined	POA=U Insufficient documentation	POA= Blank	POA=1 or State-specific value for exempt
1	24,002,667	97.0	2.6	0.1	0.2	0.0	0.1
2	23,126,299	88.6	11.0	0.1	0.2	0.0	0.1
3	20,988,787	90.0	9.6	0.1	0.2	0.0	0.1
4	18,919,771	91.1	8.4	0.1	0.2	0.0	0.1
5	16,886,491	91.8	7.8	0.1	0.2	0.0	0.1
6	14,899,982	92.1	7.4	0.1	0.2	0.0	0.1
7	13,032,982	92.3	7.3	0.1	0.2	0.1	0.1
8	11,295,991	92.3	7.3	0.1	0.2	0.1	0.1
9	9,701,779	92.2	7.4	0.0	0.2	0.1	0.1
10	8,082,014	92.0	7.6	0.0	0.2	0.0	0.1
11	6,866,618	91.7	8.0	0.0	0.2	0.0	0.1
12	5,788,361	91.2	8.4	0.0	0.2	0.0	0.1
13	4,856,724	90.7	8.9	0.0	0.2	0.0	0.1
14	4,035,178	90.1	9.6	0.0	0.2	0.0	0.1
15	3,324,952	89.4	10.3	0.0	0.3	0.0	0.1
16	2,469,492	88.4	11.1	0.0	0.3	0.1	0.1
17	2,027,678	87.5	12.0	0.0	0.3	0.1	0.1
18	1,661,866	86.6	12.9	0.0	0.3	0.1	0.1
19	1,118,513	85.9	13.6	0.0	0.2	0.1	0.1
20	913,863	85.0	14.6	0.0	0.2	0.1	0.1
21	734,695	83.8	15.7	0.0	0.2	0.1	0.2
22	595,452	82.7	16.8	0.0	0.2	0.1	0.1
23	477,405	81.7	17.8	0.0	0.2	0.1	0.1
24	382,476	80.5	19.0	0.0	0.2	0.1	0.1
25	288,645	79.2	19.9	0.0	0.3	0.5	0.1
26	107,004	77.8	21.6	0.0	0.3	0.1	0.2
27	87,730	76.6	22.7	0.0	0.3	0.1	0.2
28	70,820	75.5	23.9	0.0	0.3	0.1	0.2
29	55,486	74.2	25.1	0.0	0.3	0.1	0.2
30	41,391	72.4	26.9	0.0	0.4	0.1	0.2

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Nonexempt Diagnoses: Reported as Present on Admission

The following section examines which nonexempt diagnoses were coded as present on admission (POA=Y). These conditions were identified as being acquired prior to admission to the hospital.   The first table (Table 5) is based on *principal* diagnoses; the second table (Table 6) is based on *secondary* diagnoses. Table 5 lists the top 15 nonexempt principal diagnoses defined by the highest percentage reported as present on admission with at least 50,000 diagnoses. The list is sorted by the descending percentage.

Table 5. Top 15 Nonexempt Principal Diagnoses Reported as Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = Y with at Least 50,000 Diagnoses)

Nonexempt Principal Diagnoses	Total number of diagnoses	Number of diagnoses with POA = Y	Percentage of diagnoses with POA = Y
185: Malignant neoplasm of prostate	68,961	68,824	99.8
71535: Osteoarthrosis, localized, not specified whether primary or secondary, pelvic region and thigh	146,247	145,959	99.8
28262: Hb-SS disease with crisis	54,968	54,846	99.8
71536: Osteoarthrosis, localized, not specified whether primary or secondary, lower leg	326,877	326,021	99.7
34590: Epilepsy, unspecified, without mention of intractable epilepsy	72,788	72,586	99.7
72210: Displacement of lumbar intervertebral disc without myelopathy	94,328	94,067	99.7
99859: Other postoperative infection	105,547	105,252	99.7
43310: Occlusion and stenosis of carotid artery without mention of cerebral infarction	81,675	81,437	99.7
4019: Unspecified essential hypertension	51,933	51,775	99.7
2189: Leiomyoma of uterus, unspecified	72,880	72,651	99.7
7802: Syncope and collapse	176,834	176,257	99.7
5609: Unspecified intestinal obstruction	108,341	107,986	99.7
72402: Spinal stenosis, lumbar region, without neurogenic claudication	62,305	62,091	99.7
6826: Cellulitis and abscess of leg, except foot	208,848	208,135	99.7
49392: Asthma, unspecified type, with (acute) exacerbation	115,150	114,768	99.7

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 6 lists the top 15 nonexempt secondary diagnoses defined by the highest percentage reported as present on admission with at least 50,000 diagnoses. The list is sorted by the descending percentage.

Table 6. Top 15 Nonexempt Secondary Diagnoses Reported as Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = Y with at Least 50,000 Diagnoses)

Nonexempt Secondary Diagnoses	Total number of diagnoses	Number of diagnoses with POA = Y	Percentage of diagnoses with POA = Y
042: Human immunodeficiency virus [HIV] disease	73,919	73,736	99.8
25040: Diabetes with renal manifestations, type II or unspecified type, not stated as uncontrolled	287,025	286,288	99.7
25050: Diabetes with ophthalmic manifestations, type II or unspecified type, not stated as uncontrolled	118,195	117,865	99.7
07054: Chronic hepatitis C without mention of hepatic coma	171,359	170,821	99.7
30501: Alcohol abuse, continuous	90,715	90,418	99.7
44381: Peripheral angiopathy in diseases classified elsewhere	51,209	51,018	99.6
5712: Alcoholic cirrhosis of liver	157,090	156,502	99.6
36201: Background diabetic retinopathy	157,640	157,065	99.6
76621: Post-term infant	77,302	77,001	99.6
30391: Other and unspecified alcohol dependence, continuous	206,056	205,260	99.6
3694: Legal blindness, as defined in U.S.A.	65,415	65,156	99.6
4142: Chronic total occlusion of coronary artery	99,820	99,423	99.6
4400: Atherosclerosis of aorta	69,347	69,066	99.6
76518: Other preterm infants, 2,000-2,499 grams	76,565	76,262	99.6
1977: Malignant neoplasm of liver, secondary	185,961	185,212	99.6

Abbreviations: POA, present on admission
Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Nonexempt Diagnoses: Reported as Not Present on Admission

The following section examines which nonexempt diagnoses were coded as not present on admission (POA=N). Table 7a and 7b are based on *principal* diagnoses and Table 8a and 8b are based on *secondary* diagnoses.

