



ACUMEN

**Skilled Nursing Facility Healthcare-Associated
Infections Requiring Hospitalization for the
Skilled Nursing Facility Quality Reporting
Program**

Technical Report

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1 INTRODUCTION

The *Improving Post-Acute Care Transformation Act of 2014* (IMPACT Act) requires the Secretary to specify resource use measures, on which post-acute care (PAC) providers, including skilled nursing facilities, are required to submit necessary data specified by the Secretary. The Centers for Medicare and Medicaid Services (CMS) has contracted with Acumen, LLC and RTI International to develop the SNF HAI measure under the *Quality Measure & Assessment Instrument Development & Maintenance & QRP* contract (75FCMC18D0015, Task Order 75FCMC19F0003).

Monitoring the occurrence of HAIs among SNF residents can provide valuable information about a SNF's quality of care. Most HAIs are preventable as they are often the result of poor processes and structures of care. A report from OIG (2014) estimated that one in four adverse events among SNF residents are due to HAIs, and more than half of all HAIs are potentially preventable.¹ Typically, HAIs result from inadequate patient management following a medical intervention, such as surgery or device implementation, or poor adherence to protocol and antibiotic stewardship guidelines.^{2,3,4} Several provider characteristics are also related to HAIs including staffing levels (e.g., high turnover, low staff-to-resident ratios, etc.), facility structure characteristics (e.g., national chain membership, high occupancy rates, etc.), and adoption or lack thereof of infection surveillance and prevention policies.^{5,6,7,8,9,10} Inadequate prevention and treatment of HAIs is likely to result in poor health care outcomes for residents and wasteful resource use. For example, HAIs are associated with longer lengths of stay, use of higher-intensity care, increased mortality, and high health care costs.^{11,12,13,14} Given the wasteful resource use and economic burden that HAIs present, as well as the fact that there are currently no NQF endorsed measures that capture several types of severe infections attributable to the SNF setting in one composite score, the SNF HAI measure has the potential to provide actionable data on infection rates that can target quality improvement.

Preventing and reducing HAIs is crucial for delivering safe and high-quality care across health care systems and has been a priority objective across federal, state, and local levels. The SNF HAI measure fulfills the Making Care Safer by Reducing Harm Caused in the Delivery of

¹ Office of Inspector General. (2014). Adverse events in skilled nursing facilities: National incidence among Medicare beneficiaries. Retrieved from <https://oig.hhs.gov/oei/reports/oei-06-11-00370.pdf>

² Beganovic, M., & Laplante, K. (2018). Communicating with Facility Leadership; Metrics for Successful Antimicrobial Stewardship Programs (Asp) in Acute Care and Long-Term Care Facilities. *Rhode Island medical journal* (2013), 101(5) (2018), 45–49.

³ Cooper, D., McFarland, M., Petrilli, F., & Shells, C. (2019). Reducing inappropriate antibiotics for urinary tract infections in long-term care: A replication study. *Journal of Nursing Care Quality*, 34(1), 16–21. <http://dx.doi.org/10.1097/NCQ.0000000000000343>

⁴ Feldstein, D., Sloane, P. D., & Feltner, C. (2018). Antibiotic stewardship programs in nursing homes: A systematic review. *Journal of the American Medical Directors Association*, 19(2), 110–116. <http://dx.doi.org/10.1016/j.jamda.2017.06.019>

Care within CMS’s Meaningful Measure framework. Additionally, the SNF HAI measure aligns with the Office of Disease Prevention and Health Promotion’s National Action Plan to Prevent Health Care-Associated Infections, with specific attention to HAIs in long-term care facilities.¹⁵

The purpose of the SNF HAI measure is to estimate the risk-standardized rate of HAIs that are acquired during SNF care and result in hospitalization in one composite score. Unlike other HAI measures that target specific infections, this measure targets all HAIs that are serious enough to require transfer to an acute care hospital. It is important to recognize that HAIs in SNFs are not considered “never-events.” The goal of this risk-adjusted measure is to identify SNFs that have notably higher rates of HAIs acquired during SNF care, when compared to their peers and to the national average HAI rate. Implementation of the SNF HAI measure provides information about a facility’s adeptness in infection prevention and management. The measure is actionable as it has the potential to hold providers accountable as well as encourage them to improve the quality of care they deliver. Further, this measure promotes patient safety and increases the transparency of quality of care in the SNF setting.

Input from a variety of stakeholders has been taken into consideration throughout the SNF HAI measure development process. Feedback was sought and considered from a Technical

⁵ Castle, N., Engberg, J. B., Wagner, L. M., & Handler, S. (2017). Resident and facility factors associated with the incidence of urinary tract infections identified in the Nursing Home Minimum Data Set. *Journal of Applied Gerontology*, 36(2), 173–194. <http://dx.doi.org/10.1177/0733464815584666>

⁶ Crnich, C. J., Jump, R., Trautner, B., Sloane, P. D., & Mody, L. (2015). Optimizing antibiotic stewardship in nursing homes: A narrative review and recommendations for improvement. *Drugs & Aging*, 32(9), 699–716. <http://dx.doi.org/10.1007/s40266-015-0292-7>

⁷ Dick, A. W., Bell, J. M., Stone, N. D., Chastain, A. M., Sorbero, M., & Stone, P. W. (2019). Nursing home adoption of the National Healthcare Safety Network Long-term Care Facility Component. *American Journal of Infection Control*, 47(1), 59–64. <http://dx.doi.org/10.1016/j.ajic.2018.06.018>

⁸ Refer to footnote 4

⁹ Gucwa, A. L., Dolar, V., Ye, C., & Epstein, S. (2016). Correlations between quality ratings of skilled nursing facilities and multidrug-resistant urinary tract infections. *American Journal of Infection Control*, 44(11), 1256–1260. <http://dx.doi.org/10.1016/j.ajic.2016.03.015>

¹⁰ Travers, J. L., Stone, P. W., Bjarnadottir, R. I., Pogorzelska-Maziarz, M., Castle, N. G., & Herzig, C. T. (2016). Factors associated with resident influenza vaccination in a national sample of nursing homes. *American Journal of Infection Control*, 44(9), 1055–1057. <http://dx.doi.org/10.1016/j.ajic.2016.01.019>

¹¹ Refer to footnote 1

¹² Centers for Disease Control and Prevention (2009). The Direct Medical Costs of Healthcare-Associated Infections in U.S. Hospitals and the Benefits of Prevention. Retrieved from https://www.cdc.gov/hai/pdfs/hai/scott_costpaper.pdf

¹³ Ouslander, J. G., Diaz, S., Hain, D., & Tappen, R. (2011). Frequency and diagnoses associated with 7- and 30-day readmission of skilled nursing facility patients to a nonteaching community hospital. *Journal of the American Medical Directors Association*, 12(3), 195–203. <http://dx.doi.org/10.1016/j.jamda.2010.02.015>

¹⁴ Zimlichman, E., Henderson, D., Tamir, O., Franz, C., Song, P., Yamin, C. K., . . . Bates, D. W. (2013). Health care-associated infections: A meta-analysis of costs and financial impact on the US health care system. *JAMA Internal Medicine*, 173(22), 2039–2046. Retrieved from <https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/1733452>

¹⁵ Office of Inspector General. (2014). Adverse events in skilled nursing facilities: National incidence among Medicare beneficiaries. Retrieved from <https://oig.hhs.gov/oei/reports/oei-06-11-00370.pdf>

Expert Panel (TEP), the NQF Measure Applications Partnership (MAP), and a public comment.^{16,17,18}

This report presents the SNF HAI technical measure specifications. Section 2 provides an overview of the measure and is a high-level summary of the key features of the measure that are described in detail in the remaining sections of the document. Section 3 describes the methodology used to construct the SNF HAI measure including its data sources, study population, measure outcome, regression model, and steps for calculating the final measure score. Section 4 discusses SNF HAI measure testing including the measure's reportability, variability, reliability, and validity testing results. Appendix A displays the ICD-10 codes used to identify HAI conditions included in the measure. Appendix B presents the results of the risk adjustment model. Lastly, Appendix C details a flow chart for calculating the measure.

¹⁶ CMS. (2019). *Final Technical Expert Panel Summary Report: Development of a Healthcare-Associated Infections Quality Measure for the Skilled Nursing Facility Quality Reporting Program.*

https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/NursingHomeQualityInits/Downloads/SNF-HAI-Final-TEP-Report-7-15-19_508C.pdf

¹⁷ CMS. (2020). *Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalizations for the Skilled Nursing Facility Quality Reporting Program Public Comment Summary Report.*

<https://www.cms.gov/files/document/snf-hai-public-comment-summary-report.pdf>

¹⁸ NQF. (2021). *MAP 2020-2021 Final Recommendations.*

<https://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=94650>

2 OVERVIEW

This section provides an overview of basic descriptive information on the SNF HAI measure, summarizing the key points contained in the rest of the document. A more detailed explanation of the measure specifications is available in Section 3.

2.1 Measure Name

Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalization

2.2 Measure Type

Outcome Measure

2.3 Care Setting

SNF

2.4 Data Sources

Medicare FFS Part A claims, Medicare eligibility files

2.5 Brief Description of Measure

The Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalization measure estimates the risk-standardized rate of HAIs that are acquired during SNF care and result in hospitalization. SNF HAIs that are acquired during SNF care and result in hospitalization are identified using the principal diagnosis on the Medicare inpatient (IP) claims of SNF residents. The hospitalization must occur during the period beginning on day four after SNF admission and within three days after SNF discharge or the end of active SNF care. The measure is risk-adjusted to allow for comparison based on residents with similar characteristics across SNFs. Since HAIs are not considered never-events, the measure's objective is to identify SNFs that have higher HAI rates than their peers.

The risk-adjusted HAI rate for each SNF is the product of the standardized risk ratio (SRR) for a given SNF (j) and the national average observed rate of HAIs for all SNFs (\bar{Y}). The SRR is a provider-level ratio that measures the excess HAIs by comparing the predicted to expected number of HAIs.

$$SRR_j = \frac{\text{Predicted Value}_j}{\text{Expected Value}_j}$$

$$\text{Risk-adjusted rate of HAIs} = SRR_j * \bar{Y}$$

Overall, lower SNF HAI scores indicate better quality of care among SNF providers.

3 MEASURE SPECIFICATIONS

This section describes the methodology used to construct the SNF HAI measure. Section 3.1 describes the study window for the SNF HAI measure. Section 3.2 summarizes the various data sources used to calculate the measure score. Section 3.3 details the study population used for the measure denominator and Section 3.4 defines the HAI outcome used for the measure numerator. Note that the measure does not have a simple form for the numerator and denominator because risk adjustment is incorporated into the measure calculation rather than applied after the observed rate is calculated. Section 3.5 describes the regression model and variables used for risk adjustment. Section 3.6 presents the steps involved in calculating the final measure score.

3.1 Measure Time Period

The measure is calculated using one fiscal year of data. All SNF stays that end during the fiscal year time period, except those that meet the exclusion criteria (refer to Section 3.3.2 for details), are included in the measure.

3.2 Data Sources

This measure uses data from the Medicare Enrollment Database (EDB) and SNF, inpatient claims from the CMS Common Working File (CWF). The EDB file provides information on residents' date of birth, demographics, original reason for Medicare enrollment, and periods of Medicare enrollment information. IP claims provide hospitalization information and diagnoses, as well as variables used for risk adjustment including residents' prior acute care utilization. IP claims are used to identify patient comorbidities for risk adjustment. This measure is calculated entirely using administrative data. There will be no additional data collection or submission burden for SNF providers.

3.3 Denominator

The study population is Medicare Part A FFS SNF stays that ended during the measure time period. To calculate the measure denominator, the number of eligible SNF stays are counted, then risk adjustment is applied. The final measure denominator is the adjusted denominator.

3.3.1 Stay Construction

Acumen used final action Medicare Part A claims from the CWF. Part A SNF and IP stays are constructed similarly. Stays are constructed by linking claims that share the same beneficiary identifier, facility CMS Certification Number (CCN), and admission date. To

implement study restrictions and apply risk adjustment, stays created from SNF claims are linked to other Medicare claims and enrollment data using the beneficiary identifier.

3.3.2 Eligible Stays

The eligible stays for this measure are all Medicare FFS SNF stays that do not meet the exclusion criteria during the measurement period. Residents who died during the SNF stay or during the post-discharge window (three days after SNF discharge or the end of active SNF care) and residents with an ongoing SNF stay by the end of the measure period are included in the denominator. SNF stays are excluded from the denominator if they meet one or more of the following criteria:

- Resident is less than 18 years old at time of SNF admission.
Rationale: Residents under 18 years old are not included in the target population for this measure because there are few pediatric SNF residents and they may have different patterns of care than adults.
- The SNF length of stay was shorter than four days.
Rationale: HAIs that require hospitalization beginning day four after SNF admission will be identified as SNF HAIs. This helps exclude pre-existing infections from being included in the measure. SNF stays shorter than four days are not long enough for identifying SNF HAIs.
- Residents who were not continuously enrolled in Part A FFS Medicare during the SNF stay, 12 months prior to the measure period, and three days after the end of SNF stay.
Rationale: Certain risk adjustment elements for this measure require information on acute inpatient claims for one year prior to the SNF admission, and acute care utilization must be observable in the observation window following the end of SNF care. Residents without Part A coverage or who are enrolled in Medicare Advantage plans will have incomplete inpatient claims.
- Residents who did not have Part A short-term acute care hospital stay within 30 days prior to the SNF admission date. The short-term stay must have positive payment and positive length of stay.
Rationale: This measure requires information from the prior short-term acute care hospital stay in the elements used for risk adjustment.
- Residents who were transferred to a federal hospital from the SNF as determined by the status code on the SNF claim.
Rationale: Residents who are transferred to federal hospitals will have incomplete inpatient claims.

- Residents who received care from a provider located outside of the United States, Puerto Rico, or a U.S. territory as determined from the first two characters of the SNF CMS Certification Number.

Rationale: Residents who received care from foreign providers may have incomplete inpatient claims, and these providers may not be subject to the same policy decisions related to the measure outcome.

- SNF stays in which data were missing on any variable used in the measure construction or risk adjustment. This also includes stays where Medicare did not pay for the stay, which is identified by non-positive payment on the SNF claim.

Rationale: The measure calculation requires accurate and complete information from the SNF stay, prior short-term acute-care hospital stays, and resident characteristics used for risk adjustment.

- SNF stays from swing beds in critical access hospitals.

Rationale: Critical access hospitals are not required to submit quality data under the SNF QRP. Therefore, claims-based quality measures exclude swing bed stays in critical access hospitals.

3.3.3 Adjusted Denominator

The measure denominator is the risk adjusted “expected” number of SNF stays with the measure outcome. The calculation of the “expected” number of stays starts with the total eligible SNF stays which is then risk-adjusted for resident characteristics excluding the SNF effect. The “expected” number of stays with the measure outcome represents the predicted number of stays with the measure outcome if the same SNF residents were treated in the “average” SNF. Refer to section 3.5.1 for details on risk adjustment and to section 3.6.1 (Step 4) for the calculation of expected number of SNF stays with HAI.

3.4 Numerator

To calculate the measure numerator, first count the outcome and then apply risk-adjustment. The final measure numerator is the adjusted numerator.

3.4.1 Measure Outcome

The number of stays with an HAI acquired during SNF care and resulting in an inpatient hospitalization. The hospitalization must occur during the period beginning on day four after SNF admission and within three days of SNF discharge or the end of active SNF care. Emergency department visits and observation stays are excluded from the numerator.

3.4.2 HAI Definition

The HAI definition was developed with input from a Technical Expert Panel and subject matter experts with clinical expertise specific to infectious diseases and the SNF population. See Appendix A (columns A – C) for the list of HAI conditions. The HAI definition includes conditions selected based on the following conceptual criteria:

- Infections that are likely to be acquired during SNF care and severe enough to require hospitalization (e.g., life-threatening methicillin-resistant *Staphylococcus aureus* infections)
- Infections related to invasive (not implanted) medical devices (e.g., infections associated with catheters, insulin pumps, and central lines; infection of tracheostomy stoma)

The HAI definition excludes infections that meet any of the following criteria:

- Chronic infections (e.g. chronic viral hepatitis B with or without delta-agent)
- Infections that typically require a long period of time to present (e.g. typhoid arthritis)
- Infections that are likely related to the prior hospital stay (e.g. postprocedural retroperitoneal abscess)
- Sequela and subsequent encounter codes (e.g. sequelae of inflammatory diseases of central nervous system)
- Codes that include “causing disease classified elsewhere” (e.g. meningitis in bacterial diseases classified elsewhere)
- Codes likely to represent secondary infection, where the primary infection would likely already be coded (e.g. viral endocarditis, pericarditis, myocarditis or cardiomyopathy)
- Infections likely to be community acquired (e.g. *echinococcus granulosus* infection of liver)
- Infections common in other countries and/or acquired through animal contact (e.g. subacute and chronic melioidosis)
- Pre-existing infections that fall within the Center for Disease Control and Prevention’s (CDC) National Healthcare Safety Network (NHSN) Repeat Infection Timeframe (RIT) of 14 days.¹⁹ The HAI measure applies a slight modification to the

¹⁹ Center for Disease Control and Prevention. (2020). Identifying Healthcare-associated Infections (HAI) for NHSN Surveillance. Retrieved from https://www.cdc.gov/nhsn/pdfs/pscmanual/2psc_identifyinghais_nhsncurrent.pdf

CDC NHSN's RIT. Rather than using the date of infection identification (i.e., lab diagnosis date) as Day 1, HAI uses the prior IP discharge date as Day 1 since discharge indicates clinical stability. See Appendix A (columns D and E) for conditions that are considered as pre-existing when identified in any diagnosis field on the prior qualifying hospital claim and when linked to the principal diagnosis codes (column B) on the re-hospitalization claim

3.4.3 HAI Identification

HAIs are identified using the principal diagnosis code and the Present on Admission (POA) indicators on the re-hospitalization claim within a specified incubation window. The HAI definition applies a repeat infection timeline of 14 days to exclude pre-existing infections from the numerator count. The repeat infection timeline is defined as the number of days between inpatient stays, which is calculated by taking the difference between the discharge date of the most proximal IP stay prior to SNF admission and the admission date of the readmitting IP stay. Pre-existing infections are determined using all of the diagnosis codes on the prior IP claim immediately preceding the SNF admission. The pre-existing infection recorded in the prior proximal hospitalization must be a diagnosis that is related to the HAI recorded in the re-hospitalization. If the number of days between the re-hospitalization and the prior proximal hospitalization is less than 14 days and a pre-existing infection is recorded in any of the diagnosis codes for the prior IP stay, then the HAI is excluded from the numerator.

