Administrative Data Technical Notes

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The 2020 National Post-acute and Long-term Care Study (NPALS) includes data from the National Center for Health Statistics' (NCHS) surveys of adult day services centers (ADSCs) and residential care communities (RCCs) and from multiple sources of data from the Centers for Medicare and Medicaid Services (CMS) for federally regulated settings where data already exists. These five settings include home health agencies (HHA), hospices (HOS), nursing homes (NH), inpatient rehabilitation facilities (IRF), and long-term care hospitals (LTCH). This document describes the CMS data sources and management of the data files to 1) harmonize with the NPALS survey data and 2) replicate estimates disseminated by NCHS on these settings. These technical notes describe the CMS data sources used for each setting at the provider- and user-levels and the methodology to derive the estimates used for NPALS.

See the following resources for more information about NPALS and the reports and tables using 2020 NPALS survey and administrative data.

- Information about NPALS surveys of ADSCs and RCCs: https://www.cdc.gov/nchs/npals/questionnaires.htm#npals2020
- Reports using NPALS data: https://www.cdc.gov/nchs/npals/reports.htm#tabs-1-1
- Interactive data tables: https://www.cdc.gov/nchs/npals/webtables/overview.htm.
- Definitions of variables: https://www.cdc.gov/nchs/data/npals/2020-NPALS-Variable-Crosswalk-508.pdf

Data Sources

Data sources for the five settings (HHA, HOS, NH, IRF, and LTCH) were chosen to be as comparable to the NPALS survey data on ADSC and RCCs as possible. The provider-level data sources cover active providers who were Medicare or Medicaid licensed during the 2020 calendar year and the user-level data sources cover services users either discharged sometime in 2020 or current as of the end of 2020. The data files were obtained through data requests to CMS[1] and data use agreements through ResDAC for limited data sets (LDS) and research identifiable files (RIF)[2].

NPALS uses CMS administrative data to provide information about these settings that may not be reported elsewhere and are similar to the NPALS survey data settings as possible. However, additional information about these five settings can also be found in other resources. Estimates for similar topics can be compared to NPALS for benchmarking purposes; however, exact data

sources and methodologies may differ from those used in NPALS reports. The MedPAC Medicare Payment Policy report to the Congress[3] uses data from various CMS sources such as Provider of Services (POS) files, Medicare Provider Analysis and Review (MedPAR), Quality, Certification and Oversight files, standard analytic files, Limited Data Sets, Consumer Assessments of Healthcare Providers and Systems (CAHPS) data, Payroll Based Journal (PBJ), Medicare cost report data, IRF-Patient Assessment Instrument, and Medicare enrollment and claims data. CMS Compare[4] offers publicly available data on providers and patients in each of these settings. Long-Term Care Focus[5] provides a variety of information about characteristics of nursing homes and residents, including US maps and state-level data.

Provider-level data

Provider-level data comes from the Certification and Survey Provider Enhanced Reports (CASPER) system. CASPER data are collected to support the survey and certification regulatory functions of CMS. It includes every HHA, HOS, NH, IRF, and LTCH that is certified to provide services under Medicare, Medicaid, or both. The CASPER data used in NPALS reports include active providers during 2020. Providers are located in the United States and District of Columbia, excluding American Samoa, Guam, Puerto Rico, and the U.S. Virgin Islands. The availability of variables in each file and frequency of certification data collection varies by sector because different providers are required to report different information at different time intervals. For most sectors, CASPER files provided data on the number of providers, US census regions, metropolitan statistical area derived from zip codes, ownership type, certification status, chain status, staffing levels, and services provision. CASPER data files were merged with aggregated user-level data files to calculate the average number of people served annually, the categories of the number of people served (i.e. size), and to replace outliers in staffing levels using size-specific means, and other characteristics of services users. For these variables, there is some missing data for providers that were not represented in the respective user-level file.

Home health agency file—Included 11,350 home health agencies. About 76.3% were Medicare- and Medicaid-certified, 22.3% were Medicare-certified only, and 1.4% were Medicaid-certified only. About 85.0% of these home health agencies completed a certification survey during the last 3 years and 73.6% during the last 2 years.

Hospice file—Included 5,178 hospices. Information on the type of certification (Medicare-only, Medicaid-only, or both) was not available. CMS requires certification surveys of Medicare hospices every 6 to 8 years, on average (45). However, a majority (78.8%) of hospices completed a certification survey during the last 3 years and 52.8% during the last 2 years.

Nursing home file—Included 15,325 nursing homes. About 93.7% were Medicare- and Medicaid-certified, 4.3% were Medicare-certified only, and 2.0% were Medicaid-certified only.

Nearly all of these nursing homes (99.0 %) completed a certification survey during the last 18 months (including 42.2% during the last 12 months). During the COVID-19 Public Health Emergency, CMS waived some reporting requirements for certain providers. For the first two quarters of 2020, NHs did not have to report certification data, including staffing[6]. As a result, information on staffing and services in NHs is incomplete for 2020—missing for nearly 99% of providers in the NH CASPER file—and were excluded from 2020 reports and data tables for NHs.