Table 7a lists the top 15 nonexempt principal diagnoses defined by the highest percentage reported as not present on admission with at least 10,000 diagnoses. Table 7b is similar to Table 7a, but excludes maternal and neonatal diagnoses included in the Clinical Classifications Software categories 176-196 (maternal) and 218-224 (neonatal).[17] Both lists are sorted by the descending percentage.

Table 7a. Top 15 Nonexempt Principal Diagnoses Reported as Not Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = N with at Least 10,000 Diagnoses)

Nonexempt Principal Diagnoses	Total number of diagnoses	Number of diagnoses with POA = N	Percentage of diagnoses with POA = N
66411: Second-degree perineal laceration, delivered, with or without mention of antepartum condition	229,733	183,562	79.9
66481: Other specified trauma to perineum and vulva, delivered, with or without mention of antepartum condition	27,935	22,299	79.8
66421: Third-degree perineal laceration, delivered, with or without mention of antepartum condition	19,521	15,462	79.2
66541: High vaginal laceration, delivered, with or without mention of antepartum condition	10,035	7,938	79.1
66401: First-degree perineal laceration, delivered, with or without mention of antepartum condition	211,004	163,306	77.4
66951: Forceps or vacuum extractor delivery without mention of indication, delivered, with or without mention of antepartum condition	10,039	5,673	56.5
66111: Secondary uterine inertia, delivered, with or without mention of antepartum condition	37,007	18,816	50.8
66101: Primary uterine inertia, delivered, with or without mention of antepartum condition	28,789	13,437	46.7
66121: Other and unspecified uterine inertia, delivered, with or without mention of antepartum condition	24,961	10,899	43.7
65971: Abnormality in fetal heart rate or rhythm, delivered, with or without mention of antepartum condition	145,397	61,206	42.1
66041: Shoulder (girdle) dystocia, delivered, with or without mention of antepartum condition	11,357	3,892	34.3
66131: Precipitate labor, delivered, with or without mention of antepartum condition	29,914	6,845	22.9
65681: Other specified fetal and placental problems, affecting management of mother, delivered, with or without mention of antepartum condition	11,966	2,251	18.8

[17] HCUP Clinical Classifications Software (CCS). Healthcare Cost and Utilization Project (HCUP). U.S. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/toolssoftware/ccs/ccs.jsp. Accessed July 11, 2015.

Nonexempt Principal Diagnoses	Total number of diagnoses	Number of diagnoses with POA = N	Percentage of diagnoses with POA = N
65251: High head at term, delivered, with or without mention of antepartum condition	12,340	2,204	17.9
66001: Obstruction caused by malposition of fetus at onset of labor, delivered, with or without mention of antepartum condition	12,145	1,443	11.9

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 7b. Top 15 Nonexempt Principal Diagnoses (Excluding Maternal and Neonatal Diagnoses) Reported as Not Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = N with at Least 10,000 Diagnoses)

Nonexempt Principal Diagnoses (Excluding Maternal and Neonatal Diagnoses)	Total number of diagnoses	Number of diagnoses with POA = N	Percentage of diagnoses with POA = N
25082: Diabetes with other specified manifestations, type II or unspecified type, uncontrolled	29,677	351	1.2
2910: Alcohol withdrawal delirium	24,966	247	1.0
33818: Other acute postoperative pain	11,105	109	1.0
25062: Diabetes with neurological manifestations, type II or unspecified type, uncontrolled	19,498	155	0.8
29181: Alcohol withdrawal	85,437	675	0.8
45829: Other iatrogenic hypotension	11,105	72	0.6
41091: Acute myocardial infarction of unspecified site, initial episode of care	19,280	121	0.6
99811: Hemorrhage complicating a procedure	25,545	157	0.6
99812: Hematoma complicating a procedure	17,959	102	0.6
3310: Alzheimer's disease	37,140	209	0.6
29660: Bipolar I disorder, most recent episode (or current) mixed, unspecified	15,558	84	0.5
64841: Mental disorders of mother, delivered, with or without mention of antepartum condition	11,153	58	0.5
51884: Acute and chronic respiratory failure	83,826	406	0.5
5845: Acute kidney failure with lesion of tubular necrosis	25,368	117	0.5
9974: Digestive system complications not elsewhere classified	27,464	123	0.4

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 8a lists the top 15 nonexempt secondary diagnoses defined by the highest percentage reported as not present on admission with at least 10,000 diagnoses. Table 8b is similar to Table 8a, but excludes maternal and neonatal diagnoses. Both lists are sorted by the descending percentage.

Table 8a. Top 15 Nonexempt Secondary Diagnoses Reported as Not Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = N with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses	Total number of diagnoses	Number of diagnoses with POA = N	Percentage of diagnoses with POA = N
67482: Other complications of puerperium, delivered, with mention of postpartum complication	16,882	16,383	97.0
66612: Other immediate postpartum hemorrhage, delivered, with mention of postpartum complication	61,932	59,777	96.5
67202: Pyrexia of unknown origin during the puerperium, delivered, with mention of postpartum complication	10,026	9,547	95.2
66982: Other complications of labor and delivery, delivered, with mention of postpartum complication	12,411	11,761	94.8
64822: Anemia of mother, delivered, with mention of postpartum complication	131,867	123,682	93.8
9971: Cardiac complications, not elsewhere classified	77,656	72,616	93.5
64892: Other current conditions classifiable elsewhere of mother, delivered, with mention of postpartum complication	25,410	23,327	91.8
99702: Iatrogenic cerebrovascular infarction or hemorrhage	11,185	10,260	91.7
34931: Accidental puncture or laceration of dura during a procedure	14,530	13,287	91.4
99739: Other respiratory complications	46,989	42,779	91.0
66421: Third-degree perineal laceration, delivered, with or without mention of antepartum condition	27,517	24,675	89.7
9982 : Accidental puncture or laceration during a procedure, not elsewhere classified	50,566	45,261	89.5
66411: Second-degree perineal laceration, delivered, with or without mention of antepartum condition	255,851	227,673	89.0
66481: Other specified trauma to perineum and vulva, delivered, with or without mention of antepartum condition	65,933	58,179	88.2
66401: First-degree perineal laceration, delivered, with or without mention of antepartum condition	240,913	211,840	87.9