HAIs are identified using the following steps:

Step 1: Identify IP readmissions beginning on day four of SNF stay and within three days after SNF discharge or the end of active SNF care.

Step 2: Search for HAI diagnosis in the principal diagnosis field of the readmitting IP claim.

- See Appendix A (columns A – C) for the list of HAI diagnosis codes.
- If HAI diagnosis is found and it is marked as POA proceed with Step 3.
- If no HAI diagnosis is found, or if the HAI diagnosis is not marked as POA, then the readmission does not count toward the numerator.

Step 3: Calculate the number of days between IP stays to apply repeat infection timeline.

- Subtract the prior IP discharge date from the IP re-hospitalization admission date.
- If the number of days is less than 14 days, then search for HAI-related conditions in the prior IP stay. Proceed to Step 4.

- If the number of days is 14 days or greater, then do not account for diagnosis information recorded in prior IP stay. The case counts as an HAI and it is included in the numerator.

Step 4: If the number of days is less than 14 days, search for HAI-related condition in all diagnosis codes of the prior IP stay.

- See Appendix A (columns D and E) for conditions that are considered as pre-existing.
- If a pre-existing condition is found, then exclude case from numerator.
- If a pre-existing condition is not found, then include case in the numerator.

3.4.4 Adjusted Numerator

The final numerator is a risk-adjusted estimate of the number of SNF stays predicted to have an HAI that is acquired during SNF care and results in hospitalization. This estimate starts with the observed count of the measure outcome, which is then risk-adjusted for resident characteristics and a statistical estimate of the SNF effect beyond resident case mix. The SNF effect captures variation in the measure outcome across SNFs, which helps isolate the differences in measure performance that are due to provider-specific behavior and characteristics. Refer to section 3.5.1 for details on risk adjustment and to section 3.6.1 (Step 4) for the calculation of predicted number of SNF stays with HAI.

3.5 Risk Adjustment

The purpose of risk adjustment is to account for risk factor differences across SNFs, when comparing quality of care between them. In other words, risk adjustment “levels the playing field” and allows for fairer quality-of-care comparisons across SNFs by controlling for differences in resident case-mix. Risk adjustment is particularly important for outcome measures because resident outcomes may be determined by factors such as age, gender, and health status that go beyond the quality of care delivered by SNFs. See Appendix B for risk adjustment model results.

3.5.1 Statistical Risk Model

The statistical risk model is a hierarchical logistic regression model, which predicts the probability of an HAI that is acquired during SNF care and results in hospitalization. Risk adjusters are predictor variables in the model. Resident characteristics related to each stay and a marker for the specific SNF are included in the equation. The equation is hierarchical in that both individual resident characteristics, as well as clustering of residents into SNFs, are accounted for.

The model estimates both the average predictive effect of resident characteristics across all SNFs, and the degree to which each SNF has an effect on the outcome that differs from that of the average SNF. The SNF effect can be assumed to be randomly distributed around the average (according to a normal distribution). When computing the SNF effect, hierarchical modeling accounts for the known predictors of the outcome, on average, such as resident characteristics, the observed SNF rate for this outcome, and the number of SNF stays eligible for the measure. The estimated SNF effect is primarily determined by the SNF’s own data if the number of stays is relatively large, as the estimate would be relatively precise. The estimated SNF effect is adjusted toward the average if the number of stays is small, as small samples yield less precise estimates.

We used the following model:

Let Y_{ij} , denote the outcome (equal to 1 if the resident i has an HAI that is acquired during SNF care and results in hospitalization) for a resident i at SNF j ; Z_{ij} denotes a set of risk factors. We assume the outcome is related linearly to the covariates via a logit function with dispersion:

$$\text{logit}(P(Y_{ij} = 1 | Z_{ij}, \alpha_j)) = \log\left(\frac{P(Y_{ij} = 1 | Z_{ij}, \alpha_j)}{1 - P(Y_{ij} = 1 | Z_{ij}, \alpha_j)}\right) = \alpha_j + \beta * Z_{ij}$$

$$\alpha_j = \mu + \omega_j ; \omega_j \sim N(0, \tau^2)$$

where $Z_{ij} = (Z_{ij1}, Z_{ij2}, \dots, Z_{ijk})$ is a set of k resident-level covariates. α_j represents the SNF specific intercept of the j -th SNF which is assumed to follow a normal distribution with mean μ and variance τ^2 , independent of Z_{ij} .

The estimated equation is used twice in the measure. The sum of the probabilities of HAIs, including both the effects of resident characteristics and SNFs, is the “predicted number” of HAIs that are acquired during SNF care and result in hospitalization after adjusting for case mix. The same equation is used without the SNF effect to compute the “expected number” for the same residents at a SNF whose quality is at the national average level. The ratio of the predicted-to-expected number of HAIs measure the degree to which the number of HAIs that are acquired during SNF care and result in hospitalization are higher or lower than what would otherwise be expected. This ratio is called the standardized risk ratio, which is then multiplied by the overall observed rate of the measure outcome in the target population (all SNF stays included in the measure) to obtain the risk adjusted rate of HAIs that are acquired during SNF care and result in hospitalization, for each SNF.

3.5.2 Variables

The risk adjustment model includes the following variables:

- *Age and Sex Category*
Information on age and sex were obtained from the Medicare enrollment database. Age was calculated as of the admission date of the SNF stay using the beneficiary's date of birth as listed in the Medicare enrollment database.
- *Original Reason for Medicare Entitlement*
Information on reason for Medicare entitlement was obtained from the Medicare enrollment database and re-categorized into two groups: i) Age and disabled or ii) End-stage renal disease (ESRD).
- *Surgery Category (Prior Proximal IP Stay)*
Procedures from the prior proximal IP stay (if present on the prior proximal hospital claim) were grouped using the Clinical Classification Software (CCS) for ICD-10 procedures developed by the Agency for Healthcare Research and Quality (AHRQ)²⁰ and then categorized into surgical categories as defined in the Hospital-Wide All-Cause Unplanned Readmission measure²¹.
- *Dialysis but not ESRD (Prior Proximal IP Stay)*
Prior dialysis treatment was identified using revenue center codes on the prior proximal IP claim. This definition of dialysis utilization excludes ESRD patients, who are defined as beneficiaries with ESRD as their reason for Medicare eligibility in the month of admission of the prior proximal IP stay.
- *Principal Diagnosis Category (Prior Proximal IP Stay)*
The principal diagnosis on the prior proximal hospital claim were grouped into CCS diagnoses categories using the CCS for ICD-10 diagnoses developed by AHRQ²².
- *HCC Comorbidities*
Comorbidities are obtained from the secondary diagnosis codes on the prior short-term claim and all diagnosis codes from earlier claims up to one year before SNF admission.

²⁰ HCUP Clinical Classifications Software (CCS) for ICD-10-PCS. Healthcare Cost and Utilization Project (HCUP). 2019. Agency for Healthcare Research and Quality, Rockville, MD. https://www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccsr_archive.jsp. Accessed Feb 18, 2020.

²¹ Surgery categories were developed for the Hospital-Wide All-Cause Unplanned Readmission measure and are available in SAS programs that are maintained and available upon request.

²² HCUP Clinical Classifications Software (CCS) for ICD-10-CM. Healthcare Cost and Utilization Project (HCUP). 2019. Agency for Healthcare Research and Quality, Rockville, MD. https://www.hcup-us.ahrq.gov/toolssoftware/ccsr/ccsr_archive.jsp. Accessed Feb 18, 2020.

Comorbidities are grouped using CMS Hierarchical Condition Categories (HCC) software.

- *Length of Stay (Prior Proximal IP Stay)*

The length of stay of the prior proximal IP stay is the total number of days of care from admission to discharge as obtained from the prior proximal hospital claim. It includes the admission date but excludes the day of discharge. In the case of a missing discharge date, the last day of the stay (latest thru date on the IP claim) is counted. Length of stay is transformed into a categorical variable to account for nonlinearity.

- *ICU/CCU Utilization (Prior Proximal IP Stay)*

Prior intensive care and coronary care utilization was identified using revenue center codes on the prior proximal hospital claim.

- *Number of Prior IP Stays*

The count of prior short-term discharges within a one-year lookback from the SNF admission date, excluding the most proximal hospitalization claim prior to the SNF admission.

3.6 Measure Calculation

The SNF HAI measure score is a risk-adjusted rate calculated at the facility-level. A lower score indicates better performance in prevention and management of HAIs. For each SNF, the risk-adjusted HAI rate is the product of the standardized risk ratio (SRR) for a given SNF and the national average observed rate of HAIs for all SNF stays. The SRR is a provider-level ratio that measures excess HAIs by comparing the predicted to expected number of HAIs. The predicted and expected number of HAIs are estimated by the risk adjustment model. Refer to Appendix C to see measure calculation steps in a flow chart.

3.6.1 Steps Used in Calculation

Step 1: Identify residents meeting the denominator (eligible stays) criteria.

Step 2: Identify residents meeting the numerator criteria (i.e., HAIs that are acquired during SNF care and result in hospitalization, beginning day four after SNF admission and within three days of SNF discharge or the end of active SNF care). An HAI is excluded from the numerator if it is a pre-existing infection. A pre-existing infection is defined as an HAI that was reported in any of the diagnosis code fields on the most proximal hospitalization claim prior to the SNF admission with a discharge date that is less than 14 days from the admission date of the readmitting inpatient (IP) stay. The pre-existing infection recorded in the prior proximal

hospitalization must be a diagnosis that is related to the HAI recorded in the re-hospitalization as defined in Appendix A columns D and E.

Step 3: Identify presence or absence of risk adjustment variables for each resident.

Step 4: Calculate the predicted and expected number of HAIs that are acquired during SNF care and result in hospitalization for each SNF using the hierarchical logistic regression model. The predicted number is the sum of the predicted probability of HAI for each SNF based on the specific provider's performance with its observed case-mix, including the SNF effect. The expected number is the sum of the predicted probability of HAI for each SNF based on the average provider's performance and its given case-mix, excluding the SNF effect.

To calculate the predicted number of HAIs ($pred_j$) for provider j , we sum the predicted probabilities of HAI for all stays at provider j :

$$\text{Predicted Value}_j = \sum \frac{\exp(\widehat{\alpha}_j + \widehat{\beta} * Z_{ij})}{\exp(\widehat{\alpha}_j + \widehat{\beta} * Z_{ij}) + 1}$$

To calculate the expected number (exp_j) for provider j , we sum the predicted probabilities of HAI for all stays at provider j :

$$\text{Expected Value}_j = \sum \frac{\exp(\widehat{\mu} + \widehat{\beta} * Z_{ij})}{\exp(\widehat{\mu} + \widehat{\beta} * Z_{ij}) + 1}$$

Step 5: Calculate the standardized risk ratio for each SNF as the ratio of the predicted to expected number of HAIs that are acquired during SNF care and result in hospitalization. The standardized risk ratio is a measure of excess or reduced HAIs for a given SNF.

To calculate the provider-wide standardized risk ratio for provider j (SRR_j), we used:

$$SRR_j = \frac{\text{Predicted Value}_j}{\text{Expected Value}_j} = \frac{\sum \text{logit}^{-1}(\widehat{\alpha}_j + \widehat{\beta} * Z_{ij})}{\sum \text{logit}^{-1}(\widehat{\mu} + \widehat{\beta} * Z_{ij})}$$

Step 6: Calculate the risk-adjusted rate of HAIs that are acquired during SNF care and result in hospitalization for each SNF, by multiplying the SRR_j (calculated in Step 5) by the overall national observed rate of HAIs, \bar{Y} . The national observed rate is the average observed

HAI rate across all SNF stays and is equivalent to the number of total number of stays resulting in an HAI over the total number of SNF stays.

$$\textit{Risk adjusted HAI Rate} = \textit{SRRj} * \bar{Y}$$

4 MEASURE TESTING

The SNF HAI measure underwent measure testing to assess the usability, reliability, and validity. Section 4.1 describes the measure’s reportability, Section 4.2 details the measure’s variability, Section 4.3 explores the measure’s reliability, and Section 4.4 assesses the measure’s validity.

4.1 Reportability

Reportability testing examines the total number and proportion of SNFs that would have at least 25 eligible stays for the SNF HAI measure in the reporting period. The SNF QRP requires that all SNFs have at least 25 stays to be eligible for public reporting. In FY 2019, 84.9% of total SNFs (n = 14,102) met this threshold. This indicates high reportability and usability of the measure.

Table 1: Publicly Reportable SNFs, FY 2019

| Total Number of SNFs | Percentage of SNFs with ≥ 25 stays |
|----------------------|------------------------------------|
| 14,102 | 84.9% |

4.2 Variability

Variability testing summarizes the distribution of the facility-level, risk-standardized HAI rate. In FY 2019, the mean risk-adjusted HAI rate among SNFs with at least 25 stays was 5.85% (median: 5.59%, IQR: 4.75% - 6.69%). The risk-adjusted HAI rate among reportable SNFs ranged from a minimum of 2.36% to a maximum of 17.62%. This wide variation indicates there is a performance gap in HAI rates across SNFs.

Table 2: Facility- Level Distribution of Risk-Adjusted SNF HAI Rates, FY 2019

| N | Mean score | Std dev. | Minimum | 25th percentile | 50th percentile | 75th percentile | Maximum | Interquartile range |
|--------|------------|----------|---------|-----------------|-----------------|-----------------|---------|---------------------|
| 14,102 | 5.85% | 1.53% | 2.36% | 4.75% | 5.59% | 6.69% | 17.62% | 1.94% |

4.3 Reliability

Split-half reliability assesses the internal consistency of a quality measure. In split-half testing, stays within a SNF are randomly assigned into two groups and the risk-adjusted HAI rate per facility is calculated for both groups. When a SNF’s residents, randomly divided, have a score similar to one another, the quality measure score is more likely to reflect systematic differences in SNF-level quality rather than random variation. To maintain the precision of the estimate, the sample size was doubled using two years of data (FY 2018 and 2019) prior to splitting the sample into two groups. The process only included SNFs with at least 50 stays and was repeated 20 times to rule out extreme values. The Spearman’s rank correlation coefficient was used to assess the correlation between the HAI rates of the two groups. The average correlation from the 20 iterations was 0.50, which suggests moderate reliability.

Table 3: Mean Correlation Score for All Facilities and Facilities with ≥ 50 stays, FY 2018 and 2019

| All Facilities (n = 16,797) | Facilities with ≥ 50 stays (n = 14,338) |
|--|--|
| 0.48 | 0.50 |

4.4 Validity

To test the validity of the measure, model fit and convergent validity were assessed. The model fit statistic determines if the SNF HAI model can accurately predict HAI cases while controlling for differences in resident case-mix. The C-statistic is a measure of model discrimination that judges the model’s ability to correctly classify outcomes as negative or positive. Using FY 2019 data, the C-statistic of the model was 0.72, which suggests good model discrimination.

To assess convergent validity, the relationships between the SNF HAI measure and other publicly reported quality measures were examined. Quality measures that reflect similar care processes or outcomes to HAI were examined, with the hypothesis that a facility’s HAI percentile ranking should be somewhat consistent with percentile rankings of other related quality measures. Using the Spearman’s rank correlation, the SNF HAI measure was compared to SNF QRP claims-based measures (Discharge to Community (DTC) and Potentially Preventable 30-Day Post-Discharge Readmission Measure (PPR)), Nursing Home Quality Initiative (NHQI) short-stay assessment-based measures (Percentage of short-stay residents who were assessed and appropriately given the seasonal influenza vaccine and Percentage of short-

stay residents assessed and appropriately given the pneumococcal vaccine), and Five-Star Quality Rating measures (RN staffing). The analysis was restricted to FYs 2018 and 2019 and only included data from publicly reportable providers with at least 25 stays. As expected, the following measures were negatively correlated with HAI: DTC (-0.45), the Five-star RN Staffing Rating (-0.25), Percentage of short-stay residents who were assessed and appropriately given the seasonal influenza vaccine (-0.11), and Percentage of short-stay residents who were assessed and appropriately given the pneumococcal vaccine (-0.08). Additionally, PPR was positively correlated with SNF HAI (0.12). All Spearman’s rank correlations were statistically significant at the alpha level of 0.05.

Table 4: Correlations between SNF HAI and Other Public Reported Measures

| Program | Measure | Spearman’s Correlation | P-value |
|-------------------------------|---|------------------------|---------|
| NHQI MDS Quality Measures | Percentage of short-stay residents who were assessed and appropriately given the seasonal influenza vaccine | -0.11 | <.0001 |
| | Percentage of short-stay residents assessed and appropriately given the pneumococcal vaccine | -0.08 | <.0001 |
| Five-Star Quality Rating | RN Staffing Rating | -0.25 | <.0001 |
| SNF QRP Claims-based Measures | Rate of successful return to home and community from a SNF (DTC) | -0.45 | <.0001 |
| | Rate of potentially preventable hospital readmissions 30 days after discharge from a SNF (PPR) | 0.12 | <.0001 |

In addition to the validity testing conducted on the measure, the TEP showed strong support for the face validity of the SNF HAI measure. TEP members agreed with the conceptual and operational definition of the measure. Specifically, the TEP agreed that the measure should focus on infections severe enough to require hospitalization and supported the clinical criteria used to select HAI diagnoses.

APPENDIX A: ICD-10 CODES FOR HAI CONDITIONS

Table 5: ICD-10 codes for Identifying Skilled Nursing Facility Healthcare-Associated Infections Requiring Hospitalization