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 8b. Top 15 Nonexempt Secondary Diagnoses (Excluding Maternal and Neonatal Diagnoses) Reported as Not Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = N with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnosis (Excluding Maternal and Neonatal Diagnoses)	Total number of diagnoses	Number of diagnoses with POA = N	Percentage of diagnoses with POA = N
9971: Cardiac complications, not elsewhere classified	77,656	72,616	93.5
99702: Iatrogenic cerebrovascular infarction or hemorrhage	11,185	10,260	91.7
34931: Accidental puncture or laceration of dura during a procedure	14,530	13,287	91.4
99739: Other respiratory complications	46,989	42,779	91.0
9982: Accidental puncture or laceration during a procedure, not elsewhere classified	50,566	45,261	89.5
78062: Postprocedural fever	55,051	48,140	87.4
5121: Iatrogenic pneumothorax	42,160	36,778	87.2
99811: Hemorrhage complicating a procedure	68,570	58,995	86.0
99749: Other digestive system complications	26,545	22,775	85.8
9974: Digestive system complications not elsewhere classified	84,281	71,728	85.1
9992: Other vascular complications of medical care, not elsewhere classified	10,966	9,161	83.5
51851: Acute respiratory failure following trauma and surgery	30,445	24,998	82.1
5185: Pulmonary insufficiency following trauma and surgery	111,856	90,531	80.9
9975: Urinary complications, not elsewhere classified	38,776	31,184	80.4
2939: Unspecified transient mental disorder in conditions classified elsewhere	10,437	8,262	79.2

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Nonexempt Diagnoses: Reported with the Present on Admission Indicator Coded as Insufficient Documentation

The following section examines nonexempt secondary diagnoses coded with the POA indicator as documentation is insufficient to determine if condition is present on admission (POA=U). Table 9a and 9b list the top 15 nonexempt secondary diagnoses defined by the highest percentage reported as having insufficient documentation to report the condition as present on admission with at least 10,000 diagnoses. Table 9b is similar to Table 9a, but excludes maternal and neonatal diagnoses. Both lists are sorted by the descending percentage.

Table 9a. Top 15 Nonexempt Secondary Diagnoses Reported as Having Insufficient Documentation to Report the Condition as Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = U with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses	Total number of diagnoses	Number of diagnoses with POA = U	Percentage of diagnoses with POA = U
66331: Other and unspecified cord entanglement, without mention of compression, complicating labor and delivery, delivered, with or without mention of antepartum condition	385,146	33,100	8.6
66321: Other and unspecified cord entanglement, with compression, complicating labor and delivery, delivered, with or without mention of antepartum condition	28,148	2,250	8.0
66311: Cord around neck, with compression, complicating labor and delivery, delivered, with or without mention of antepartum condition	91,484	6,406	7.0
7923: Nonspecific abnormal findings in amniotic fluid	48,083	2,897	6.0
65681: Other specified fetal and placental problems, affecting management of mother, delivered, with or without mention of antepartum condition	54,308	2,097	3.9
65281: Other specified malposition or malpresentation, delivered, with or without mention of antepartum condition	30,982	934	3.0
66031: Deep transverse arrest and persistent occipitoposterior position, delivered, with or without mention of antepartum condition	19,577	538	2.7
66381: Other umbilical cord complications complicating labor and delivery, delivered, with or without mention of antepartum condition	18,835	436	2.3
65231: Transverse or oblique presentation, delivered, with or without mention of antepartum condition	13,319	227	1.7
79415: Nonspecific abnormal auditory function studies	27,553	464	1.7
E912: Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	16,744	252	1.5
66041: Shoulder (girdle) dystocia, delivered, with or without mention of antepartum condition	29,195	433	1.5
64121: Premature separation of placenta, delivered, with or without mention of antepartum condition	17,869	265	1.5
29633: Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	26,924	379	1.4
E915: Foreign body accidentally entering other orifice	32,380	434	1.3

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 9b. Top 15 Nonexempt Secondary Diagnoses (Excluding Maternal and Neonatal Diagnoses) Reported as Having Insufficient Documentation to Report the Condition as Present on Admission (Based on Percentage of the Nonexempt Diagnoses with POA = U with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses (Excluding Maternal and Neonatal Diagnoses)	Total number of diagnoses	Number of diagnoses with POA = U	Percentage of diagnoses with POA = U
79415: Nonspecific abnormal auditory function studies	27,553	464	1.7
E912: Inhalation and ingestion of other object causing obstruction of respiratory tract or suffocation	16,744	252	1.5
29633: Major depressive affective disorder, recurrent episode, severe, without mention of psychotic behavior	26,924	379	1.4
E915: Foreign body accidentally entering other orifice	32,380	434	1.3
E8799: Unspecified procedure as the cause of abnormal reaction of patient, or of later complication, without mention of misadventure at time of procedure	13,940	165	1.2
3129: Unspecified disturbance of conduct	13,752	148	1.1
31230: Impulse control disorder, unspecified	12,935	135	1.0
4556: Unspecified hemorrhoids without mention of complication	54,757	562	1.0
78907: Abdominal pain, generalized	11,369	111	1.0
71598: Osteoarthrosis, unspecified whether generalized or localized, other specified sites	16,112	154	1.0
2752: Disorders of magnesium metabolism	570,925	5,428	1.0
3019: Unspecified personality disorder	56,198	508	0.9
3099: Unspecified adjustment reaction	17,530	153	0.9
2753: Disorders of phosphorus metabolism	285,471	2,448	0.9
29411: Dementia in conditions classified elsewhere with behavioral disturbance	71,011	590	0.8

Abbreviations: POA, present on admission
Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Nonexempt Diagnoses: Reported with the Present on Admission Indicator Coded as Clinically Undetermined

The following section examines nonexempt diagnoses coded with the POA indicator as clinically undetermined (POA=W). Table 10a and 10b list the top 15 nonexempt secondary diagnoses defined by the highest percentage with POA reported as clinically undetermined with at least 10,000 diagnoses. Table 10b is similar to Table 10a, but excludes maternal and neonatal diagnoses. Both lists are sorted by the descending percentage.