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T80211A | Bloodstream infection due to central venous catheter, initial encounter | T80211A | Bloodstream infection due to central venous catheter, initial encounter |
| | | | T80212A | Local infection due to central venous catheter, initial encounter |
| | | | T80218A | Other infection due to central venous catheter, initial encounter |
| | | | T80219A | Unspecified infection due to central venous catheter, initial encounter |
| | T80212A | Local infection due to central venous catheter, initial encounter | T80212A | Local infection due to central venous catheter, initial encounter |
| | | | T80218A | Other infection due to central venous catheter, initial encounter |
| | | | T80219A | Unspecified infection due to central venous catheter, initial encounter |
| | T80218A | Other infection due to central venous catheter, initial encounter | T80218A | Other infection due to central venous catheter, initial encounter |
| | | | T80212A | Local infection due to central venous catheter, initial encounter |
| | | | T80219A | Unspecified infection due to central venous catheter, initial encounter |
| | T80219A | Unspecified infection due to central venous catheter, initial encounter | T80219A | Unspecified infection due to central venous catheter, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|---|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T80219A | Unspecified infection due to central venous catheter, initial encounter | T80218A | Other infection due to central venous catheter, initial encounter |
| | | | T80212A | Local infection due to central venous catheter, initial encounter |
| | T83510A | Infection and inflammatory reaction due to cystostomy catheter, initial encounter | T83510A | Infection and inflammatory reaction due to cystostomy catheter, initial encounter |
| | | | T83511A | Infection and inflammatory reaction due to indwelling urethral catheter, initial encounter |
| | | | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter |
| | | | T83518A | Infection and inflammatory reaction due to other urinary catheter, initial encounter |
| | T83511A | Infection and inflammatory reaction due to indwelling urethral catheter, initial encounter | T83510A | Infection and inflammatory reaction due to cystostomy catheter, initial encounter |
| | | | T83511A | Infection and inflammatory reaction due to indwelling urethral catheter, initial encounter |
| | | | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter |
| | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter | T83518A | Infection and inflammatory reaction due to other urinary catheter, initial encounter |
| T83510A | | | Infection and inflammatory reaction due to cystostomy catheter, initial encounter | |
| | | | T83511A | Infection and inflammatory reaction due to indwelling urethral catheter, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter |
| | | | T83518A | Infection and inflammatory reaction due to other urinary catheter, initial encounter |
| | T83518A | Infection and inflammatory reaction due to other urinary catheter, initial encounter | T83510A | Infection and inflammatory reaction due to cystostomy catheter, initial encounter |
| | | | T83511A | Infection and inflammatory reaction due to indwelling urethral catheter, initial encounter |
| | | | T83512A | Infection and inflammatory reaction due to nephrostomy catheter, initial encounter |
| | | | T83518A | Infection and inflammatory reaction due to other urinary catheter, initial encounter |
| | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter |
| | | | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter |
| | | | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter |
| | | | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter |
| | | | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter |
| | | | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter |
| | | | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter |
| | | | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter |
| | | | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter |
| | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter |
| | | | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter |
| | | | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter |
| | | | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter |
| | | | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter |
| | | | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter |
| | | | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter |
| | | | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter |
| | | | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter |
| | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter | T83590A | Infection and inflammatory reaction due to implanted urinary neurostimulation device, initial encounter |
| | | | T83591A | Infection and inflammatory reaction due to implanted urinary sphincter, initial encounter |
| | | | T83592A | Infection and inflammatory reaction due to indwelling ureteral stent, initial encounter |
| | | | T83593A | Infection and inflammatory reaction due to other urinary stents, initial encounter |
| | | | T83598A | Infection and inflammatory reaction due to other prosthetic device, implant and graft in urinary system, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T8361XA | Infection and inflammatory reaction due to implanted penile prosthesis, initial encounter | T8361XA | Infection and inflammatory reaction due to implanted penile prosthesis, initial encounter |
| | | | T8362XA | Infection and inflammatory reaction due to implanted testicular prosthesis, initial encounter |
| | | | T8369XA | Infection and inflammatory reaction due to other prosthetic device, implant and graft in genital tract, initial encounter |
| | T8362XA | Infection and inflammatory reaction due to implanted testicular prosthesis, initial encounter | T8361XA | Infection and inflammatory reaction due to implanted penile prosthesis, initial encounter |
| | | | T8362XA | Infection and inflammatory reaction due to implanted testicular prosthesis, initial encounter |
| | | | T8369XA | Infection and inflammatory reaction due to other prosthetic device, implant and graft in genital tract, initial encounter |
| | T8369XA | Infection and inflammatory reaction due to other prosthetic device, implant and graft in genital tract, initial encounter | T8361XA | Infection and inflammatory reaction due to implanted penile prosthesis, initial encounter |
| | | | T8362XA | Infection and inflammatory reaction due to implanted testicular prosthesis, initial encounter |
| | | | T8369XA | Infection and inflammatory reaction due to other prosthetic device, implant and graft in genital tract, initial encounter |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|---|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Infections related to devices or stumps | T8571XA | Infection and inflammatory reaction due to peritoneal dialysis catheter, initial encounter | T8571XA | Infection and inflammatory reaction due to peritoneal dialysis catheter, initial encounter |
| | T8572XA | Infection and inflammatory reaction due to insulin pump, initial encounter | T8572XA | Infection and inflammatory reaction due to insulin pump, initial encounter |
| | T86822 | Skin graft (allograft) (autograft) infection | T86822 | Skin graft (allograft) (autograft) infection |
| | T880XXA | Infection following immunization, initial encounter | T880XXA | Infection following immunization, initial encounter |
| | T8740 | Infection of amputation stump, unspecified extremity | T8740 | Infection of amputation stump, unspecified extremity |
| | T8741 | Infection of amputation stump, right upper extremity | T8741 | Infection of amputation stump, right upper extremity |
| | | | T8740 | Infection of amputation stump, unspecified extremity |
| | T8742 | Infection of amputation stump, left upper extremity | T8742 | Infection of amputation stump, left upper extremity |
| | | | T8740 | Infection of amputation stump, unspecified extremity |
| | T8743 | Infection of amputation stump, right lower extremity | T8743 | Infection of amputation stump, right lower extremity |
| T8740 | | | Infection of amputation stump, unspecified extremity | |
| T8744 | Infection of amputation stump, left lower extremity | T8744 | Infection of amputation stump, left lower extremity | |
| | | T8740 | Infection of amputation stump, unspecified extremity | |
| Ear/eye infections | B300 | Keratoconjunctivitis due to adenovirus | B300 | Keratoconjunctivitis due to adenovirus |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Ear/eye infections | B300 | Keratoconjunctivitis due to adenovirus | B308 B309 | Other viral conjunctivitis Viral conjunctivitis, unspecified |
| | B301 | Conjunctivitis due to adenovirus | B301 B308 B309 | Conjunctivitis due to adenovirus Other viral conjunctivitis Viral conjunctivitis, unspecified |
| | B302 | Viral pharyngoconjunctivitis | B302 B308 B309 | Viral pharyngoconjunctivitis Other viral conjunctivitis Viral conjunctivitis, unspecified |
| | B303 | Acute epidemic hemorrhagic conjunctivitis (enteroviral) | B303 | Acute epidemic hemorrhagic conjunctivitis (enteroviral) |
| | | | B308 | Other viral conjunctivitis |
| | | | B309 | Viral conjunctivitis, unspecified |
| | B308 | Other viral conjunctivitis | B308 B309 | Other viral conjunctivitis Viral conjunctivitis, unspecified |
| | B309 | Viral conjunctivitis, unspecified | B309 B308 | Viral conjunctivitis, unspecified Other viral conjunctivitis |
| | H05011 | Cellulitis of right orbit | H05011 | Cellulitis of right orbit |
| | H05012 | Cellulitis of left orbit | H05012 | Cellulitis of left orbit |
| | H05013 | Cellulitis of bilateral orbits | H05013 | Cellulitis of bilateral orbits |
| | H02019 | Cicatricial entropion of unspecified eye, unspecified eyelid | H02019 | Cicatricial entropion of unspecified eye, unspecified eyelid |
| | | | H05011 | Cellulitis of right orbit |
| | | | H05012 | Cellulitis of left orbit |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Ear/eye infections | H02019 | Cicatricial entropion of unspecified eye, unspecified eyelid | H05013 | Cellulitis of bilateral orbits |
| Gastrointestinal infections | A020 | Salmonella enteritis | A020 | Salmonella enteritis |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A021 | Salmonella sepsis | A021 | Salmonella sepsis |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | A0220 | Localized salmonella infection, unspecified | A0220 | Localized salmonella infection, unspecified |
| | | | A029 | Salmonella infection, unspecified |
| | A0223 | Salmonella arthritis | A0223 | Salmonella arthritis |
| | | | A029 | Salmonella infection, unspecified |
| A0220 | | | Localized salmonella infection, unspecified | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A0224 | Salmonella osteomyelitis | A0224 | Salmonella osteomyelitis |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | A0225 | Salmonella pyelonephritis | A0225 | Salmonella pyelonephritis |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | A0229 | Salmonella with other localized infection | A0229 | Salmonella with other localized infection |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | A028 | Other specified salmonella infections | A028 | Other specified salmonella infections |
| | | | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |
| | A029 | Salmonella infection, unspecified | A029 | Salmonella infection, unspecified |
| | | | A0220 | Localized salmonella infection, unspecified |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A030 | Shigellosis due to Shigella dysenteriae | A030 | Shigellosis due to Shigella dysenteriae |
| | | | A039 | Shigellosis, unspecified |
| | A031 | Shigellosis due to Shigella flexneri | A031 | Shigellosis due to Shigella flexneri |
| | | | A039 | Shigellosis, unspecified |
| | A032 | Shigellosis due to Shigella boydii | A032 | Shigellosis due to Shigella boydii |
| | | | A039 | Shigellosis, unspecified |
| | A033 | Shigellosis due to Shigella sonnei | A033 | Shigellosis due to Shigella sonnei |
| | | | A039 | Shigellosis, unspecified |
| | A038 | Other shigellosis | A038 | Other shigellosis |
| | | | A039 | Shigellosis, unspecified |
| | A039 | Shigellosis, unspecified | A039 | Shigellosis, unspecified |
| | A040 | Enteropathogenic Escherichia coli infection | A040 | Enteropathogenic Escherichia coli infection |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A041 | Enterotoxigenic Escherichia coli infection | A041 | Enterotoxigenic Escherichia coli infection |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A042 | Enteroinvasive Escherichia coli infection | A042 | Enteroinvasive Escherichia coli infection |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A043 | Enterohemorrhagic Escherichia coli infection | A043 | Enterohemorrhagic Escherichia coli infection |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A044 | Other intestinal Escherichia coli infections | A044 | Other intestinal Escherichia coli infections |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A045 | Campylobacter enteritis | A045 | Campylobacter enteritis |
| | | | A049 | Bacterial intestinal infection, unspecified |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A045 | Campylobacter enteritis | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A046 | Enteritis due to Yersinia enterocolitica | A046 | Enteritis due to Yersinia enterocolitica |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A0472 | Enterocolitis due to Clostridium difficile, not specified as recurrent | A0472 | Enterocolitis due to Clostridium difficile, not specified as recurrent |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A048 | Other specified bacterial intestinal infections | A048 | Other specified bacterial intestinal infections |
| | | | A049 | Bacterial intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A049 | Bacterial intestinal infection, unspecified | A049 | Bacterial intestinal infection, unspecified |
| | A073 | Isosporiasis | A073 | Isosporiasis |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| A074 | Cyclosporiasis | A074 | Cyclosporiasis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A074 | Cyclosporiasis | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A078 | Other specified protozoal intestinal diseases | A078 | Other specified protozoal intestinal diseases |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A0811 | Acute gastroenteropathy due to Norwalk agent | A0811 | Acute gastroenteropathy due to Norwalk agent |
| | | | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A0819 | Acute gastroenteropathy due to other small round viruses | A0819 | Acute gastroenteropathy due to other small round viruses |
| | | | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A082 | Adenoviral enteritis | A082 | Adenoviral enteritis |
| | | | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| A0831 | Calicivirus enteritis | A0831 | Calicivirus enteritis | |
| | | A084 | Viral intestinal infection, unspecified | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | A0831 | Calicivirus enteritis | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A0832 | Astrovirus enteritis | A0832 | Astrovirus enteritis |
| | | | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A0839 | Other viral enteritis | A0839 | Other viral enteritis |
| | | | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A084 | Viral intestinal infection, unspecified | A084 | Viral intestinal infection, unspecified |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A088 | Other specified intestinal infections | A088 | Other specified intestinal infections |
| | | | A09 | Infectious gastroenteritis and colitis, unspecified |
| | A09 | Infectious gastroenteritis and colitis, unspecified | A09 | Infectious gastroenteritis and colitis, unspecified |
| A329 | Listeriosis, unspecified | A329 | Listeriosis, unspecified | |
| A691 | Other Vincent's infections | A691 | Other Vincent's infections | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | B150 | Hepatitis A with hepatic coma | B150 | Hepatitis A with hepatic coma |
| | | | B179 | Acute viral hepatitis, unspecified |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B159 | Hepatitis A without hepatic coma | B159 | Hepatitis A without hepatic coma |
| | | | B179 | Acute viral hepatitis, unspecified |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B169 | Acute hepatitis B without delta-agent and without hepatic coma | B169 | Acute hepatitis B without delta-agent and without hepatic coma |
| | | | B179 | Acute viral hepatitis, unspecified |
| | | | B1910 | Unspecified viral hepatitis B without hepatic coma |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B1710 | Acute hepatitis C without hepatic coma | B1710 | Acute hepatitis C without hepatic coma |
| | | | B179 | Acute viral hepatitis, unspecified |
| B1920 | | | Unspecified viral hepatitis C without hepatic coma | |
| B199 | | | Unspecified viral hepatitis without hepatic coma | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | B1711 | Acute hepatitis C with hepatic coma | B1711 | Acute hepatitis C with hepatic coma |
| | | | B179 | Acute viral hepatitis, unspecified |
| | | | B1920 | Unspecified viral hepatitis C without hepatic coma |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B178 | Other specified acute viral hepatitis | B178 | Other specified acute viral hepatitis |
| | | | B179 | Acute viral hepatitis, unspecified |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B179 | Acute viral hepatitis, unspecified | B179 | Acute viral hepatitis, unspecified |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B1910 | Unspecified viral hepatitis B without hepatic coma | B1910 | Unspecified viral hepatitis B without hepatic coma |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B1920 | Unspecified viral hepatitis C without hepatic coma | B1920 | Unspecified viral hepatitis C without hepatic coma |
| | | | B199 | Unspecified viral hepatitis without hepatic coma |
| | B199 | Unspecified viral hepatitis without hepatic coma | B199 | Unspecified viral hepatitis without hepatic coma |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Gastrointestinal infections | K9402 | Colostomy infection | K9402 | Colostomy infection |
| | K9422 | Gastrostomy infection | K9422 | Gastrostomy infection |
| Genito-urinary infections | N10 | Acute pyelonephritis | N10 | Acute pyelonephritis |
| | | | N390 | Urinary tract infection, site not specified |
| | N3001 | Acute cystitis with hematuria | N3001 | Acute cystitis with hematuria |
| | | | N390 | Urinary tract infection, site not specified |
| | N3000 | Acute cystitis without hematuria | N3000 | Acute cystitis without hematuria |
| | | | N390 | Urinary tract infection, site not specified |
| | N340 | Urethral abscess | N340 | Urethral abscess |
| | | | N390 | Urinary tract infection, site not specified |
| | N390 | Urinary tract infection, site not specified | N390 | Urinary tract infection, site not specified |
| | N410 | Acute prostatitis | N410 | Acute prostatitis |
| N390 | | | Urinary tract infection, site not specified | |
| N451 | | | Epididymitis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|---|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Genito-urinary infections | N451 | Epididymitis | N451 | Epididymitis |
| | N453 | Epididymo-orchitis | N453 | Epididymo-orchitis |
| | | | N451 | Epididymitis |
| | N454 | Abscess of epididymis or testis | N454 | Abscess of epididymis or testis |
| | | | N451 | Epididymitis |
| | N493 | Fournier gangrene | N493 | Fournier gangrene |
| | | | N390 | Urinary tract infection, site not specified |
| | N99511 | Cystostomy infection | N99511 | Cystostomy infection |
| | | | N390 | Urinary tract infection, site not specified |
| | N99521 | Infection of incontinent external stoma of urinary tract | N99521 | Infection of incontinent external stoma of urinary tract |
| N390 | | | Urinary tract infection, site not specified | |
| N99531 | Infection of continent stoma of urinary tract | N99531 | Infection of continent stoma of urinary tract | |
| | | N390 | Urinary tract infection, site not specified | |
| Neurological infections | A390 | Meningococcal meningitis | A390 | Meningococcal meningitis |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--------------------------------------|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Neurological infections | A390 | Meningococcal meningitis | A399 | Meningococcal infection, unspecified |
| | | | G039 | Meningitis, unspecified |
| | A392 | Acute meningococemia | A392 | Acute meningococemia |
| | | | A399 | Meningococcal infection, unspecified |
| | | | A394 | Meningococemia, unspecified |
| | A394 | Meningococemia, unspecified | A394 | Meningococemia, unspecified |
| | A3981 | Meningococcal encephalitis | A3981 | Meningococcal encephalitis |
| | | | A399 | Meningococcal infection, unspecified |
| | A3982 | Meningococcal retrobulbar neuritis | A3982 | Meningococcal retrobulbar neuritis |
| | | | A399 | Meningococcal infection, unspecified |
| | A3989 | Other meningococcal infections | A3989 | Other meningococcal infections |
| | | | A399 | Meningococcal infection, unspecified |
| | A399 | Meningococcal infection, unspecified | A399 | Meningococcal infection, unspecified |
| A850 | Enteroviral encephalitis | A850 | Enteroviral encephalitis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|------------------------------------|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Neurological infections | A850 | Enteroviral encephalitis | A86 | Unspecified viral encephalitis |
| | A851 | Adenoviral encephalitis | A851 | Adenoviral encephalitis |
| | | | A86 | Unspecified viral encephalitis |
| | A858 | Other specified viral encephalitis | A858 | Other specified viral encephalitis |
| | | | A86 | Unspecified viral encephalitis |
| | A86 | Unspecified viral encephalitis | A86 | Unspecified viral encephalitis |
| | | | A86 | Unspecified viral encephalitis |
| | | | A86 | Unspecified viral encephalitis |
| | A870 | Enteroviral meningitis | A870 | Enteroviral meningitis |
| | | | G039 | Meningitis, unspecified |
| | | | A879 | Viral meningitis, unspecified |
| | A871 | Adenoviral meningitis | A871 | Adenoviral meningitis |
| | | | G039 | Meningitis, unspecified |
| A879 | | | Viral meningitis, unspecified | |
| A878 | Other viral meningitis | A878 | Other viral meningitis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|------------------------------------|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Neurological infections | A878 | Other viral meningitis | G039 | Meningitis, unspecified |
| | | | A879 | Viral meningitis, unspecified |
| | A879 | Viral meningitis, unspecified | A879 | Viral meningitis, unspecified |
| | | | G039 | Meningitis, unspecified |
| | G001 | Pneumococcal meningitis | G001 | Pneumococcal meningitis |
| | | | G039 | Meningitis, unspecified |
| | | | G009 | Bacterial meningitis, unspecified |
| | G002 | Streptococcal meningitis | G002 | Streptococcal meningitis |
| | | | G039 | Meningitis, unspecified |
| | | | G009 | Bacterial meningitis, unspecified |
| | G003 | Staphylococcal meningitis | G003 | Staphylococcal meningitis |
| | | | G039 | Meningitis, unspecified |
| | | | G009 | Bacterial meningitis, unspecified |
| | G008 | Other bacterial meningitis | G008 | Other bacterial meningitis |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|--|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Neurological infections | G008 | Other bacterial meningitis | G039 | Meningitis, unspecified |
| | | | G009 | Bacterial meningitis, unspecified |
| | G009 | Bacterial meningitis, unspecified | G009 | Bacterial meningitis, unspecified |
| | | | G039 | Meningitis, unspecified |
| | G038 | Meningitis due to other specified causes | G038 | Meningitis due to other specified causes |
| G039 | | | Meningitis, unspecified | |
| G039 | Meningitis, unspecified | G039 | Meningitis, unspecified | |
| Respiratory infections | A3700 | Whooping cough due to Bordetella pertussis without pneumonia | A3700 | Whooping cough due to Bordetella pertussis without pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |
| | A3701 | Whooping cough due to Bordetella pertussis with pneumonia | A3701 | Whooping cough due to Bordetella pertussis with pneumonia |
| | | | A3700 | Whooping cough due to Bordetella pertussis without pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |
| A3791 | Whooping cough, unspecified species with pneumonia | A3791 | Whooping cough, unspecified species with pneumonia | |
| A3710 | Whooping cough due to Bordetella parapertussis without pneumonia | A3710 | Whooping cough due to Bordetella parapertussis without pneumonia | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | A3710 | Whooping cough due to Bordetella parapertussis without pneumonia | A3790 | Whooping cough, unspecified species without pneumonia |
| | A3711 | Whooping cough due to Bordetella parapertussis with pneumonia | A3711 | Whooping cough due to Bordetella parapertussis with pneumonia |
| | | | A3710 | Whooping cough due to Bordetella parapertussis without pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |
| | | | A3791 | Whooping cough, unspecified species with pneumonia |
| | A3780 | Whooping cough due to other Bordetella species without pneumonia | A3780 | Whooping cough due to other Bordetella species without pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |
| | A3781 | Whooping cough due to other Bordetella species with pneumonia | A3781 | Whooping cough due to other Bordetella species with pneumonia |
| | | | A3780 | Whooping cough due to other Bordetella species without pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |
| | | | A3791 | Whooping cough, unspecified species with pneumonia |
| | A3790 | Whooping cough, unspecified species without pneumonia | A3790 | Whooping cough, unspecified species without pneumonia |
| | A3791 | Whooping cough, unspecified species with pneumonia | A3791 | Whooping cough, unspecified species with pneumonia |
| | | | A3790 | Whooping cough, unspecified species without pneumonia |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | | |
|---|---|--|--|---|--|
| Column A: | Column B: | Column C: | Column D: | Column E: | |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) | |
| Respiratory infections | A481 | Legionnaires' disease | A481 | Legionnaires' disease | |
| | A482 | Nonpneumonic Legionnaires' disease [Pontiac fever] | A482 | Nonpneumonic Legionnaires' disease [Pontiac fever] | |
| | B340 | Adenovirus infection, unspecified | B340 | Adenovirus infection, unspecified | |
| | B341 | Enterovirus infection, unspecified | B341 | Enterovirus infection, unspecified | |
| | B342 | Coronavirus infection, unspecified | B342 | Coronavirus infection, unspecified | |
| | J00 | Acute nasopharyngitis [common cold] | | J00 | Acute nasopharyngitis [common cold] |
| | | | | J069 | Acute upper respiratory infection, unspecified |
| | J09X1 | Influenza due to identified novel influenza A virus with pneumonia | | J09X1 | Influenza due to identified novel influenza A virus with pneumonia |
| | | | | J1108 | Influenza due to unidentified influenza virus with specified pneumonia |
| | | | | J1100 | Influenza due to unidentified influenza virus with unspecified type of pneumonia |
| J09X2 | Influenza due to identified novel influenza A virus with other respiratory manifestations | | J09X2 | Influenza due to identified novel influenza A virus with other respiratory manifestations | |
| | | | J111 | Influenza due to unidentified influenza virus with other respiratory manifestations | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J09X3 | Influenza due to identified novel influenza A virus with gastrointestinal manifestations | J09X3 | Influenza due to identified novel influenza A virus with gastrointestinal manifestations |
| | | | J112 | Influenza due to unidentified influenza virus with gastrointestinal manifestations |
| | J09X9 | Influenza due to identified novel influenza A virus with other manifestations | J09X9 | Influenza due to identified novel influenza A virus with other manifestations |
| | | | J1189 | Influenza due to unidentified influenza virus with other manifestations |
| | J0130 | Acute sphenoidal sinusitis, unspecified | J0130 | Acute sphenoidal sinusitis, unspecified |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J00 | Acute nasopharyngitis [common cold] |
| | J0140 | Acute pansinusitis, unspecified | J0140 | Acute pansinusitis, unspecified |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J00 | Acute nasopharyngitis [common cold] |
| | J020 | Streptococcal pharyngitis | J020 | Streptococcal pharyngitis |
| | | | J069 | Acute upper respiratory infection, unspecified |
| J029 | | | Acute pharyngitis, unspecified | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J028 | Acute pharyngitis due to other specified organisms | J028 | Acute pharyngitis due to other specified organisms |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J029 | Acute pharyngitis, unspecified |
| | J029 | Acute pharyngitis, unspecified | J029 | Acute pharyngitis, unspecified |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | J0300 | Acute streptococcal tonsillitis, unspecified | J0300 | Acute streptococcal tonsillitis, unspecified |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J020 | Streptococcal pharyngitis |
| | | | J0390 | Acute tonsillitis, unspecified |
| | J0380 | Acute tonsillitis due to other specified organisms | J0380 | Acute tonsillitis due to other specified organisms |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J028 | Acute pharyngitis due to other specified organisms |
| J0390 | | | Acute tonsillitis, unspecified | |
| J0390 | Acute tonsillitis, unspecified | J0390 | Acute tonsillitis, unspecified | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-------------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J0390 | Acute tonsillitis, unspecified | J069 | Acute upper respiratory infection, unspecified |
| | J040 | Acute laryngitis | J040 | Acute laryngitis |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | J0410 | Acute tracheitis without obstruction | J0410 | Acute tracheitis without obstruction |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J0411 | Acute tracheitis with obstruction | J0411 | Acute tracheitis with obstruction |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J042 | Acute laryngotracheitis | J042 | Acute laryngotracheitis |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J050 | Acute obstructive laryngitis [croup] | J050 | Acute obstructive laryngitis [croup] |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | J0510 | Acute epiglottitis without obstruction | J0510 | Acute epiglottitis without obstruction |
| J069 | | | Acute upper respiratory infection, unspecified | |
| J0511 | Acute epiglottitis with obstruction | J0511 | Acute epiglottitis with obstruction | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|--|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J0511 | Acute epiglottitis with obstruction | J069 | Acute upper respiratory infection, unspecified |
| | J060 | Acute laryngopharyngitis | J060 | Acute laryngopharyngitis |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | J069 | Acute upper respiratory infection, unspecified | J069 | Acute upper respiratory infection, unspecified |
| | J1000 | Influenza due to other identified influenza virus with unspecified type of pneumonia | J1000 | Influenza due to other identified influenza virus with unspecified type of pneumonia |
| | | | J1100 | Influenza due to unidentified influenza virus with unspecified type of pneumonia |
| | J1001 | Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia | J1001 | Influenza due to other identified influenza virus with the same other identified influenza virus pneumonia |
| | J1008 | Influenza due to other identified influenza virus with other specified pneumonia | J1008 | Influenza due to other identified influenza virus with other specified pneumonia |
| | | | J1108 | Influenza due to unidentified influenza virus with specified pneumonia |
| | J101 | Influenza due to other identified influenza virus with other respiratory manifestations | J101 | Influenza due to other identified influenza virus with other respiratory manifestations |
| | | J111 | Influenza due to unidentified influenza virus with other respiratory manifestations | |
| J102 | Influenza due to other identified influenza virus with gastrointestinal manifestations | J102 | Influenza due to other identified influenza virus with gastrointestinal manifestations | |
| | | J112 | Influenza due to unidentified influenza virus with gastrointestinal manifestations | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|---|---|---|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J1081 | Influenza due to other identified influenza virus with encephalopathy | J1081 | Influenza due to other identified influenza virus with encephalopathy |
| | | | J1181 | Influenza due to unidentified influenza virus with encephalopathy |
| | J1082 | Influenza due to other identified influenza virus with myocarditis | J1082 | Influenza due to other identified influenza virus with myocarditis |
| | | | J1182 | Influenza due to unidentified influenza virus with myocarditis |
| | J1083 | Influenza due to other identified influenza virus with otitis media | J1083 | Influenza due to other identified influenza virus with otitis media |
| | | | J1183 | Influenza due to unidentified influenza virus with otitis media |
| | J1089 | Influenza due to other identified influenza virus with other manifestations | J1089 | Influenza due to other identified influenza virus with other manifestations |
| | | | J1189 | Influenza due to unidentified influenza virus with other manifestations |
| | J1100 | Influenza due to unidentified influenza virus with unspecified type of pneumonia | J1100 | Influenza due to unidentified influenza virus with unspecified type of pneumonia |
| | J1108 | Influenza due to unidentified influenza virus with specified pneumonia | J1108 | Influenza due to unidentified influenza virus with specified pneumonia |
| | J111 | Influenza due to unidentified influenza virus with other respiratory manifestations | J111 | Influenza due to unidentified influenza virus with other respiratory manifestations |
| | J112 | Influenza due to unidentified influenza virus with gastrointestinal manifestations | J112 | Influenza due to unidentified influenza virus with gastrointestinal manifestations |
| J1181 | Influenza due to unidentified influenza virus with encephalopathy | J1181 | Influenza due to unidentified influenza virus with encephalopathy | |
| J1182 | Influenza due to unidentified influenza virus with myocarditis | J1182 | Influenza due to unidentified influenza virus with myocarditis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J1183 | Influenza due to unidentified influenza virus with otitis media | J1183 | Influenza due to unidentified influenza virus with otitis media |
| | J1189 | Influenza due to unidentified influenza virus with other manifestations | J1189 | Influenza due to unidentified influenza virus with other manifestations |
| | J120 | Adenoviral pneumonia | J120 | Adenoviral pneumonia |
| | | | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J121 | Respiratory syncytial virus pneumonia | J121 | Respiratory syncytial virus pneumonia |
| | | | J210 | Acute bronchiolitis due to respiratory syncytial virus |
| | | | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J122 | Parainfluenza virus pneumonia | J122 | Parainfluenza virus pneumonia |
| | | | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J122 | Parainfluenza virus pneumonia | J22 | Unspecified acute lower respiratory infection |
| | J123 | Human metapneumovirus pneumonia | J123 | Human metapneumovirus pneumonia |
| | | | J211 | Acute bronchiolitis due to human metapneumovirus |
| | | | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J1289 | Other viral pneumonia | J1289 | Other viral pneumonia |
| | | | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J129 | Viral pneumonia, unspecified | J129 | Viral pneumonia, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J13 | Pneumonia due to Streptococcus pneumoniae | J13 | Pneumonia due to Streptococcus pneumoniae |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J13 | Pneumonia due to Streptococcus pneumoniae | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J14 | Pneumonia due to Hemophilus influenzae | J14 | Pneumonia due to Hemophilus influenzae |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J150 | Pneumonia due to Klebsiella pneumoniae | J150 | Pneumonia due to Klebsiella pneumoniae |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J151 | Pneumonia due to Pseudomonas | J151 | Pneumonia due to Pseudomonas |
| J189 | | | Pneumonia, unspecified organism | |
| J159 | | | Unspecified bacterial pneumonia | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J151 | Pneumonia due to Pseudomonas | J22 | Unspecified acute lower respiratory infection |
| | J1520 | Pneumonia due to staphylococcus, unspecified | J1520 | Pneumonia due to staphylococcus, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J15211 | Pneumonia due to Methicillin susceptible Staphylococcus aureus | J15211 | Pneumonia due to Methicillin susceptible Staphylococcus aureus |
| | | | J1520 | Pneumonia due to staphylococcus, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J15212 | Pneumonia due to Methicillin resistant Staphylococcus aureus | J15212 | Pneumonia due to Methicillin resistant Staphylococcus aureus |
| | | | J1520 | Pneumonia due to staphylococcus, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J15212 | Pneumonia due to Methicillin resistant Staphylococcus aureus | J22 | Unspecified acute lower respiratory infection |
| | J1529 | Pneumonia due to other staphylococcus | J1529 | Pneumonia due to other staphylococcus |
| | | | J1520 | Pneumonia due to staphylococcus, unspecified |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J153 | Pneumonia due to streptococcus, group B | J153 | Pneumonia due to streptococcus, group B |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J154 | Pneumonia due to other streptococci | J154 | Pneumonia due to other streptococci |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J155 | Pneumonia due to Escherichia coli | J155 | Pneumonia due to Escherichia coli |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J156 | Pneumonia due to other Gram-negative bacteria | J156 | Pneumonia due to other Gram-negative bacteria |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J157 | Pneumonia due to Mycoplasma pneumoniae | J157 | Pneumonia due to Mycoplasma pneumoniae |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J158 | Pneumonia due to other specified bacteria | J158 | Pneumonia due to other specified bacteria |
| | | | J189 | Pneumonia, unspecified organism |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J158 | Pneumonia due to other specified bacteria | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J159 | Unspecified bacterial pneumonia | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J168 | Pneumonia due to other specified infectious organisms | J168 | Pneumonia due to other specified infectious organisms |
| | | | J189 | Pneumonia, unspecified organism |
| | | | J159 | Unspecified bacterial pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J180 | Bronchopneumonia, unspecified organism | J180 | Bronchopneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J181 | Lobar pneumonia, unspecified organism | J181 | Lobar pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J182 | Hypostatic pneumonia, unspecified organism | J182 | Hypostatic pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J188 | Other pneumonia, unspecified organism | J188 | Other pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J189 | Pneumonia, unspecified organism | J189 | Pneumonia, unspecified organism |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J200 | Acute bronchitis due to Mycoplasma pneumoniae | J200 | Acute bronchitis due to Mycoplasma pneumoniae |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J201 | Acute bronchitis due to Hemophilus influenzae | J201 | Acute bronchitis due to Hemophilus influenzae |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J202 | Acute bronchitis due to streptococcus | J202 | Acute bronchitis due to streptococcus |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J203 | Acute bronchitis due to coxsackievirus | J203 | Acute bronchitis due to coxsackievirus |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J203 | Acute bronchitis due to coxsackievirus | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J204 | Acute bronchitis due to parainfluenza virus | J204 | Acute bronchitis due to parainfluenza virus |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J205 | Acute bronchitis due to respiratory syncytial virus | J205 | Acute bronchitis due to respiratory syncytial virus |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J206 | Acute bronchitis due to rhinovirus | J206 | Acute bronchitis due to rhinovirus |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J207 | Acute bronchitis due to echovirus | J207 | Acute bronchitis due to echovirus |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J208 | Acute bronchitis due to other specified organisms | J208 | Acute bronchitis due to other specified organisms |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J209 | Acute bronchitis, unspecified | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | | | J210 | Acute bronchiolitis due to respiratory syncytial virus |
| | J210 | Acute bronchiolitis due to respiratory syncytial virus | J210 | Acute bronchiolitis due to respiratory syncytial virus |
| | | | J219 | Acute bronchiolitis, unspecified |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J205 | Acute bronchitis due to respiratory syncytial virus |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J211 | Acute bronchiolitis due to human metapneumovirus | J211 | Acute bronchiolitis due to human metapneumovirus |
| | | | J219 | Acute bronchiolitis, unspecified |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|---|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J218 | Acute bronchiolitis due to other specified organisms | J218 | Acute bronchiolitis due to other specified organisms |
| | | | J219 | Acute bronchiolitis, unspecified |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J208 | Acute bronchitis due to other specified organisms |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J219 | Acute bronchiolitis, unspecified | J219 | Acute bronchiolitis, unspecified |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J22 | Unspecified acute lower respiratory infection | J22 | Unspecified acute lower respiratory infection |
| | J391 | Other abscess of pharynx | J391 | Other abscess of pharynx |
| | | | J069 | Acute upper respiratory infection, unspecified |
| | | | J029 | Acute pharyngitis, unspecified |
| | | | J028 | Acute pharyngitis due to other specified organisms |
| J40 | Bronchitis, not specified as acute or chronic | J40 | Bronchitis, not specified as acute or chronic | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|---|--|---|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Respiratory infections | J40 | Bronchitis, not specified as acute or chronic | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J440 | Chronic obstructive pulmonary disease with acute lower respiratory infection | J440 | Chronic obstructive pulmonary disease with acute lower respiratory infection |
| | J470 | Bronchiectasis with acute lower respiratory infection | J470 | Bronchiectasis with acute lower respiratory infection |
| | | | J209 | Acute bronchitis, unspecified |
| | | | J22 | Unspecified acute lower respiratory infection |
| | J852 | Abscess of lung without pneumonia | J852 | Abscess of lung without pneumonia |
| | J9502 | Infection of tracheostomy stoma | J9502 | Infection of tracheostomy stoma |
| | J95851 | Ventilator associated pneumonia | J95851 | Ventilator associated pneumonia |
| | | | J22 | Unspecified acute lower respiratory infection |
| | U071 | 2019-nCoV acute respiratory disease | U071 | 2019-nCoV acute respiratory disease |
| | | | B9729 | Other coronavirus as the cause of diseases classified elsewhere |
| B9729 | Other coronavirus as the cause of diseases classified elsewhere | B9729 | Other coronavirus as the cause of diseases classified elsewhere | |
| | | U071 | 2019-nCoV acute respiratory disease | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Sepsis | A400 | Sepsis due to streptococcus, group A | A400 A491 A419 | Sepsis due to streptococcus, group A Streptococcal infection, unspecified site Sepsis, unspecified organism |
| | A401 | Sepsis due to streptococcus, group B | A401 A491 A419 | Sepsis due to streptococcus, group B Streptococcal infection, unspecified site Sepsis, unspecified organism |
| | A403 | Sepsis due to Streptococcus pneumoniae | A403 A491 A419 | Sepsis due to Streptococcus pneumoniae Streptococcal infection, unspecified site Sepsis, unspecified organism |
| | A408 | Other streptococcal sepsis | A408 A409 A419 A491 | Other streptococcal sepsis Streptococcal sepsis, unspecified Sepsis, unspecified organism Streptococcal infection, unspecified site |
| | A409 | Streptococcal sepsis, unspecified | A409 A419 | Streptococcal sepsis, unspecified Sepsis, unspecified organism |
| | A4101 | Sepsis due to Methicillin susceptible Staphylococcus aureus | A4101 A412 A419 A4901 | Sepsis due to Methicillin susceptible Staphylococcus aureus Sepsis due to unspecified staphylococcus Sepsis, unspecified organism Methicillin susceptible Staphylococcus aureus infection, unspecified site |
| | A4102 | Sepsis due to Methicillin resistant Staphylococcus aureus | A4102 A412 | Sepsis due to Methicillin resistant Staphylococcus aureus Sepsis due to unspecified staphylococcus |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Sepsis | A4102 | Sepsis due to Methicillin resistant Staphylococcus aureus | A419 | Sepsis, unspecified organism |
| | | | A4902 | Methicillin resistant Staphylococcus aureus infection, unspecified site |
| | A411 | Sepsis due to other specified staphylococcus | A411 | Sepsis due to other specified staphylococcus |
| | | | A412 | Sepsis due to unspecified staphylococcus |
| | | | A419 | Sepsis, unspecified organism |
| | A412 | Sepsis due to unspecified staphylococcus | A412 | Sepsis due to unspecified staphylococcus |
| | A413 | Sepsis due to Hemophilus influenzae | A419 | Sepsis, unspecified organism |
| | | | A413 | Sepsis due to Hemophilus influenzae |
| | | | A492 | Hemophilus influenzae infection, unspecified site |
| | A414 | Sepsis due to anaerobes | A419 | Sepsis, unspecified organism |
| | | | A414 | Sepsis due to anaerobes |
| | A4150 | Gram-negative sepsis, unspecified | A4150 | Gram-negative sepsis, unspecified |
| | A4151 | Sepsis due to Escherichia coli [E. coli] | A419 | Sepsis, unspecified organism |
| | | | A4151 | Sepsis due to Escherichia coli [E. coli] |
| A4150 | | | Gram-negative sepsis, unspecified | |
| A4152 | Sepsis due to Pseudomonas | A419 | Sepsis, unspecified organism | |
| | | A4152 | Sepsis due to Pseudomonas | |
| A4153 | Sepsis due to Serratia | A4150 | Gram-negative sepsis, unspecified | |
| | | A4153 | Sepsis due to Serratia | |
| | | | A4150 | Gram-negative sepsis, unspecified |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|--|---|--|---|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Sepsis | A4153 | Sepsis due to Serratia | A419 | Sepsis, unspecified organism |
| | A4159 | Other Gram-negative sepsis | A4159 | Other Gram-negative sepsis |
| | | | A419 | Sepsis, unspecified organism |
| | A4181 | Sepsis due to Enterococcus | A4181 | Sepsis due to Enterococcus |
| | | | A419 | Sepsis, unspecified organism |
| | A4189 | Other specified sepsis | A4189 | Other specified sepsis |
| | | | A419 | Sepsis, unspecified organism |
| | A419 | Sepsis, unspecified organism | A419 | Sepsis, unspecified organism |
| | A4901 | Methicillin susceptible Staphylococcus aureus infection, unspecified site | A4901 | Methicillin susceptible Staphylococcus aureus infection, unspecified site |
| | A4902 | Methicillin resistant Staphylococcus aureus infection, unspecified site | A4902 | Methicillin resistant Staphylococcus aureus infection, unspecified site |
| | A491 | Streptococcal infection, unspecified site | A491 | Streptococcal infection, unspecified site |
| | | | A419 | Sepsis, unspecified organism |
| | A492 | Hemophilus influenzae infection, unspecified site | A492 | Hemophilus influenzae infection, unspecified site |
| | | | A4150 | Gram-negative sepsis, unspecified |
| | A493 | Mycoplasma infection, unspecified site | A493 | Mycoplasma infection, unspecified site |
| B376 | Candidal endocarditis | B376 | Candidal endocarditis | |
| | | B377 | Candidal sepsis | |
| B377 | Candidal sepsis | B377 | Candidal sepsis | |
| | | A419 | Sepsis, unspecified organism | |
| I2601 | Septic pulmonary embolism with acute cor pulmonale | I2601 | Septic pulmonary embolism with acute cor pulmonale | |
| | | A419 | Sepsis, unspecified organism | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|---|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Sepsis | I2690 | Septic pulmonary embolism without acute cor pulmonale | I2690 | Septic pulmonary embolism without acute cor pulmonale |
| | | | A419 | Sepsis, unspecified organism |
| | I76 | Septic arterial embolism | I76 | Septic arterial embolism |
| | | | A419 | Sepsis, unspecified organism |
| | R6520 | Severe sepsis without septic shock | R6520 | Severe sepsis without septic shock |
| | | | A419 | Sepsis, unspecified organism |
| | R6521 | Severe sepsis with septic shock | R6521 | Severe sepsis with septic shock |
| | | A419 | Sepsis, unspecified organism | |
| | R7881 | Bacteremia | R7881 | Bacteremia |
| | | | A419 | Sepsis, unspecified organism |
| | A480 | Gas gangrene | A480 | Gas gangrene |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| Skin infections | A4852 | Wound botulism | A4852 | Wound botulism |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | B86 | Scabies | B86 | Scabies |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | B870 | Cutaneous myiasis | B870 | Cutaneous myiasis |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | B871 | Wound myiasis | B871 | Wound myiasis |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | L00 | Staphylococcal scalded skin syndrome | L00 | Staphylococcal scalded skin syndrome |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--------------------------------------|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Skin infections | L00 | Staphylococcal scalded skin syndrome | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0103 | Bullous impetigo |
| | L0100 | Impetigo, unspecified | L0100 | Impetigo, unspecified |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | L0102 | Bockhart's impetigo | L0102 | Bockhart's impetigo |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0100 | Impetigo, unspecified |
| | L0103 | Bullous impetigo | L0103 | Bullous impetigo |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0100 | Impetigo, unspecified |
| | L03011 | Cellulitis of right finger | L03011 | Cellulitis of right finger |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | L03113 | Cellulitis of right upper limb | |
| | | L03019 | Cellulitis of unspecified finger | |
| | | L03012 | Cellulitis of left finger | |
| | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| | | L0390 | Cellulitis, unspecified | |
| | | L03114 | Cellulitis of left upper limb | |
| | | L03019 | Cellulitis of unspecified finger | |
| | L03019 | Cellulitis of unspecified finger | L03019 | Cellulitis of unspecified finger |
| Skin infections | L03019 | Cellulitis of unspecified finger | L089 | Local infection of the skin and subcutaneous tissue, unspecified |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|------------------------------------|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Skin infections | L03031 | Cellulitis of right toe | L0390 | Cellulitis, unspecified |
| | | | L03031 | Cellulitis of right toe |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03115 | Cellulitis of right lower limb |
| | L03032 | Cellulitis of left toe | L03039 | Cellulitis of unspecified toe |
| | | | L03032 | Cellulitis of left toe |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03116 | Cellulitis of left lower limb |
| | L03039 | Cellulitis of unspecified toe | L03039 | Cellulitis of unspecified toe |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | L03111 | Cellulitis of right axilla | L03111 | Cellulitis of right axilla |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03313 | Cellulitis of chest wall |
| | | | L03312 | Cellulitis of back [any part except buttock] |
| | L03112 | Cellulitis of left axilla | L03319 | Cellulitis of trunk, unspecified |
| | | | L03112 | Cellulitis of left axilla |
| L03112 | Cellulitis of left axilla | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| | | L0390 | Cellulitis, unspecified | |
| | | L03313 | Cellulitis of chest wall | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Skin infections | L03113 | Cellulitis of right upper limb | L03319 | Cellulitis of trunk, unspecified |
| | | | L03113 | Cellulitis of right upper limb |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03221 | Cellulitis of neck |
| | | | L03313 | Cellulitis of chest wall |
| | | | L03312 | Cellulitis of back [any part except buttock] |
| | | | L03319 | Cellulitis of trunk, unspecified |
| | L03119 | Cellulitis of unspecified part of limb | | |
| | L03114 | Cellulitis of left upper limb | L03114 | Cellulitis of left upper limb |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03221 | Cellulitis of neck |
| | | | L03313 | Cellulitis of chest wall |
| | | | L03312 | Cellulitis of back [any part except buttock] |
| L03319 | | | Cellulitis of trunk, unspecified | |
| L03115 | Cellulitis of right lower limb | L03115 | Cellulitis of right lower limb | |
| | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| | | L0390 | Cellulitis, unspecified | |
| L03115 | Cellulitis of right lower limb | L03314 | Cellulitis of groin | |
| | | L03119 | Cellulitis of unspecified part of limb | |
| L03319 | Cellulitis of trunk, unspecified | | | |
| L03116 | Cellulitis of left lower limb | L03116 | Cellulitis of left lower limb | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | | |
|---|-----------------------------------|--|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: | |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) | |
| Skin infections | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| | | | L0390 | Cellulitis, unspecified | |
| | | | L03314 | Cellulitis of groin | |
| | | | L03319 | Cellulitis of trunk, unspecified | |
| | | | L03119 | Cellulitis of unspecified part of limb | |
| | | L03119 | Cellulitis of unspecified part of limb | L03119 | Cellulitis of unspecified part of limb |
| | | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | | L0390 | Cellulitis, unspecified |
| | | L03211 | Cellulitis of face | L03211 | Cellulitis of face |
| | | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | | L0390 | Cellulitis, unspecified |
| | | | | L03811 | Cellulitis of head [any part, except face] |
| | | L03221 | Cellulitis of neck | L03221 | Cellulitis of neck |
| | | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | | L0390 | Cellulitis, unspecified |
| | | | L03811 | Cellulitis of head [any part, except face] | |
| | | | L03211 | Cellulitis of face | |
| | L03311 | Cellulitis of abdominal wall | L03311 | Cellulitis of abdominal wall | |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| | | | L0390 | Cellulitis, unspecified | |
| | L03311 | Cellulitis of abdominal wall | L03313 | Cellulitis of chest wall | |
| | | | L03319 | Cellulitis of trunk, unspecified | |
| | L03312 | Cellulitis of back [any part except buttock] | L03312 | Cellulitis of back [any part except buttock] | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|------------------------------------|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Skin infections | L03313 | Cellulitis of chest wall | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03319 | Cellulitis of trunk, unspecified |
| | L03314 | Cellulitis of groin | L03313 | Cellulitis of chest wall |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | L03315 | Cellulitis of perineum | L03319 | Cellulitis of trunk, unspecified |
| | | | L03314 | Cellulitis of groin |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | L03316 | Cellulitis of umbilicus | L03311 | Cellulitis of abdominal wall |
| | | | L03319 | Cellulitis of trunk, unspecified |
| | | | L03315 | Cellulitis of perineum |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| L03317 | Cellulitis of buttock | L03314 | Cellulitis of groin | |
| | | L03312 | Cellulitis of back [any part except buttock] | |
| | | L03319 | Cellulitis of trunk, unspecified | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|--|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Skin infections | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03312 | Cellulitis of back [any part except buttock] |
| | | | L03319 | Cellulitis of trunk, unspecified |
| | L03811 | Cellulitis of head [any part, except face] | L03811 | Cellulitis of head [any part, except face] |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | L03818 | Cellulitis of other sites | L03818 | Cellulitis of other sites |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | L03319 | Cellulitis of trunk, unspecified | L03319 | Cellulitis of trunk, unspecified |
| | | | L089 | Local infection of the skin and subcutaneous tissue, unspecified |
| | | | L0390 | Cellulitis, unspecified |
| | | | L03221 | Cellulitis of neck |
| L0390 | Cellulitis, unspecified | L0390 | Cellulitis, unspecified | |
| | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| L0889 | Other specified local infections of the skin and subcutaneous tissue | L0889 | Other specified local infections of the skin and subcutaneous tissue | |
| | | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| L089 | Local infection of the skin and subcutaneous tissue, unspecified | L089 | Local infection of the skin and subcutaneous tissue, unspecified | |
| L303 | Infective dermatitis | L303 | Infective dermatitis | |