Table 10a. Top 15 Nonexempt Secondary Diagnoses Reported as Clinically Undetermined (Based on Percentage of the Nonexempt Diagnoses with POA = W with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses	Total number of diagnoses	Number of diagnoses with POA = W	Percentage of diagnoses with POA = W
66331: Other and unspecified cord entanglement, without mention of compression, complicating labor and delivery, delivered, with or without mention of antepartum condition	385,146	43,034	11.2
66311: Cord around neck, with compression, complicating labor and delivery	91,484	10,210	11.2
66321: Other and unspecified cord entanglement, with compression, complicating labor and delivery, delivered, with or without mention of antepartum condition	28,148	2,900	10.3
66381: Other umbilical cord complications complicating labor and delivery, delivered, with or without mention of antepartum condition	18,835	970	5.1
7923 : Nonspecific abnormal findings in amniotic fluid	48,083	1,923	4.0
66031: Deep transverse arrest and persistent occipitoposterior position, delivered, with or without mention of antepartum condition	19,577	566	2.9
65281: Other specified malposition or malpresentation, delivered, with or without mention of antepartum condition	30,982	820	2.6
65231: Transverse or oblique presentation, delivered, with or without mention of antepartum condition	13,319	253	1.9
65681: Other specified fetal and placental problems, affecting management of mother, delivered, with or without mention of antepartum condition	54,308	965	1.8
3009 : Unspecified nonpsychotic mental disorder	24,002	397	1.7
7626 : Other and unspecified conditions of umbilical cord affecting fetus or newborn	16,091	154	1.0
34291: Hemiplegia, unspecified, affecting dominant side	10,135	97	1.0
64121: Premature separation of placenta, delivered, with or without mention of antepartum condition	17,869	170	1.0
65251: High head at term, delivered, with or without mention of antepartum condition	29,957	268	0.9
66041: Shoulder (girdle) dystocia, delivered, with or without mention of antepartum condition	29,195	247	0.8

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Table 10b. Top 15 Nonexempt Secondary Diagnoses (Excluding Maternal and Neonatal Diagnoses) Reported as Clinically Undetermined (Based on Percentage of the Nonexempt Diagnoses with POA = W with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses (Excluding Maternal and Neonatal Diagnoses)	Total number of diagnoses	Number of diagnoses with POA = W	Percentage of diagnoses with POA = W
3009: Unspecified nonpsychotic mental disorder	24,002	397	1.7
34291: Hemiplegia, unspecified, affecting dominant side	10,135	97	1.0
3017: Antisocial personality disorder	25,980	172	0.7
30410: Sedative, hypnotic or anxiolytic dependence, unspecified	22,900	122	0.5
45342: Acute venous embolism and thrombosis of deep vessels of distal lower extremity	64,020	321	0.5
29632: Major depressive affective disorder, recurrent episode, moderate	17,438	83	0.5
0389: Unspecified septicemia	221,209	1,011	0.5
3129: Unspecified disturbance of conduct	13,752	61	0.4
30430: Cannabis dependence, unspecified	28,290	121	0.4
7812: Abnormality of gait	260,270	1,101	0.4
29284: Drug-induced mood disorder	20,722	87	0.4
30480: Combinations of drug dependence excluding opioid type drug, unspecified	14,315	55	0.4
30540: Sedative, hypnotic or anxiolytic abuse, unspecified	24,221	89	0.4
30183: Borderline personality disorder	71,778	248	0.3
43491: Cerebral artery occlusion, unspecified with cerebral infarction	63,556	216	0.3

Abbreviations: POA, present on admission

Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

Nonexempt Diagnoses: Reported without a Present on Admission Indicator

The following section examines nonexempt secondary diagnoses coded without a POA indicator (POA=blank). Because these codes are nonexempt from reporting, they should have a value of POA. Table 11 lists the top 15 nonexempt secondary diagnoses defined by the highest percentage with POA reported as blank with at least 10,000 diagnoses. The list is sorted by the descending percentage.

Table 11. Top 15 Nonexempt Secondary Diagnoses without POA Indicators (Based on Percentage of the Nonexempt Diagnoses with POA = blank with at Least 10,000 Diagnoses)

Nonexempt Secondary Diagnoses	Total number of diagnoses	Number of diagnoses with POA = blank	Percentage of diagnoses with POA = blank
E966: Assault by cutting and piercing instrument	15,102	7,509	49.7
E8497: Accidents occurring in residential institution	539,327	251,895	46.7
E9600: Unarmed fight or brawl	22,710	9,401	41.4
E8799: Unspecified procedure as the cause of abnormal reaction of patient, or of later complication, without mention of misadventure at time of procedure	13,940	5,735	41.1
E8888: Other fall	73,419	29,764	40.5
E8543: Accidental poisoning by central nervous system stimulants	11,626	4,706	40.5
E9689: Assault by unspecified means	10,334	4,158	40.2
E8791: Kidney dialysis as the cause of abnormal reaction of patient, or of later complication, without mention of misadventure at time of procedure	37,930	14,876	39.2
E8785: Amputation of limb(s) causing abnormal patient reaction, or later complication, without mention of misadventure at time of operation	21,829	8,508	39.0
E8788: Other specified surgical operations and procedures causing abnormal patient reaction, or later complication, without mention of misadventure at time of operation	274,802	105,945	38.5
E9289: Unspecified accident	108,474	40,532	37.4
E9208: Accidents caused by other specified cutting and piercing instruments or objects	14,432	5,371	37.2
E8786: Removal of other organ (partial) (total) causing abnormal patient reaction, or later complication, without mention of misadventure at time of operation	79,542	29,576	37.2
E8780: Surgical operation with transplant of whole organ causing abnormal patient reaction, or later complication, without mention of misadventure at time of operation	54,034	20,088	37.2
E8783: Surgical operation with formation of external stoma causing abnormal patient reaction, or later complication, without mention of misadventure at time of operation	27,554	10,052	36.5

Abbreviations: POA, present on admission
Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

EXEMPT DIAGNOSES: REPORTING OF PRESENT ON ADMISSION INDICATORS

The following section examines the coding of the POA indicator on exempt diagnoses. As explained in the previous section on POA Coding, the specifications on what values should be used vary by submission form and payer.

- On the 4010 electronic claim for CMS, a value of "1" is to be used when reporting POA for exempt diagnoses.
- On the UB-04 form and the 5010 electronic claim, the POA indicator is to be left blank for exempt diagnoses (effective July 1, 2011).
- Some organizations such the Maryland Health Services Cost Review Commission and the California Office of Statewide Planning and Development (OSHPD) specify the use of the value "E" when reporting POA exempt diagnoses.
- The New York State Statewide Planning and Research Cooperative System (SPARCS) uses the value of X when reporting POA exempt diagnoses.