| Principal Diagnosis for Hospitalizations Between Day Four after SNF Admission and Day Three after the End of SNF Care | | | Principal and Comorbid Diagnoses on Prior Hospital Claim | |
|---|-----------------------------------|--|--|--|
| Column A: | Column B: | Column C: | Column D: | Column E: |
| Category | ICD 10 Code (principal diagnosis) | ICD 10 Label (principal diagnosis) | ICD 10 Code (principal + comorbid diagnosis) | ICD 10 Label (principal + comorbid diagnosis) |
| Unknown site and unknown bugs | B348 | Other viral infections of unspecified site | B348 | Other viral infections of unspecified site |
| | B349 | Viral infection, unspecified | B349 | Viral infection, unspecified |
| | A488 | Other specified bacterial diseases | A488 | Other specified bacterial diseases |
| | A498 | Other bacterial infections of unspecified site | A498 | Other bacterial infections of unspecified site |
| | A499 | Bacterial infection, unspecified | A499 | Bacterial infection, unspecified |

Note: FY 2019 ICD-10 codes are presented in this table. A year specific list is used for the measure construction and calculation.

APPENDIX B: RISK ADJUSTMENT MODEL RESULTS

Table 6: SNF HAI Hierarchical Logistic Regression Model Results, FY 2019

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| Intercept | | | -4.857 | 0.049 | <0.001 | | | |
| Age and Sex (Reference: Male age 60 to 64) | | | | | | | | |
| Male age 18 to 34 | 1,475 | 0.1% | -0.063 | 0.103 | 0.539 | 0.939 | 0.767 | 1.149 |
| Male age 35 to 44 | 5,221 | 0.3% | -0.063 | 0.058 | 0.276 | 0.939 | 0.838 | 1.052 |
| Male age 45 to 54 | 18,740 | 1.0% | -0.103 | 0.036 | 0.004 | 0.902 | 0.840 | 0.968 |
| Male age 55 to 59 | 24,582 | 1.3% | -0.042 | 0.033 | 0.205 | 0.959 | 0.898 | 1.023 |
| Male age 65 to 69 | 84,307 | 4.6% | 0.102 | 0.026 | <0.001 | 1.107 | 1.053 | 1.164 |
| Male age 70 to 74 | 107,638 | 5.9% | 0.182 | 0.025 | <0.001 | 1.200 | 1.142 | 1.260 |
| Male age 75 to 79 | 122,755 | 6.7% | 0.279 | 0.025 | <0.001 | 1.321 | 1.258 | 1.389 |
| Male age 80 to 84 | 127,122 | 7.0% | 0.369 | 0.026 | <0.001 | 1.446 | 1.375 | 1.521 |
| Male age 85 to 89 | 112,798 | 6.2% | 0.409 | 0.026 | <0.001 | 1.506 | 1.430 | 1.585 |
| Male age 90 to 94 | 67,137 | 3.7% | 0.452 | 0.029 | <0.001 | 1.571 | 1.485 | 1.662 |
| Male age ≥ 95 | 20,327 | 1.1% | 0.444 | 0.038 | <0.001 | 1.560 | 1.447 | 1.681 |
| Female age 18 to 34 | 1,198 | 0.1% | 0.014 | 0.110 | 0.897 | 1.014 | 0.817 | 1.259 |
| Female age 35 to 44 | 4,399 | 0.2% | 0.003 | 0.063 | 0.959 | 1.003 | 0.887 | 1.135 |
| Female age 45 to 54 | 16,127 | 0.9% | -0.045 | 0.039 | 0.241 | 0.956 | 0.886 | 1.031 |
| Female age 55 to 59 | 21,515 | 1.2% | 0.001 | 0.035 | 0.976 | 1.001 | 0.934 | 1.073 |
| Female age 60 to 64 | 36,511 | 2.0% | 0.018 | 0.030 | 0.552 | 1.018 | 0.959 | 1.081 |
| Female age 65 to 69 | 93,470 | 5.1% | 0.086 | 0.026 | 0.001 | 1.089 | 1.035 | 1.146 |
| Female age 70 to 74 | 143,152 | 7.9% | 0.114 | 0.025 | <0.001 | 1.121 | 1.067 | 1.178 |
| Female age 75 to 79 | 173,786 | 9.5% | 0.122 | 0.025 | <0.001 | 1.130 | 1.076 | 1.187 |
| Female age 80 to 84 | 197,514 | 10.8% | 0.152 | 0.025 | <0.001 | 1.164 | 1.107 | 1.223 |
| Female age 85 to 89 | 200,646 | 11.0% | 0.145 | 0.026 | <0.001 | 1.156 | 1.099 | 1.217 |
| Female age 90 to 94 | 145,977 | 8.0% | 0.142 | 0.027 | <0.001 | 1.153 | 1.093 | 1.216 |
| Female age ≥ 95 | 58,565 | 3.2% | 0.124 | 0.032 | <0.001 | 1.132 | 1.063 | 1.205 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| Original Reason for Medicare (Reference: Age) | | | | | | | | |
| Disability/ESRD | 458,098 | 25.1% | 0.076 | 0.010 | <0.001 | 1.078 | 1.059 | 1.099 |
| Surgery Category (Prior IP Stay) | | | | | | | | |
| Neurosurgery | 15,403 | 0.8% | 0.023 | 0.041 | 0.570 | 1.023 | 0.945 | 1.108 |
| Ophthalmology | 198 | 0.0% | -0.341 | 0.394 | 0.387 | 0.711 | 0.328 | 1.540 |
| Otolaryngology | 3,386 | 0.2% | -0.168 | 0.082 | 0.041 | 0.845 | 0.719 | 0.993 |
| Cardio Thoracic | 25,544 | 1.4% | -0.403 | 0.040 | <0.001 | 0.668 | 0.618 | 0.723 |
| Vascular Surgery | 18,499 | 1.0% | -0.062 | 0.033 | 0.058 | 0.940 | 0.882 | 1.002 |
| Urology | 20,920 | 1.1% | 0.150 | 0.028 | <0.001 | 1.161 | 1.099 | 1.228 |
| Obstetrics/Gynecology | 3,031 | 0.2% | -0.347 | 0.102 | 0.001 | 0.707 | 0.579 | 0.863 |
| Orthopedics | 301,194 | 16.5% | -0.170 | 0.017 | <0.001 | 0.844 | 0.816 | 0.872 |
| Plastic Surgery | 49,217 | 2.7% | -0.020 | 0.020 | 0.316 | 0.981 | 0.944 | 1.019 |
| General Surgery | 79,426 | 4.4% | -0.012 | 0.018 | 0.502 | 0.988 | 0.955 | 1.023 |
| Dialysis but not ESRD (Prior IP Stay) (Reference: No) | | | | | | | | |
| Yes | 16,651 | 0.9% | 0.067 | 0.027 | 0.011 | 1.070 | 1.015 | 1.127 |
| Principal Diagnosis Clinical Categories (Prior IP Stay) (Reference: Collapsed CCS 10; 22; 36; 37; 53; 56; 86; 87; 88; 124; 167; 181; 183; 184; 191; 195; 203; 247; 254; 255; 256; 652; 654; 655; 663) | | | | | | | | |
| 1- Tuberculosis | 80 | 0.0% | 1.083 | 0.387 | 0.005 | 2.955 | 1.385 | 6.303 |
| 2- Septicemia (except in labor) | 199,661 | 11.0% | 1.093 | 0.045 | <0.001 | 2.982 | 2.731 | 3.256 |
| 3- Bacterial infection; unspecified site | 1,966 | 0.1% | 1.268 | 0.094 | <0.001 | 3.555 | 2.955 | 4.278 |
| 4- Mycoses | 1,356 | 0.1% | 1.541 | 0.100 | <0.001 | 4.668 | 3.835 | 5.682 |
| 5- HIV infection | 406 | 0.0% | 0.728 | 0.227 | 0.001 | 2.071 | 1.327 | 3.230 |
| 6- Hepatitis | 447 | 0.0% | 1.186 | 0.190 | <0.001 | 3.274 | 2.257 | 4.747 |
| 7- Viral infection | 1,711 | 0.1% | 1.051 | 0.120 | <0.001 | 2.860 | 2.260 | 3.620 |
| 11- Cancer of head and neck | 1,220 | 0.1% | 1.063 | 0.132 | <0.001 | 2.895 | 2.236 | 3.749 |
| 12- Cancer of esophagus | 579 | 0.0% | 1.252 | 0.156 | <0.001 | 3.497 | 2.574 | 4.750 |
| 13- Cancer of stomach | 796 | 0.0% | 1.012 | 0.151 | <0.001 | 2.752 | 2.046 | 3.702 |
| 14- Cancer of colon | 4,926 | 0.3% | 0.792 | 0.083 | <0.001 | 2.207 | 1.876 | 2.596 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 15- Cancer of rectum and anus | 1,581 | 0.1% | 1.098 | 0.115 | <0.001 | 2.998 | 2.390 | 3.759 |
| 16- Cancer of liver and intrahepatic bile duct | 700 | 0.0% | 0.779 | 0.179 | <0.001 | 2.179 | 1.533 | 3.098 |
| 17- Cancer of pancreas | 1,293 | 0.1% | 1.173 | 0.119 | <0.001 | 3.232 | 2.559 | 4.082 |
| 18- Cancer of other GI organs; peritoneum | 709 | 0.0% | 0.691 | 0.189 | <0.001 | 1.996 | 1.379 | 2.888 |
| 19- Cancer of bronchus; lung | 4,262 | 0.2% | 1.250 | 0.075 | <0.001 | 3.489 | 3.012 | 4.043 |
| 20- Cancer; other respiratory and intrathoracic | 68 | 0.0% | 1.301 | 0.472 | 0.006 | 3.675 | 1.456 | 9.272 |
| 21- Cancer of bone and connective tissue | 538 | 0.0% | 1.039 | 0.205 | <0.001 | 2.826 | 1.890 | 4.224 |
| 23- Other non-epithelial cancer of skin | 374 | 0.0% | 0.990 | 0.243 | <0.001 | 2.691 | 1.670 | 4.336 |
| 24- Cancer of breast | 861 | 0.0% | 0.861 | 0.175 | <0.001 | 2.365 | 1.677 | 3.336 |
| 27- Cancer of ovary | 545 | 0.0% | 0.897 | 0.225 | <0.001 | 2.452 | 1.577 | 3.812 |
| 28- Cancer of other female genital organs | 267 | 0.0% | 0.958 | 0.334 | 0.004 | 2.608 | 1.356 | 5.015 |
| 32- Cancer of bladder | 1,767 | 0.1% | 1.424 | 0.096 | <0.001 | 4.155 | 3.440 | 5.018 |
| 33- Cancer of kidney and renal pelvis | 1,047 | 0.1% | 0.536 | 0.170 | 0.002 | 1.709 | 1.225 | 2.385 |
| 34- Cancer of other urinary organs | 235 | 0.0% | 1.227 | 0.256 | <0.001 | 3.412 | 2.067 | 5.634 |
| 35- Cancer of brain and nervous system | 1,316 | 0.1% | 0.830 | 0.140 | <0.001 | 2.293 | 1.742 | 3.017 |
| 38- Non-Hodgkin's Lymphoma | 1,668 | 0.1% | 1.496 | 0.095 | <0.001 | 4.463 | 3.704 | 5.377 |
| 39- Leukemias | 982 | 0.1% | 1.282 | 0.121 | <0.001 | 3.603 | 2.844 | 4.564 |
| 40- Multiple myeloma | 925 | 0.1% | 1.436 | 0.122 | <0.001 | 4.205 | 3.308 | 5.346 |
| 41- Cancer; other and unspecified primary | 197 | 0.0% | 1.262 | 0.285 | <0.001 | 3.532 | 2.018 | 6.180 |
| 42- Secondary malignancies | 7,276 | 0.4% | 1.238 | 0.063 | <0.001 | 3.448 | 3.047 | 3.903 |
| 43- Malignant neoplasm without specification of site | 408 | 0.0% | 1.136 | 0.201 | <0.001 | 3.113 | 2.101 | 4.613 |
| 44- Neoplasms of unspecified nature or uncertain behavior | 1,382 | 0.1% | 1.105 | 0.118 | <0.001 | 3.021 | 2.398 | 3.805 |
| 45- Maintenance chemotherapy; radiotherapy | 950 | 0.1% | 1.227 | 0.123 | <0.001 | 3.411 | 2.682 | 4.340 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 48- Thyroid disorders | 1,181 | 0.1% | 1.231 | 0.129 | <0.001 | 3.423 | 2.659 | 4.408 |
| 51- Other endocrine disorders | 5,989 | 0.3% | 1.063 | 0.073 | <0.001 | 2.894 | 2.506 | 3.342 |
| 52- Nutritional deficiencies | 1,677 | 0.1% | 1.389 | 0.100 | <0.001 | 4.012 | 3.300 | 4.878 |
| 54- Gout and other crystal arthropathies | 1,734 | 0.1% | 1.008 | 0.125 | <0.001 | 2.741 | 2.144 | 3.505 |
| 55- Fluid and electrolyte disorders | 28,308 | 1.6% | 1.128 | 0.051 | <0.001 | 3.088 | 2.796 | 3.411 |
| 57- Immunity disorders | 135 | 0.0% | 1.200 | 0.337 | <0.001 | 3.321 | 1.715 | 6.431 |
| 58- Other nutritional; endocrine; and metabolic disorders | 5,866 | 0.3% | 1.144 | 0.070 | <0.001 | 3.139 | 2.737 | 3.599 |
| 59- Deficiency and other anemia | 8,180 | 0.4% | 1.128 | 0.063 | <0.001 | 3.089 | 2.732 | 3.493 |
| 60- Acute posthemorrhagic anemia | 4,145 | 0.2% | 1.129 | 0.077 | <0.001 | 3.092 | 2.660 | 3.593 |
| 61- Sickle cell anemia | 97 | 0.0% | 1.420 | 0.350 | <0.001 | 4.139 | 2.085 | 8.216 |
| 62- Coagulation and hemorrhagic disorders | 3,368 | 0.2% | 1.128 | 0.083 | <0.001 | 3.089 | 2.626 | 3.632 |
| 63- Diseases of white blood cells | 922 | 0.1% | 1.058 | 0.139 | <0.001 | 2.882 | 2.193 | 3.786 |
| 64- Other hematologic conditions | 158 | 0.0% | 1.224 | 0.310 | <0.001 | 3.401 | 1.852 | 6.246 |
| 76- Meningitis (except that caused by tuberculosis or sexually transmitted disease) | 493 | 0.0% | 1.269 | 0.178 | <0.001 | 3.558 | 2.509 | 5.045 |
| 77- Encephalitis (except that caused by tuberculosis or sexually transmitted disease) | 760 | 0.0% | 1.311 | 0.140 | <0.001 | 3.712 | 2.823 | 4.881 |
| 78- Other CNS infection and poliomyelitis | 917 | 0.1% | 0.935 | 0.150 | <0.001 | 2.547 | 1.898 | 3.416 |
| 79- Parkinson`s disease | 5,262 | 0.3% | 0.883 | 0.082 | <0.001 | 2.418 | 2.058 | 2.840 |
| 80- Multiple sclerosis | 1,165 | 0.1% | 0.948 | 0.148 | <0.001 | 2.580 | 1.932 | 3.446 |
| 81- Other hereditary and degenerative nervous system conditions | 2,206 | 0.1% | 1.051 | 0.108 | <0.001 | 2.861 | 2.313 | 3.539 |
| 82- Paralysis | 1,402 | 0.1% | 1.119 | 0.115 | <0.001 | 3.062 | 2.445 | 3.834 |
| 83- Epilepsy; convulsions | 11,816 | 0.6% | 0.908 | 0.061 | <0.001 | 2.478 | 2.199 | 2.793 |
| 84- Headache; including migraine | 470 | 0.0% | 0.745 | 0.260 | 0.004 | 2.106 | 1.265 | 3.508 |
| 85- Coma; stupor; and brain damage | 288 | 0.0% | 0.995 | 0.227 | <0.001 | 2.705 | 1.732 | 4.225 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 89- Blindness and vision defects | 207 | 0.0% | 0.883 | 0.367 | 0.016 | 2.417 | 1.177 | 4.962 |
| 90- Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease) | 350 | 0.0% | 1.010 | 0.256 | <0.001 | 2.745 | 1.661 | 4.535 |
| 91- Other eye disorders | 204 | 0.0% | 0.350 | 0.422 | 0.406 | 1.419 | 0.621 | 3.243 |
| 92- Otitis media and related conditions | 174 | 0.0% | 0.764 | 0.393 | 0.052 | 2.146 | 0.993 | 4.636 |
| 93- Conditions associated with dizziness or vertigo | 2,266 | 0.1% | 0.192 | 0.170 | 0.259 | 1.211 | 0.868 | 1.690 |
| 94- Other ear and sense organ disorders | 202 | 0.0% | 0.327 | 0.458 | 0.475 | 1.387 | 0.565 | 3.406 |
| 95- Other nervous system disorders | 37,675 | 2.1% | 0.999 | 0.049 | <0.001 | 2.717 | 2.467 | 2.991 |
| 96- Heart valve disorders | 8,779 | 0.5% | 0.782 | 0.080 | <0.001 | 2.185 | 1.867 | 2.558 |
| 97- Peri-; endo-; and myocarditis; cardiomyopathy (except that caused by tuberculosis or sexually transmitted disease) | 2,588 | 0.1% | 0.840 | 0.096 | <0.001 | 2.317 | 1.918 | 2.800 |
| 98- Essential hypertension | 328 | 0.0% | 0.425 | 0.386 | 0.271 | 1.529 | 0.717 | 3.260 |
| 99- Hypertension with complications and secondary hypertension | 104,598 | 5.7% | 0.854 | 0.046 | <0.001 | 2.350 | 2.146 | 2.573 |
| 100- Acute myocardial infarction | 25,551 | 1.4% | 0.853 | 0.054 | <0.001 | 2.347 | 2.112 | 2.608 |
| 101- Coronary atherosclerosis and other heart disease | 9,788 | 0.5% | 0.672 | 0.076 | <0.001 | 1.958 | 1.688 | 2.271 |
| 102- Nonspecific chest pain | 3,115 | 0.2% | 1.014 | 0.092 | <0.001 | 2.755 | 2.302 | 3.298 |
| 103- Pulmonary heart disease | 10,516 | 0.6% | 1.041 | 0.062 | <0.001 | 2.832 | 2.509 | 3.197 |
| 104- Other and ill-defined heart disease | 472 | 0.0% | 1.055 | 0.213 | <0.001 | 2.873 | 1.892 | 4.361 |
| 105- Conduction disorders | 4,637 | 0.3% | 0.566 | 0.094 | <0.001 | 1.761 | 1.463 | 2.119 |
| 106- Cardiac dysrhythmias | 31,236 | 1.7% | 0.971 | 0.051 | <0.001 | 2.640 | 2.388 | 2.918 |
| 107- Cardiac arrest and ventricular fibrillation | 604 | 0.0% | 0.558 | 0.198 | 0.005 | 1.747 | 1.187 | 2.574 |
| 108- Congestive heart failure; nonhypertensive | 9,209 | 0.5% | 0.950 | 0.065 | <0.001 | 2.585 | 2.275 | 2.936 |
| 109- Acute cerebrovascular disease | 54,706 | 3.0% | 1.068 | 0.048 | <0.001 | 2.909 | 2.646 | 3.199 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 110- Occlusion or stenosis of precerebral arteries | 1,722 | 0.1% | 0.832 | 0.133 | <0.001 | 2.298 | 1.771 | 2.984 |
| 111- Other and ill-defined cerebrovascular disease | 767 | 0.0% | 0.762 | 0.184 | <0.001 | 2.142 | 1.494 | 3.071 |
| 112- Transient cerebral ischemia | 5,343 | 0.3% | 0.781 | 0.086 | <0.001 | 2.185 | 1.845 | 2.587 |
| 113- Late effects of cerebrovascular disease | 18,973 | 1.0% | 0.630 | 0.058 | <0.001 | 1.878 | 1.677 | 2.103 |
| 114- Peripheral and visceral atherosclerosis | 6,224 | 0.3% | 1.061 | 0.070 | <0.001 | 2.890 | 2.519 | 3.317 |
| 115- Aortic; peripheral; and visceral artery aneurysms | 3,180 | 0.2% | 0.769 | 0.099 | <0.001 | 2.158 | 1.778 | 2.620 |
| 116- Aortic and peripheral arterial embolism or thrombosis | 1,527 | 0.1% | 0.979 | 0.127 | <0.001 | 2.661 | 2.076 | 3.410 |
| 117- Other circulatory disease | 9,858 | 0.5% | 0.910 | 0.065 | <0.001 | 2.484 | 2.188 | 2.820 |
| 118- Phlebitis; thrombophlebitis and thromboembolism | 6,612 | 0.4% | 1.191 | 0.067 | <0.001 | 3.292 | 2.885 | 3.757 |
| 119- Varicose veins of lower extremity | 507 | 0.0% | 1.247 | 0.184 | <0.001 | 3.481 | 2.429 | 4.989 |
| 120- Hemorrhoids | 1,151 | 0.1% | 1.318 | 0.123 | <0.001 | 3.736 | 2.935 | 4.756 |
| 121- Other diseases of veins and lymphatics | 1,548 | 0.1% | 0.958 | 0.125 | <0.001 | 2.606 | 2.039 | 3.330 |
| 122- Pneumonia (except that caused by tuberculosis or sexually transmitted disease) | 58,854 | 3.2% | 1.216 | 0.047 | <0.001 | 3.372 | 3.076 | 3.697 |
| 123- Influenza | 6,760 | 0.4% | 1.021 | 0.071 | <0.001 | 2.777 | 2.414 | 3.194 |
| 125- Acute bronchitis | 3,306 | 0.2% | 0.939 | 0.097 | <0.001 | 2.558 | 2.115 | 3.095 |
| 126- Other upper respiratory infections | 890 | 0.0% | 1.062 | 0.161 | <0.001 | 2.892 | 2.108 | 3.967 |
| 127- Chronic obstructive pulmonary disease and bronchiectasis | 28,957 | 1.6% | 1.194 | 0.050 | <0.001 | 3.301 | 2.992 | 3.643 |
| 128- Asthma | 1,134 | 0.1% | 0.709 | 0.170 | <0.001 | 2.031 | 1.456 | 2.834 |
| 129- Aspiration pneumonitis; food/vomitus | 22,003 | 1.2% | 1.253 | 0.051 | <0.001 | 3.500 | 3.169 | 3.864 |
| 130- Pleurisy; pneumothorax; pulmonary collapse | 5,076 | 0.3% | 1.012 | 0.073 | <0.001 | 2.752 | 2.386 | 3.175 |
| 131- Respiratory failure; insufficiency; arrest (adult) | 41,407 | 2.3% | 1.179 | 0.048 | <0.001 | 3.251 | 2.962 | 3.568 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 132- Lung disease due to external agents | 386 | 0.0% | 1.305 | 0.195 | <0.001 | 3.687 | 2.515 | 5.406 |
| 133- Other lower respiratory disease | 3,527 | 0.2% | 1.241 | 0.081 | <0.001 | 3.461 | 2.954 | 4.054 |
| 134- Other upper respiratory disease | 960 | 0.1% | 0.859 | 0.149 | <0.001 | 2.360 | 1.762 | 3.161 |
| 135- Intestinal infection | 10,939 | 0.6% | 1.278 | 0.057 | <0.001 | 3.589 | 3.207 | 4.017 |
| 136- Disorders of teeth and jaw | 346 | 0.0% | 1.227 | 0.238 | <0.001 | 3.412 | 2.138 | 5.445 |
| 137- Diseases of mouth; excluding dental | 592 | 0.0% | 1.409 | 0.159 | <0.001 | 4.091 | 2.998 | 5.585 |
| 138- Esophageal disorders | 4,957 | 0.3% | 0.973 | 0.076 | <0.001 | 2.645 | 2.279 | 3.069 |
| 139- Gastroduodenal ulcer (except hemorrhage) | 1,422 | 0.1% | 1.018 | 0.129 | <0.001 | 2.767 | 2.149 | 3.564 |
| 140- Gastritis and duodenitis | 3,382 | 0.2% | 0.996 | 0.085 | <0.001 | 2.707 | 2.292 | 3.197 |
| 141- Other disorders of stomach and duodenum | 2,866 | 0.2% | 0.927 | 0.091 | <0.001 | 2.526 | 2.113 | 3.020 |
| 142- Appendicitis and other appendiceal conditions | 933 | 0.1% | 0.847 | 0.173 | <0.001 | 2.333 | 1.661 | 3.277 |
| 143- Abdominal hernia | 6,650 | 0.4% | 0.660 | 0.081 | <0.001 | 1.935 | 1.652 | 2.266 |
| 144- Regional enteritis and ulcerative colitis | 1,215 | 0.1% | 1.514 | 0.111 | <0.001 | 4.545 | 3.656 | 5.651 |
| 145- Intestinal obstruction without hernia | 14,177 | 0.8% | 0.885 | 0.059 | <0.001 | 2.423 | 2.159 | 2.720 |