Table 12 lists the percentage of exempt diagnoses by the different POA values and for all, principal, and secondary diagnoses separately. The majority of exempt diagnoses (77.7 percent) included a nonblank POA value specific to exempt diagnoses (i.e., the value 1 or other State-defined codes). Almost 20 percent (18.7 percent) of the exempt diagnosis codes had a blank value for POA, which is a valid value. A small percentage of exempt diagnoses (3.6 percent) had POA values expected on *nonexempt* diagnoses (POA=Y, N, U, and W).

Table 12. Coding of POA on Exempt Diagnoses by Position

POA Indicator	POA Value	Percentage of Exempt Diagnoses		
		All Diagnoses	Principal Diagnoses	Secondary Diagnoses
Codes Expected on Exempt Diagnoses				
Nonblank values	POA=1 or other State-specific values	77.7	72.3	78.1
Blank value	POA = blank	18.7	16.8	18.9
Codes Not Expected on Exempt Diagnoses				
Present on admission	POA=Y	1.9	9.2	1.3
Not present on admission	POA=N	0.3	0.2	0.3
Insufficient documentation	POA=U	1.0	1.0	1.1
Clinically undetermined	POA=W	0.3	0.5	0.3

Abbreviations: POA, present on admission
Source: POA analysis file constructed from the HCUP State Inpatient Databases (SID), 35 States with POA indicators, 2011

The percentages for the different values of POA varied by whether the nonexempt diagnosis was a principal or secondary code (Table 12). Nine percent of exempt principal diagnosis were reported as present on admission (POA=Y) even though the exempt diagnosis does not require that POA be reported.

PRESENT ON ADMISSION INDICATOR COMPARED TO THE CHRONIC CONDITIONS INDICATOR

As a sensitivity test, we examined the coding of POA on chronic conditions identified by the Chronic Conditions Indicator.[18] Because chronic conditions are often persistent and long-term, we would expect a high rate of chronic conditions to be reported as present on admission. Of the 117.5 million nonexempt diagnoses that were identified as a chronic condition, 96.8 percent of the diagnosis were reported as present on admission (POA=Y).

SUMMARY OF THE ANALYSIS ON THE REPORTING OF PRESENT ON ADMISSION INDICATORS IN THE 2011 STATE INPATIENT DATABASES

Based on this analysis, the coding of POA on nonexempt diagnoses seemed reasonable for the discharges in the POA analysis file. Almost all nonexempt diagnoses (98.7 percent) were coded as present on admission (POA=Y) or not present on admission (POA=N). The diagnoses most frequently coded as present on admission and as not present on admission were plausible from a clinical standpoint. At least 95 of all exempt diagnoses were coded with valid values of POA (POA=1, blank, or a State-specific code). Additionally, the average percentage of chronic conditions coded as present on admission was 96.8 percent.

This analysis was limited by the following:

- We used data from 35 States and 2,421 hospitals in 2011 (47.2 percent of all community, non-rehabilitation hospitals in the United States).
- We had excluded hospitals that were exempt from reporting POA to CMS from all States. These hospitals may in fact have good reporting of POA if there is a State mandate for reporting.
- After the exclusion of hospitals exempt from reporting POA, the POA analysis file had proportionally more general medical/surgical hospitals (97.7 percent in the POA analysis file and 89.4 percent in the U.S.), more teaching hospitals (26.8 percent in the POA analysis file and 18.0 percent in the US), less hospitals with fewer than 100 acute care beds (31.6 percent in the POA analysis file and 56.4 percent in the US), less public hospitals (11.5 percent in the POA analysis file and 20.6 percent in the US), and less hospitals located in nonmetropolitan areas (22.3 percent in the POA analysis file and 39.8 percent in the US).

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[18] Additional information about the Chronic Condition Indicators is available on the HCUP User Support Web site at https://www.hcup-us.ahrq.gov/toolssoftware/chronic/chronic.jsp (Accessed 4/5/2014)

CODING EDITS FOR PRESENT ON ADMISSION INDICATORS ADDED TO THE HCUP STATE DATABASES IN 2014

To facilitate the selection of HCUP data to use in analyses dependent on POA, HCUP has added to the HCUP State databases the indicator flags for the POA coding edits used for this study. These POA edit flags will identify hospitals and discharges for which the coding of POA was incomplete. It should be noted that these edits do not address the accuracy of the coding of POA.

Starting with 2014 data, the following POA edit flags are available on the HCUP State Databases:

- Discharge-level coding edits
    - Discharge is missing POA on all nonexempt principal diagnoses when the data element POA_DISCH_EDIT1 has a value of 1.
    - Discharge is missing POA on all nonexempt *secondary* diagnoses when the data element POA_DISCH_EDIT2 has a value of 1.

- Hospital-level coding edits[19]
    - Hospital reports all diagnoses as present on admission (POA=Y) on all discharges when the data element POA_HOSP_EDIT1 has a value of 1.
    - Hospital does not report POA on any diagnoses listed on non-Medicare discharges when the data element POA_HOSP_EDIT2 has a value of 1, including the Medicare discharges.
    - Hospital has 15 percent or more of total discharges in the year missing POA on all nonexempt diagnoses when the data element POA_HOSP_EDIT3 has a value of 1.
        - The data element POA_HOSP_EDIT3_Value is the percentage of total discharges in the year missing POA on all nonexempt diagnoses and ranges from 0 to 100. POA_HOSP_EDIT3_Value is used to set the data element POA_HOSP_EDIT3. If POA_HOSP_EDIT3_Value is greater than or equal to 15, then POA_HOSP_EDIT3 has a value of 1.
        - The threshold of 15 percent was derived from a similar analysis of POA reporting in the 2012 SID for 36 States with POA reported on principal and secondary diagnoses. The mean percentage for the 2,759 hospitals that were not exempt from reporting to CMS was 1.0 percent. The standard deviation was 7.0 percent. The threshold of 15 percent was equivalent to the mean plus two standard deviations. POA_HOSP_EDIT3_Value is included on the HCUP State databases to allow data users to select a different threshold, if desired.

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[19] A hospital is defined by the hospital identifier provided by the HCUP Partner organization (HCUP data element DSHOSPID).

When planning an analysis that is dependent on identifying if diagnoses are present on admission, consider excluding hospitals and discharges that trigger the above edits. Appendix C includes a SAS program that can be used on the HCUP State databases for data starting in October 1, 2007, to create these same POA edit flags. The SAS program includes a format for identifying diagnoses that are exempt for reporting POA according to ICD-9-CM coding guidelines. This format is also useful for identifying instances in which POA is missing and should have been reported. A blank value for POA is valid for exempt diagnoses, but is invalid on nonexempt diagnoses and indicates information is missing.

APPENDIX A. HCUP PARTNER ORGANIZATIONS

Asterisk (*) indicates data were used for the analysis of reporting present on admission (POA) indicators in the 2011 HCUP State Inpatient Databases.

Alaska State Hospital and Nursing Home Association
Arizona Department of Health Services*
Arkansas Department of Health*
California Office of Statewide Health Planning and Development*
Colorado Hospital Association*
Connecticut Hospital Association
District of Columbia Hospital Association
Florida Agency for Health Care Administration*
Georgia Hospital Association*
Hawaii Health Information Corporation*
Illinois Department of Public Health*
Indiana Hospital Association*
Iowa Hospital Association*
Kansas Hospital Association*
Kentucky Cabinet for Health and Family Services*
Louisiana Department of Health and Hospitals
Maine Health Data Organization*
Maryland Health Services Cost Review Commission*
Massachusetts Center for Health Information and Analysis*
Michigan Health & Hospital Association*
Minnesota Hospital Association (provides data for Minnesota and North Dakota)*
Mississippi Department of Health
Missouri Hospital Industry Data Institute
Montana MHA - An Association of Montana Health Care Providers*
Nebraska Hospital Association*
Nevada Department of Health and Human Services*
New Hampshire Department of Health & Human Services
New Jersey Department of Health*
New Mexico Department of Health*
New York State Department of Health*
North Carolina Department of Health and Human Services
North Dakota (data provided by the Minnesota Hospital Association)*
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Office of Health Analytics*
Oregon Association of Hospitals and Health Systems
Pennsylvania Health Care Cost Containment Council*
Rhode Island Department of Health*

South Carolina Revenue and Fiscal Affairs Office*
South Dakota Association of Healthcare Organizations*
Tennessee Hospital Association*
Texas Department of State Health Services*
Utah Department of Health
Vermont Association of Hospitals and Health Systems*
Virginia Health Information*
Washington State Department of Health*
West Virginia Health Care Authority
Wisconsin Department of Health Services*
Wyoming Hospital Association

APPENDIX B. EXEMPT DIAGNOSIS CODES

The following list of ICD-9-CM diagnosis codes that are exempt from present on admission (POA) indicators being reported were copied from the ICD-9-CM Official Guidelines for Coding and Reporting, Appendix I - Present on Admission Reporting Guidelines, effective October 1, 2011 (http://www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf). There were no new, revised, or deleted ICD-9-CM diagnosis codes in fiscal year 2013 (starting October 1, 2012) or fiscal year 2014 (starting October 1, 2013).[20] This list is valid for ICD-9-CM diagnosis codes starting in October 1, 2007.

Exempt Diagnosis Codes	Description
137-139	Late effects of infectious and parasitic diseases
268.1	Rickets, late effect
326	Late effects of intracranial abscess or pyogenic infection
412	Old myocardial infarction
438	Late effects of cerebrovascular disease
650	Normal delivery
660.7	Failed forceps or vacuum extractor, unspecified
677	Late effect of complication of pregnancy, childbirth, and the puerperium
740-759	Congenital anomalies
905-909	Late effects of injuries, poisonings, toxic effects, and other external causes
V02	Carrier or suspected carrier of infectious diseases
V03	Need for prophylactic vaccination and inoculation against bacterial diseases
V04	Need for prophylactic vaccination and inoculation against certain viral diseases
V05	Need for other prophylactic vaccination and inoculation against single diseases
V06	Need for prophylactic vaccination and inoculation against combinations of diseases
V07	Need for isolation and other prophylacticor treatment measures
V10	Personal history of malignant neoplasm
V11	Personal history of mental disorder
V12	Personal history of certain other diseases
V13	Personal history of other diseases
V14	Personal history of allergy to medicinal agents
V15	Other personal history presenting hazards to health
V16	Family history of malignant neoplasm
V17	Family history of certain chronic disabling diseases
V18	Family history of certain other specific conditions

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[20] Information about new, deleted, and revised ICD-9-CM diagnosis codes was obtained from the CMS Web site (http://www.cms.gov/Medicare/Coding/ICD9ProviderDiagnosticCodes/summarytables.html). Accessed July 11, 2015.

Exempt Diagnosis Codes	Description
V19	Family history of other conditions
V20	Health supervision of infant or child
V21	Constitutional states in development
V22	Normal pregnancy
V23	Supervision of high-risk pregnancy
V24	Postpartum care and examination
V25	Encounter for contraceptive management
V26	Procreative management
V27	Outcome of delivery
V28	Antenatal screening
V29	Observation and evaluation of newborns for suspected condition not found
V30-V39	Liveborn infants according to type of birth
V42	Organ or tissue replaced by transplant
V43	Organ or tissue replaced by other means
V44	Artificial opening status
V45	Other postprocedural states
V46	Other dependence on machines and devices
V49.60-V49.77	Upper and lower limb amputation status
V49.81-V49.85	Other specified conditions influencing health status
V50	Elective surgery for purposes other than remedying health states
V51	Aftercare involving the use of plastic surgery
V52	Fitting and adjustment of prosthetic device and implant
V53	Fitting and adjustment of other device
V54	Other orthopedic aftercare
V55	Attention to artificial openings
V56	Encounter for dialysis and dialysis catheter care
V57	Care involving use of rehabilitation procedures
V58	Encounter for other and unspecified procedures and aftercare
V59	Donors
V60	Housing, household, and economic circumstances
V61	Other family circumstances
V62	Other psychosocial circumstances
V64	Persons encountering health services for specific procedures, not carried out
V65	Other persons seeking consultation
V66	Convalescence and palliative care
V67	Follow-up examination
V68	Encounters for administrative purposes
V69	Problems related to lifestyle
V70	General medical examination
V71	Observation and evaluation for suspected condition not found