| 146- Diverticulosis and diverticulitis | 10,504 | 0.6% | 0.882 | 0.064 | <0.001 | 2.415 | 2.129 | 2.740 |
| 147- Anal and rectal conditions | 2,027 | 0.1% | 0.967 | 0.109 | <0.001 | 2.629 | 2.123 | 3.255 |
| 148- Peritonitis and intestinal abscess | 1,016 | 0.1% | 1.037 | 0.126 | <0.001 | 2.821 | 2.203 | 3.613 |
| 149- Biliary tract disease | 9,360 | 0.5% | 0.997 | 0.065 | <0.001 | 2.711 | 2.388 | 3.078 |
| 151- Other liver diseases | 7,293 | 0.4% | 1.026 | 0.067 | <0.001 | 2.789 | 2.444 | 3.183 |
| 152- Pancreatic disorders (not diabetes) | 3,810 | 0.2% | 1.001 | 0.085 | <0.001 | 2.722 | 2.305 | 3.215 |
| 153- Gastrointestinal hemorrhage | 21,943 | 1.2% | 0.990 | 0.052 | <0.001 | 2.690 | 2.428 | 2.981 |
| 154- Noninfectious gastroenteritis | 3,799 | 0.2% | 1.172 | 0.083 | <0.001 | 3.227 | 2.742 | 3.799 |
| 155- Other gastrointestinal disorders | 9,244 | 0.5% | 1.044 | 0.062 | <0.001 | 2.840 | 2.516 | 3.206 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 156- Nephritis; nephrosis; renal sclerosis | 339 | 0.0% | 1.434 | 0.190 | <0.001 | 4.194 | 2.889 | 6.088 |
| 157- Acute and unspecified renal failure | 59,272 | 3.3% | 1.254 | 0.047 | <0.001 | 3.503 | 3.196 | 3.839 |
| 158- Chronic kidney disease | 292 | 0.0% | 1.158 | 0.223 | <0.001 | 3.184 | 2.058 | 4.926 |
| 159- Urinary tract infections | 70,267 | 3.9% | 1.275 | 0.046 | <0.001 | 3.579 | 3.267 | 3.919 |
| 160- Calculus of urinary tract | 783 | 0.0% | 1.249 | 0.142 | <0.001 | 3.488 | 2.642 | 4.606 |
| 161- Other diseases of kidney and ureters | 1,767 | 0.1% | 1.387 | 0.099 | <0.001 | 4.002 | 3.299 | 4.856 |
| 162- Other diseases of bladder and urethra | 1,199 | 0.1% | 1.457 | 0.110 | <0.001 | 4.295 | 3.460 | 5.332 |
| 163- Genitourinary symptoms and ill-defined conditions | 1,708 | 0.1% | 1.531 | 0.095 | <0.001 | 4.622 | 3.834 | 5.570 |
| 164- Hyperplasia of prostate | 1,287 | 0.1% | 1.369 | 0.113 | <0.001 | 3.931 | 3.148 | 4.908 |
| 165- Inflammatory conditions of male genital organs | 904 | 0.0% | 1.043 | 0.143 | <0.001 | 2.837 | 2.143 | 3.757 |
| 166- Other male genital disorders | 194 | 0.0% | 1.121 | 0.286 | <0.001 | 3.068 | 1.752 | 5.373 |
| 168- Inflammatory diseases of female pelvic organs | 314 | 0.0% | 1.255 | 0.236 | <0.001 | 3.508 | 2.209 | 5.571 |
| 173- Menopausal disorders | 118 | 0.0% | 1.226 | 0.377 | 0.001 | 3.408 | 1.628 | 7.133 |
| 175- Other female genital disorders | 483 | 0.0% | 1.389 | 0.186 | <0.001 | 4.009 | 2.784 | 5.773 |
| 197- Skin and subcutaneous tissue infections | 28,398 | 1.6% | 1.125 | 0.051 | <0.001 | 3.080 | 2.788 | 3.403 |
| 198- Other inflammatory condition of skin | 595 | 0.0% | 1.500 | 0.154 | <0.001 | 4.480 | 3.313 | 6.056 |
| 199- Chronic ulcer of skin | 7,216 | 0.4% | 1.398 | 0.058 | <0.001 | 4.047 | 3.610 | 4.537 |
| 200- Other skin disorders | 310 | 0.0% | 1.441 | 0.207 | <0.001 | 4.223 | 2.812 | 6.341 |
| 201- Infective arthritis and osteomyelitis (except that caused by tuberculosis or sexually transmitted disease) | 8,811 | 0.5% | 1.039 | 0.061 | <0.001 | 2.828 | 2.509 | 3.186 |
| 202- Rheumatoid arthritis and related disease | 787 | 0.0% | 1.227 | 0.168 | <0.001 | 3.411 | 2.453 | 4.742 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 204- Other non-traumatic joint disorders | 3,787 | 0.2% | 0.624 | 0.111 | <0.001 | 1.866 | 1.502 | 2.318 |
| 207- Pathological fracture | 19,653 | 1.1% | 1.059 | 0.056 | <0.001 | 2.883 | 2.584 | 3.216 |
| 208- Acquired foot deformities | 382 | 0.0% | 0.698 | 0.362 | 0.054 | 2.010 | 0.989 | 4.083 |
| 209- Other acquired deformities | 3,910 | 0.2% | 0.524 | 0.126 | <0.001 | 1.688 | 1.319 | 2.160 |
| 210- Systemic lupus erythematosus and connective tissue disorders | 589 | 0.0% | 1.091 | 0.176 | <0.001 | 2.977 | 2.109 | 4.202 |
| 211- Other connective tissue disease | 12,407 | 0.7% | 1.012 | 0.062 | <0.001 | 2.752 | 2.437 | 3.107 |
| 212- Other bone disease and musculoskeletal deformities | 1,734 | 0.1% | 0.982 | 0.137 | <0.001 | 2.670 | 2.040 | 3.493 |
| 225- Joint disorders and dislocations; trauma-related | 1,603 | 0.1% | 0.876 | 0.149 | <0.001 | 2.400 | 1.791 | 3.216 |
| 226- Fracture of neck of femur (hip) | 118,519 | 6.5% | 1.079 | 0.044 | <0.001 | 2.941 | 2.699 | 3.206 |
| 227- Spinal cord injury | 971 | 0.1% | 1.493 | 0.120 | <0.001 | 4.451 | 3.517 | 5.633 |
| 228- Skull and face fractures | 1,847 | 0.1% | 0.572 | 0.151 | <0.001 | 1.772 | 1.318 | 2.384 |
| 229- Fracture of upper limb | 19,524 | 1.1% | 0.868 | 0.059 | <0.001 | 2.382 | 2.121 | 2.674 |
| 230- Fracture of lower limb | 40,204 | 2.2% | 0.961 | 0.050 | <0.001 | 2.613 | 2.371 | 2.880 |
| 231- Other fractures | 54,759 | 3.0% | 0.896 | 0.049 | <0.001 | 2.450 | 2.225 | 2.697 |
| 232- Sprains and strains | 2,737 | 0.2% | 0.560 | 0.133 | <0.001 | 1.751 | 1.348 | 2.275 |
| 233- Intracranial injury | 20,768 | 1.1% | 0.887 | 0.057 | <0.001 | 2.428 | 2.173 | 2.713 |
| 234- Crushing injury or internal injury | 4,354 | 0.2% | 0.806 | 0.091 | <0.001 | 2.238 | 1.874 | 2.674 |
| 235- Open wounds of head; neck; and trunk | 1,244 | 0.1% | 1.095 | 0.142 | <0.001 | 2.989 | 2.265 | 3.946 |
| 236- Open wounds of extremities | 1,259 | 0.1% | 1.204 | 0.132 | <0.001 | 3.334 | 2.572 | 4.322 |
| 237- Complication of device; implant or graft | 61,507 | 3.4% | 1.087 | 0.046 | <0.001 | 2.966 | 2.710 | 3.246 |
| 238- Complications of surgical procedures or medical care | 34,043 | 1.9% | 1.040 | 0.049 | <0.001 | 2.828 | 2.571 | 3.111 |
| 239- Superficial injury; contusion | 5,848 | 0.3% | 1.032 | 0.077 | <0.001 | 2.806 | 2.412 | 3.264 |
| 240- Burns | 741 | 0.0% | 1.139 | 0.159 | <0.001 | 3.122 | 2.286 | 4.265 |
| 241- Poisoning by psychotropic agents | 658 | 0.0% | 0.643 | 0.215 | 0.003 | 1.903 | 1.250 | 2.898 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 244- Other injuries and conditions due to external causes | 7,935 | 0.4% | 0.892 | 0.072 | <0.001 | 2.439 | 2.119 | 2.807 |
| 245- Syncope | 6,402 | 0.4% | 0.796 | 0.081 | <0.001 | 2.216 | 1.892 | 2.595 |
| 246- Fever of unknown origin | 928 | 0.1% | 1.076 | 0.148 | <0.001 | 2.933 | 2.194 | 3.921 |
| 248- Gangrene | 3,208 | 0.2% | 1.443 | 0.074 | <0.001 | 4.235 | 3.661 | 4.899 |
| 249- Shock | 380 | 0.0% | 1.406 | 0.175 | <0.001 | 4.079 | 2.894 | 5.750 |
| 250- Nausea and vomiting | 781 | 0.0% | 1.214 | 0.156 | <0.001 | 3.368 | 2.479 | 4.576 |
| 251- Abdominal pain | 962 | 0.1% | 1.098 | 0.150 | <0.001 | 2.999 | 2.236 | 4.022 |
| 252- Malaise and fatigue | 10,458 | 0.6% | 0.891 | 0.064 | <0.001 | 2.436 | 2.151 | 2.759 |
| 253- Allergic reactions | 490 | 0.0% | 1.511 | 0.167 | <0.001 | 4.533 | 3.266 | 6.291 |
| 257- Other aftercare | 9,458 | 0.5% | 0.693 | 0.065 | <0.001 | 1.999 | 1.761 | 2.270 |
| 258- Other screening for suspected conditions (not mental disorders or infectious disease) | 451 | 0.0% | 1.199 | 0.203 | <0.001 | 3.317 | 2.230 | 4.935 |
| 259- Residual codes; unclassified | 4,399 | 0.2% | 0.985 | 0.085 | <0.001 | 2.677 | 2.268 | 3.159 |
| 650- Adjustment disorders | 214 | 0.0% | 0.819 | 0.348 | 0.019 | 2.269 | 1.147 | 4.487 |
| 651- Anxiety disorders | 411 | 0.0% | 0.887 | 0.254 | <0.001 | 2.428 | 1.474 | 3.997 |
| 653- Delirium dementia and amnestic and other cognitive disorders | 23,476 | 1.3% | 0.930 | 0.059 | <0.001 | 2.536 | 2.260 | 2.844 |
| 656- Impulse control disorders NEC | 118 | 0.0% | 0.594 | 0.517 | 0.251 | 1.811 | 0.657 | 4.991 |
| 657- Mood disorders | 7,467 | 0.4% | 0.768 | 0.085 | <0.001 | 2.155 | 1.826 | 2.544 |
| 660- Alcohol-related disorders | 7,107 | 0.4% | 0.656 | 0.081 | <0.001 | 1.927 | 1.644 | 2.258 |
| 661- Substance-related disorders | 869 | 0.0% | 0.723 | 0.187 | <0.001 | 2.061 | 1.428 | 2.973 |
| 662- Suicide and intentional self-inflicted injury | 470 | 0.0% | 0.803 | 0.217 | <0.001 | 2.231 | 1.458 | 3.416 |
| 670- Miscellaneous mental health disorders | 416 | 0.0% | 0.622 | 0.288 | 0.031 | 1.863 | 1.060 | 3.274 |
| 8_9- Other infections; including parasitic and Sexually transmitted infections (not HIV or hepatitis) | 388 | 0.0% | 0.463 | 0.311 | 0.136 | 1.590 | 0.864 | 2.924 |
| 25_26- Cancer of uterus and cervix | 763 | 0.0% | 1.338 | 0.169 | <0.001 | 3.811 | 2.739 | 5.303 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| 29_31- Male cancer group | 709 | 0.0% | 1.008 | 0.154 | <0.001 | 2.741 | 2.025 | 3.710 |
| 46_47- Benign neoplasm of uterus and Other and unspecified benign neoplasm | 2,558 | 0.1% | 0.991 | 0.103 | <0.001 | 2.694 | 2.201 | 3.298 |
| 49_50- Diabetes mellitus with and without complication | 40,086 | 2.2% | 1.124 | 0.049 | <0.001 | 3.076 | 2.797 | 3.383 |
| 658_659- Personality disorders and Schizophrenia and other psychotic disorders | 8,493 | 0.5% | 0.527 | 0.084 | <0.001 | 1.694 | 1.437 | 1.999 |
| 169_172-Endometriosis, Prolapse of female genital organs, Menstrual disorders, and Ovarian cyst | 161 | 0.0% | 1.429 | 0.376 | <0.001 | 4.174 | 1.997 | 8.724 |
| 205_206-Spondylosis; intervertebral disc disorders; other back problems and Osteoporosis | 29,685 | 1.6% | 0.782 | 0.055 | <0.001 | 2.186 | 1.964 | 2.433 |
| 213_217- Cardiac and circulatory, Digestive, Genitourinary, Nervous system, and other congenital anomalies | 650 | 0.0% | 0.734 | 0.215 | 0.001 | 2.084 | 1.368 | 3.176 |
| 242_2617- Poisoning by other medications and drugs and nonmedicinal substances, and Adverse effects of medical drugs | 3,678 | 0.2% | 0.766 | 0.092 | <0.001 | 2.151 | 1.797 | 2.574 |
| HCC Comorbidities | | | | | | | | |
| HCC1: HIV/AIDS | 5,776 | 0.3% | -0.094 | 0.055 | 0.087 | 0.910 | 0.818 | 1.014 |
| HCC2: Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock | 375,980 | 20.6% | 0.230 | 0.009 | <0.001 | 1.258 | 1.237 | 1.279 |
| HCC6: Opportunistic Infections | 17,903 | 1.0% | 0.140 | 0.025 | <0.001 | 1.150 | 1.094 | 1.209 |
| HCC8: Metastatic Cancer and Acute Leukemia | 63,476 | 3.5% | 0.289 | 0.016 | <0.001 | 1.335 | 1.293 | 1.378 |
| HCC9: Lung and Other Severe Cancers | 41,514 | 2.3% | 0.179 | 0.019 | <0.001 | 1.196 | 1.152 | 1.242 |
| HCC10: Lymphoma and Other Cancers | 33,318 | 1.8% | 0.203 | 0.022 | <0.001 | 1.225 | 1.173 | 1.278 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| HCC11: Colorectal, Bladder, and Other Cancers | 27,759 | 1.5% | 0.060 | 0.024 | 0.011 | 1.062 | 1.014 | 1.112 |
| HCC12: Breast, Prostate, and Other Cancers and Tumors | 43,328 | 2.4% | 0.020 | 0.020 | 0.316 | 1.021 | 0.981 | 1.062 |
| HCC17: Diabetes with Acute Complications | 21,671 | 1.2% | -0.006 | 0.026 | 0.819 | 0.994 | 0.945 | 1.046 |
| HCC18: Diabetes with Chronic Complications | 572,148 | 31.4% | 0.100 | 0.008 | <0.001 | 1.105 | 1.088 | 1.122 |
| HCC19: Diabetes without Complication | 260,034 | 14.3% | 0.068 | 0.009 | <0.001 | 1.070 | 1.050 | 1.090 |
| HCC21: Protein-Calorie Malnutrition | 350,806 | 19.2% | 0.201 | 0.008 | <0.001 | 1.223 | 1.203 | 1.242 |
| HCC22: Morbid Obesity | 222,283 | 12.2% | 0.065 | 0.010 | <0.001 | 1.068 | 1.046 | 1.089 |
| HCC23: Other Significant Endocrine and Metabolic Disorders | 148,204 | 8.1% | 0.070 | 0.011 | <0.001 | 1.072 | 1.049 | 1.096 |
| HCC27: End-Stage Liver Disease | 33,283 | 1.8% | 0.074 | 0.024 | 0.002 | 1.077 | 1.028 | 1.128 |
| HCC28: Cirrhosis of Liver | 39,184 | 2.1% | 0.035 | 0.021 | 0.101 | 1.035 | 0.993 | 1.080 |
| HCC29: Chronic Hepatitis | 12,232 | 0.7% | -0.015 | 0.036 | 0.675 | 0.985 | 0.918 | 1.057 |
| HCC33: Intestinal Obstruction/Perforation | 112,419 | 6.2% | -0.020 | 0.013 | 0.114 | 0.980 | 0.956 | 1.005 |
| HCC34: Chronic Pancreatitis | 10,643 | 0.6% | 0.018 | 0.038 | 0.643 | 1.018 | 0.944 | 1.097 |
| HCC35: Inflammatory Bowel Disease | 19,944 | 1.1% | 0.075 | 0.029 | 0.009 | 1.077 | 1.019 | 1.140 |
| HCC39: Bone/Joint/Muscle Infections/Necrosis | 93,051 | 5.1% | -0.081 | 0.015 | <0.001 | 0.922 | 0.895 | 0.950 |
| HCC40: Rheumatoid Arthritis and Inflammatory Connective Tissue Disease | 122,181 | 6.7% | 0.122 | 0.013 | <0.001 | 1.130 | 1.102 | 1.158 |
| HCC46: Severe Hematological Disorders | 17,701 | 1.0% | 0.143 | 0.029 | <0.001 | 1.154 | 1.091 | 1.221 |
| HCC47: Disorders of Immunity | 67,850 | 3.7% | 0.047 | 0.016 | 0.002 | 1.049 | 1.017 | 1.081 |
| HCC48: Coagulation Defects and Other Specified Hematological Disorders | 255,210 | 14.0% | 0.052 | 0.009 | <0.001 | 1.053 | 1.035 | 1.072 |
| HCC54: Drug/Alcohol Psychosis | 11,727 | 0.6% | -0.212 | 0.043 | <0.001 | 0.809 | 0.743 | 0.880 |
| HCC55: Drug/Alcohol Dependence | 90,268 | 5.0% | -0.125 | 0.016 | <0.001 | 0.882 | 0.856 | 0.910 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| HCC57: Schizophrenia | 55,164 | 3.0% | 0.105 | 0.018 | <0.001 | 1.110 | 1.071 | 1.151 |
| HCC58: Major Depressive, Bipolar, and Paranoid Disorders | 124,175 | 6.8% | -0.017 | 0.013 | 0.177 | 0.983 | 0.958 | 1.008 |
| HCC70: Quadriplegia | 26,170 | 1.4% | 0.287 | 0.020 | <0.001 | 1.333 | 1.281 | 1.387 |
| HCC71: Paraplegia | 17,513 | 1.0% | 0.255 | 0.026 | <0.001 | 1.291 | 1.226 | 1.359 |
| HCC72: Spinal Cord Disorders/Injuries | 22,758 | 1.2% | 0.120 | 0.027 | <0.001 | 1.127 | 1.068 | 1.190 |
| HCC73: Amyotrophic Lateral Sclerosis and Other Motor Neuron Disease | 1,398 | 0.1% | 0.109 | 0.097 | 0.261 | 1.116 | 0.922 | 1.350 |
| HCC74: Cerebral Palsy | 7,140 | 0.4% | 0.181 | 0.046 | <0.001 | 1.198 | 1.096 | 1.311 |
| HCC75: Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy | 19,217 | 1.1% | -0.029 | 0.029 | 0.319 | 0.972 | 0.919 | 1.028 |
| HCC76: Muscular Dystrophy | 1,747 | 0.1% | 0.292 | 0.087 | 0.001 | 1.339 | 1.129 | 1.589 |
| HCC77: Multiple Sclerosis | 16,195 | 0.9% | 0.217 | 0.031 | <0.001 | 1.242 | 1.168 | 1.320 |
| HCC78: Parkinson's and Huntington's Diseases | 86,020 | 4.7% | 0.096 | 0.015 | <0.001 | 1.101 | 1.069 | 1.134 |
| HCC79: Seizure Disorders and Convulsions | 140,505 | 7.7% | 0.055 | 0.012 | <0.001 | 1.057 | 1.033 | 1.081 |
| HCC80: Coma, Brain Compression/Anoxic Damage | 56,212 | 3.1% | 0.123 | 0.017 | <0.001 | 1.131 | 1.094 | 1.170 |
| HCC82: Respirator Dependence/Tracheostomy Status | 23,786 | 1.3% | 0.266 | 0.022 | <0.001 | 1.305 | 1.250 | 1.363 |
| HCC83: Respiratory Arrest | 606 | 0.0% | 0.273 | 0.134 | 0.042 | 1.314 | 1.010 | 1.708 |
| HCC84: Cardio-Respiratory Failure and Shock | 494,864 | 27.2% | 0.075 | 0.008 | <0.001 | 1.077 | 1.060 | 1.095 |
| HCC85: Congestive Heart Failure | 764,804 | 42.0% | 0.058 | 0.008 | <0.001 | 1.060 | 1.044 | 1.077 |
| HCC86: Acute Myocardial Infarction | 137,852 | 7.6% | -0.054 | 0.012 | <0.001 | 0.947 | 0.926 | 0.969 |
| HCC87: Unstable Angina and Other Acute Ischemic Heart Disease | 89,340 | 4.9% | -0.030 | 0.014 | 0.034 | 0.970 | 0.944 | 0.998 |
| HCC88: Angina Pectoris | 24,921 | 1.4% | -0.076 | 0.028 | 0.006 | 0.927 | 0.878 | 0.979 |
| HCC96: Specified Heart Arrhythmias | 720,104 | 39.5% | 0.067 | 0.007 | <0.001 | 1.070 | 1.054 | 1.085 |
| HCC99: Cerebral Hemorrhage | 29,093 | 1.6% | 0.042 | 0.024 | 0.088 | 1.042 | 0.994 | 1.094 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|---|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| HCC100: Ischemic or Unspecified Stroke | 83,631 | 4.6% | 0.029 | 0.016 | 0.073 | 1.029 | 0.997 | 1.062 |
| HCC103: Hemiplegia/Hemiparesis | 170,581 | 9.4% | 0.064 | 0.012 | <0.001 | 1.067 | 1.042 | 1.092 |
| HCC104: Monoplegia, Other Paralytic Syndromes | 13,384 | 0.7% | 0.004 | 0.037 | 0.921 | 1.004 | 0.933 | 1.080 |
| HCC106: Atherosclerosis of the Extremities with Ulceration or Gangrene | 58,126 | 3.2% | 0.230 | 0.017 | <0.001 | 1.258 | 1.217 | 1.301 |
| HCC107: Vascular Disease with Complications | 72,196 | 4.0% | 0.033 | 0.015 | 0.030 | 1.033 | 1.003 | 1.065 |
| HCC108: Vascular Disease | 353,614 | 19.4% | 0.037 | 0.008 | <0.001 | 1.037 | 1.021 | 1.054 |
| HCC110: Cystic Fibrosis | 255 | 0.0% | -0.072 | 0.251 | 0.775 | 0.931 | 0.569 | 1.522 |
| HCC111: Chronic Obstructive Pulmonary Disease | 533,928 | 29.3% | 0.121 | 0.008 | <0.001 | 1.129 | 1.112 | 1.146 |
| HCC112: Fibrosis of Lung and Other Chronic Lung Disorders | 31,566 | 1.7% | 0.116 | 0.023 | <0.001 | 1.123 | 1.073 | 1.175 |
| HCC114: Aspiration and Specified Bacterial Pneumonias | 163,170 | 9.0% | 0.150 | 0.010 | <0.001 | 1.161 | 1.138 | 1.185 |
| HCC115: Pneumococcal Pneumonia, Emphysema, Lung Abscess | 52,799 | 2.9% | 0.030 | 0.017 | 0.081 | 1.031 | 0.996 | 1.066 |
| HCC122: Proliferative Diabetic Retinopathy and Vitreous Hemorrhage | 3,780 | 0.2% | -0.006 | 0.063 | 0.929 | 0.994 | 0.878 | 1.126 |
| HCC124: Exudative Macular Degeneration | 1,488 | 0.1% | -0.196 | 0.132 | 0.138 | 0.822 | 0.635 | 1.065 |
| HCC134: Dialysis Status | 87,634 | 4.8% | 0.243 | 0.015 | <0.001 | 1.275 | 1.237 | 1.315 |
| HCC135: Acute Renal Failure | 660,457 | 36.2% | 0.131 | 0.008 | <0.001 | 1.140 | 1.123 | 1.157 |
| HCC136: Chronic Kidney Disease, Stage 5 | 25,428 | 1.4% | 0.086 | 0.023 | <0.001 | 1.089 | 1.041 | 1.140 |
| HCC137: Chronic Kidney Disease, Severe (Stage 4) | 41,718 | 2.3% | 0.028 | 0.022 | 0.201 | 1.028 | 0.985 | 1.072 |
| HCC157: Pressure Ulcer of Skin with Necrosis Through to Muscle, Tendon, or Bone | 23,941 | 1.3% | 0.505 | 0.021 | <0.001 | 1.657 | 1.591 | 1.726 |
| HCC158: Pressure Ulcer of Skin with Full Thickness Skin Loss | 67,023 | 3.7% | 0.367 | 0.013 | <0.001 | 1.443 | 1.407 | 1.481 |