Exempt Diagnosis Codes	Description
V72	Special investigations and examinations
V73	Special screening examination for viral and chlamydial diseases
V74	Special screening examination for bacterial and spirochetal diseases
V75	Special screening examination for other infectious diseases
V76	Special screening for malignant neoplasms
V77	Special screening for endocrine, nutritional, metabolic, and immunity disorders
V78	Special screening for disorders of blood and blood-forming organs
V79	Special screening for mental disorders and developmental handicaps
V80	Special screening for neurological, eye, and ear diseases
V81	Special screening for cardiovascular, respiratory, and genitourinary diseases
V82	Special screening for other conditions
V83	Genetic carrier status
V84	Genetic susceptibility to disease
V85	Body Mass Index
V86	Estrogen receptor status
V87.32	Contact with and (suspected) exposure to algae bloom
V87.4	Personal history of drug therapy
V88	Acquired absence of other organs and tissue
V89	Suspected maternal and fetal conditions not found
V90	Retained foreign body
V91	Multiple gestation placenta status
E000	External cause status
E001-E030	Activity
E800-E807	Railway accidents
E810-E819	Motor vehicle traffic accidents
E820-E825	Motor vehicle nontraffic accidents
E826-E829	Other road vehicle accidents
E830-E838	Water transport accidents
E840-E845	Air and space transport accidents
E846-E848	Vehicle accidents not elsewhere classifiable
E849	Place of occurrence (Except E849.7)
E883.1	Accidental fall into well
E883.2	Accidental fall into storm drain or manhole
E884.0	Fall from playground equipment
E884.1	Fall from cliff
E885.0	Fall from (nonmotorized) scooter
E885.1	Fall from roller skates
E885.2	Fall from skateboard
E885.3	Fall from skis
E885.4	Fall from snowboard

Exempt Diagnosis Codes	Description
E886.0	Fall on same level from collision, pushing, or shoving, by or with other person, In sports
E890.0-E890.9	Conflagration in private dwelling
E893.0	Accident caused by ignition of clothing, from controlled fire in private dwelling
E893.2	Accident caused by ignition of clothing, from controlled fire not in building or structure
E894	Ignition of highly inflammable material
E895	Accident caused by controlled fire in private dwelling
E897	Accident caused by controlled fire not in building or structure
E917.0	Striking against or struck accidentally by objects or persons, in sports without subsequent fall
E917.1	Striking against or struck accidentally by objects or persons, caused by a crowd, by collective fear or panic without subsequent fall
E917.2	Striking against or struck accidentally by objects or persons, in running water without subsequent fall
E917.5	Striking against or struck accidentally by objects or persons, object in sports with subsequent fall
E917.6	Striking against or struck accidentally by objects or persons, caused by a crowd, by collective fear or panic with subsequent fall
E919	Accident caused by machinery (Except E919.2)
E921	Accident caused by explosion of pressure vessel
E922	Accident caused by firearm and air gun missile
E926.2	Visible and ultraviolet light sources
E928.0-E928.8	Other and unspecified environmental and accidental causes
E929.0-E929.9	Late effects of accidental injury
E959	Late effects of self-inflicted injury
E970-E978	Legal intervention
E979	Terrorism
E981	Poisoning by gases in domestic use, undetermined whether accidentally or purposely inflicted
E982	Poisoning by other gases, undetermined whether accidentally or purposely inflicted
E985	Injury by firearms, air guns and explosives, undetermined whether accidentally or purposely inflicted
E987.0	Falling from high place, undetermined whether accidentally or purposely inflicted, residential premises
E987.2	Falling from high place, undetermined whether accidentally or purposely inflicted, natural sites
E989	Late effects of injury, undetermined whether accidentally or purposely inflicted
E990-E999	Injury resulting from operations of war

Source: ICD-9-CM Official Guidelines for Coding and Reporting, Appendix I - Present on Admission Reporting Guidelines
http://www.cdc.gov/nchs/data/icd/icd9cm_guidelines_2011.pdf