| Covariate | Number of Stays | Percent of Stays | Estimate | Std Error | P-Value | Odds Ratio | OR Lower 95% CI | OR Higher 95% CI |
|--|-----------------|------------------|----------|-----------|---------|------------|-----------------|------------------|
| HCC161: Chronic Ulcer of Skin, Except Pressure | 98,998 | 5.4% | 0.123 | 0.014 | <0.001 | 1.131 | 1.101 | 1.161 |
| HCC162: Severe Skin Burn or Condition | 883 | 0.0% | 0.062 | 0.114 | 0.588 | 1.064 | 0.850 | 1.331 |
| HCC166: Severe Head Injury | 269 | 0.0% | 0.101 | 0.209 | 0.630 | 1.106 | 0.734 | 1.668 |
| HCC167: Major Head Injury | 37,563 | 2.1% | -0.039 | 0.024 | 0.100 | 0.961 | 0.917 | 1.008 |
| HCC169: Vertebral Fractures without Spinal Cord Injury | 83,259 | 4.6% | 0.056 | 0.016 | 0.001 | 1.057 | 1.024 | 1.092 |
| HCC170: Hip Fracture/Dislocation | 123,319 | 6.8% | -0.032 | 0.014 | 0.023 | 0.968 | 0.942 | 0.996 |
| HCC173: Traumatic Amputations and Complications | 16,958 | 0.9% | -0.015 | 0.033 | 0.657 | 0.985 | 0.923 | 1.052 |
| HCC176: Complications of Specified Implanted Device or Graft | 121,762 | 6.7% | 0.088 | 0.012 | <0.001 | 1.093 | 1.067 | 1.119 |
| HCC186: Major Organ Transplant or Replacement Status | 7,266 | 0.4% | 0.012 | 0.045 | 0.780 | 1.013 | 0.928 | 1.105 |
| HCC188: Artificial Openings for Feeding or Elimination | 81,464 | 4.5% | 0.266 | 0.013 | <0.001 | 1.304 | 1.270 | 1.339 |
| HCC189: Amputation Status, Lower Limb/Amputation Complications | 52,745 | 2.9% | 0.093 | 0.018 | <0.001 | 1.097 | 1.060 | 1.136 |
| Length of Stay (Prior IP Stay) (Reference: 1-3 days) | | | | | | | | |
| Psych Hospital Stay | 23,512 | 1.3% | 0.175 | 0.052 | 0.001 | 1.191 | 1.076 | 1.319 |
| 4-7 days | 782,329 | 42.9% | 0.127 | 0.009 | <0.001 | 1.135 | 1.115 | 1.156 |
| 8-14days | 362,227 | 19.9% | 0.279 | 0.011 | <0.001 | 1.322 | 1.294 | 1.350 |
| >14 days | 175,406 | 9.6% | 0.434 | 0.013 | <0.001 | 1.543 | 1.505 | 1.583 |
| ICU/CCU Utilization (Prior IP Stay) (Reference: No) | | | | | | | | |
| Yes | 679,847 | 37.3% | 0.072 | 0.008 | <0.001 | 1.075 | 1.059 | 1.091 |
| Number of IP Stays (Prior IP Stay) (Reference: 0 stays) | | | | | | | | |
| 1-3 stays | 883,645 | 48.5% | 0.077 | 0.009 | <0.001 | 1.080 | 1.062 | 1.099 |
| 4-6 stays | 173,182 | 9.5% | 0.068 | 0.014 | <0.001 | 1.071 | 1.043 | 1.100 |
| 7-9 stays | 36,935 | 2.0% | 0.002 | 0.022 | 0.935 | 1.002 | 0.960 | 1.045 |
| >9 stays | 12,190 | 0.7% | -0.016 | 0.034 | 0.629 | 0.984 | 0.920 | 1.052 |

APPENDIX C: MEASURE CALCULATION FLOW CHART