APPENDIX C. SAS CODE TO DEFINE THE POA EDIT FLAGS ON OTHER HCUP DATABASES

```
/*====================================================================
SAS program to be used on the HCUP data (starting in October 1, 2007)
to create edit flags.
This program includes a format for identifying exempt diagnoses.
======================================================================*/

Libname INO 'C:\INPUT' access=readonly ; /* MUST CHANGE for input file location  */
%let Infile_ = FILENAMEO ; /* MUST CHANGE for input file name      */

Libname OUT1 'C:\OUTPUT' ; /* MUST CHANGE for output file location */
%let DiscFile_ = Discharges ; /* MUST CHANGE for output discharge level file */
%let HospFile_ = DSHOSPIDs ;  /* MUST CHANGE for output hospital level file */

%let NDX_ = 25 ; /* MUST CHANGE for number of diagnoses on the input file */
%let Obs_ = MAX ; /* Set to a small number if running a test job */

/* format for POA exemption; */
proc format;
    invalue poa_exempt
        '137'-'13999'
        ,'2681'-'26819'
        ,'326'-'32699'
        ,'412'-'41299'
        ,'438'-'43899'
        ,'650'-'65099'
        ,'6607'-'66079'
        ,'677'-'67799'
        ,'740'-'75999'
        ,'905'-'90999'
        ,'V02'-'V0799'
        ,'V10'-'V3999'
        ,'V42'-'V4699'
        ,'V4960'-'V4977'
        ,'V4981'-'V4985'
        ,'V50'-'V6299'
        ,'V64'-'V8699'
        ,'V8732'
        ,'V874'-'V8749'
        ,'V88'-'V9199'
        ,'E000'-'E0309'
        ,'E800'-'E8079'
        ,'E810'-'E8389'
        ,'E840'-'E8496'
        ,'E8498'-'E8499'
        ,'E8831'-'E8832'
        ,'E8840'-'E8841'
        ,'E8850'-'E8854'
        ,'E8860'
        ,'E8900'-'E8909'
        ,'E8930'
        ,'E8932'
        ,'E894'-'E8959'
        ,'E897'-'E8979'
        ,'E9170'-'E9172'
```

```
        ,'E9175'-'E9176'
        ,'E919'-'E9191'
        ,'E9193'-'E9199'
        ,'E921'-'E9229'
        ,'E9262'
        ,'E9280'-'E9288'
        ,'E9290'-'E9299'
        ,'E959'-'E9599'
        ,'E970'-'E9799'
        ,'E981'-'E9829'
        ,'E985'-'E9859'
        ,'E9870'
        ,'E9872'
        ,'E989'-'E9999'
        =1
        other=0
    ;
run;

Data Out1.&DiscFile_ ;
    set INO.&Infile_ (obs=&obs_) ;

    attrib NDX_VALID label='Number of DX that are valid and consistent'
           NDX_NONEXEMPT label='Number of nonexempt diagnoses '
           NDX_NONEXEMPT_M label='Number of nonexempt diagnoses with POA missing '
           NDX_POA_PresentY length=4 label='Number of DX with POA=Y'
           NDX_POA_Missing  length=4 label='Number of DX with POA=missing'
           POA_EXEMPT length=3 label='DX is exempt from POA reporting'
           DXPOA_allMissing_nonMedicare length=3 label='all DX are missing POA for non-Medicare
discharge'
           DXPOA_allY length=3 label='Discharge with POA reported as Y on all DX'
           Nonexempt_DXs    length=3 label='Number of nonexempt secondary diagnoses on discharge'
           Nonexempt_DXs_M length=3 label='Number of nonexempt secondary diagnoses with POA
missing on discharge'
           DISCH_EDIT1 length=3 label='Indicates a discharge with POA missing on all nonexempt
diagnoses (0/1)'
           DISCH_EDIT2 length=3 label='Indicates a discharge with POA missing on all nonexempt
secondary diagnoses (0/1)'
    ;
    /* initialize to Os */
    array vars (*)
         NDX_VALID NDX_NONEXEMPT NDX_NONEXEMPT_M
         NDX_POA_PresentY NDX_POA_Missing
         Nonexempt_DXs Nonexempt_DXs_M
    ;
    do i = 1 to dim(vars);
        vars(i) = O;
    end;

    /* include ecodes in the array */
    array DX{*} DX1-DX&ndx_ ECODE:;
    array DXPOA(*) $1 DXPOA1-DXPOA&ndx_ E_POA:;

    do i=1 to dim(dx);
        if upcase(dx(i)) not in ('INVL', "INCN") and not missing(dx(i)) then do ;

            _DXPOA = dxpoa(i) ;
```

```
            if _DXPOA = 'Y' then NDX_POA_PresentY = NDX_POA_PresentY + 1;
            else if missing(_DXPOA) then NDX_POA_Missing  = NDX_POA_Missing  + 1;

            NDX_VALID = NDX_VALID+1;
            POA_EXEMPT=input(dx(i), poa_exempt.);

            if POA_EXEMPT=0 then do;    /* nonexempt diagnosis */
                /* all dxs */
                NDX_nonexempt = NDX_nonexempt+1;
                if _DXPOA=' ' then NDX_NONEXEMPT_M  = NDX_NONEXEMPT_M  + 1 ;

                if i>1 then do;  /* secondary dxs */
                    Nonexempt_DXs = Nonexempt_DXs +1;
                    if _DXPOA=' '  then NONEXEMPT_DXs_M  = NONEXEMPT_DXs_M  + 1 ;
                end;

            end; /* end of nonexempt dx */

        end;  /* end if valid dx */

    end; /* end of do loop of DXn */

    * recode to binary outcomes (0/1) ;
    * for all discharges with at least 1 valid dx ;
    if NDX_VALID > 0 then DXPOA_allY = (NDX_POA_PresentY=NDX_VALID);   * 0/1 ;
    else              DXPOA_allY = .;
    * for non-medicare discharges with at least 1 valid dx ;
    if NDX_VALID>0 and PAY1 ne 1 then DXPOA_allMissing_nonMedicare = (NDX_POA_Missing
=NDX_VALID);   * 0/1 ;
    else                          DXPOA_allMissing_nonMedicare = .;

    * 100% missing on non-exempt dx;
    if NDX_nonexempt>0 then Disch_Edit1 = (NDX_NONEXEMPT_M=NDX_nonexempt);
    else              Disch_Edit1 = .;
    * 100% missing on SECONDARY non-exempt dx;
    if Nonexempt_DXs>0 then Disch_Edit2 = (Nonexempt_DXs_M=Nonexempt_DXs);
    else              Disch_Edit2 = .;
    drop i _DXPOA POA_EXEMPT NDX_VALID NDX_POA_PresentY NDX_POA_Missing
        NDX_nonexempt NDX_NONEXEMPT_M  Nonexempt_DXs Nonexempt_DXs_M ;
Run;

/*
Title3 "Discharge level file";
proc contents data=Out1.&DiscFile_ order=varnum ;
run;
proc means nolabels data=Out1.&DiscFile_ n nmiss min mean max maxdec=2;
run;
*/

/* roll up to DSHOSPID level to create hospital level EDITS */
proc summary nway missing data=Out1.&DiscFile_ ;
    class HOSPST DSHOSPID YEAR ;
    var DXPOA_allY DXPOA_allMissing_nonMedicare Disch_Edit1 ;
    output out=Hospitals (drop=_type_ rename=(_freq_=TOTAL_DISC)) mean= ;
run;
data OUT1.&HospFile_ ;
    set Hospitals ;
```

```
    attrib HOSP_EDIT1 length=3 label='Hospital reported POA as Y on all diagnoses on all
discharges'
         HOSP_EDIT2 length=3 label='Hospital reported POA as missing on all diagnoses on all
non-Medicare discharges'
         HOSP_EDIT3 length=3 label='Hospital reported POA missing on all nonexempt diagnoses
for 15+ percent of discharges'
         HOSP_EDIT3_VALUE label='Percentage of discharges with all nonexempt diagnoses missing
POA indicators'
         TOTAL_DISC length=4 label='Total discharges in the hospital'
    ;

    HOSP_EDIT1 = (DXPOA_allY=1) ;
    HOSP_EDIT2 = (DXPOA_allMissing_nonMedicare=1) ;
    HOSP_EDIT3_VALUE = Disch_Edit1*100 ;
    HOSP_EDIT3 = (Hosp_Edit3_Value >= 15) ;

    drop DXPOA_allY DXPOA_allMissing_nonMedicare Disch_Edit1 ;
run;


/*
Title3 "Hospital level file";
proc contents data=OUT1.&HospFile_ order=varnum ;
run;
proc means nolabels data=OUT1.&HospFile_ n nmiss min mean max maxdec=2;
run;
*/
```