Inpatient rehabilitation facility file—Included 1,150 facilities. About 96.0% were Medicare- and Medicaid-certified, 4.2% were Medicare-certified only, and no facilities were Medicaid-certified only. About 35% completed a certification survey during the last 3 years.

Long-term care hospital file—Included 348 hospitals. Almost 78.2% were Medicare- and Medicaid-certified, 21.8% were Medicare-certified only, and no hospitals were Medicaid-certified only. About 46.4% completed certification surveys during the last 3 years.

User-level data

User-level data were obtained from different sector-specific CMS assessment and claims data sources. In this report, user-level assessment data for HHA patients (OASIS), nursing home residents (MARET), and IRF patients (IRF-PAI) were aggregated at the provider level and merged to CASPER data files. The Institutional Provider and Beneficiary Summary (IPBS) claims data files (for HHA, HOS, IRF, and LTCH patients) are provided as already aggregated data and merged to their respective CASPER files. Therefore, services user information is based on users of providers in the CASPER files, similar to the aggregated user-level information in the 2020 NPALS survey data.

Home health patients—

Outcome and Assessment Information Set (OASIS) data were used as the source of information on activities of daily living (ADLs) of HHA patients whose episode of care began and ended at any time in calendar year 2020, regardless of payment source. These data included patients who received services from Medicare- and Medicaid-certified home health providers in states where those agencies were required to meet the Medicare Conditions of Participation. Previous NPALS reports used the Outcome-Based Quality Improvement Agency Patient Related Characteristics Report, which aggregated episodes of care from OASIS and included patients who were discharged during the respective survey year, regardless of when the episode of care began. However, this data extract was not available in 2020 and our methodology to develop the OASIS file differed. We selected all patients whose most recent episode of care began and ended in 2020, (i.e. the most recent start of care (SOC) assessment and associated discharge assessment in 2020). The SOC assessments were used to estimate ADL needs. After identifying the discharges with associated SOC assessments, there were 3,943,117 unique patients,

aggregated up to 9,855 HHAs. However, after merging with HHA CASPER file, 1,871 HHAs in the OASIS file did not have a matching provider ID in CASPER and were not included in the final analytic file. The resulting number of discharged patients with OASIS SOC assessments represented in the analyses was 3,319,083. The file was used to estimate the percentages of home health patients needing any assistance with activities of daily living (ADLs), including requiring any assistance with bathing, eating, transferring to a bed or chair, dressing and toileting.

Institutional Provider and Beneficiary Summary (IPBS) home health data were also used because OASIS data did not use racial and ethnic categories and information on patients' diagnoses that was comparable to those used in other sectors in this report. The IPBS data file contained information on home health patients for whom Medicare-certified home health agencies submitted a Medicare claim at any time in calendar year 2020. The total number of patients was 3,575,960 from 9,823 agencies. However, after merging with HHA CASPER file, 1,904 HHAs in the IPBS file did not have a matching provider ID in CASPER and were not included in the final analytic file. The resulting number of patients represented in the analyses was 2,977,911. This file was used to estimate percentages of home health patients by race and ethnicity and selected health conditions.

Hospice patients—

The IPBS hospice data file contained information on hospice patients for whom Medicare-certified hospice agencies submitted a Medicare claim at any time in calendar year 2020. Given that 93.0% of hospice agencies were Medicare- certified in 2007 (based on findings from the 2007 National Home and Hospice Care Survey) and that no other data source was available on hospice patients, IPBS hospice data were assumed to provide current coverage and information on most hospice patients. The total number of hospice patients was 1,794,044from 5,084 hospices. However, after merging with HOS CASPER file, 692 HOSs in the IPBS file did not have a matching provider ID in CASPER and were not included in the final analytic file of 5,178 providers. The resulting number of patients represented in the analyses was 1,534,622. These data were used to estimate the number of annual hospice patients, hospice size, use rates, and the percentages of hospice patients by age, sex, race and ethnicity, and selected diagnosed conditions.

Nursing home residents—

The CASPER nursing home file for the year 2020 included census information on selected measures for 1,294,827 current residents of 15,325 nursing homes. This information was collected using Form CMS-672 (Resident Census and Conditions of Residents) and represents the facility at the time of the certification survey. Resident census data were used for the number of current residents, nursing home size, use rates, and the percentages of residents with ADL limitations.

Minimum Data Set Active Resident Episode Table (MARET) data had assessment information on all active residents who were residing in a Medicare- or Medicaid-certified nursing home on the last day of the fourth quarter of 2020, regardless of payment source. CMS defines an active resident as "a resident whose most recent assessment transaction is not a discharge and whose most recent transaction has a target date (assessment reference date for an assessment record or entry date for an entry record) less than 150 days old. If a resident has not had a transaction for 150 days, then that resident is assumed to have been discharged." The number of nursing home residents obtained from MARET was 1,132,988 from 15,253 nursing homes. However, after merging with NH CASPER file, 1,843 NHs in the MARET file did not have a matching provider ID in CASPER and were not included in the final analytic file of 15,325 providers. The resulting number of residents for the variables used from MARET represented in the analyses was 996,317. These data were used to estimate the percentages of residents by age, sex, race and ethnicity, and selected diagnosed conditions. NH resident characteristics by length of stay are estimated from the MARET data before aggregating and merging to CASPER. The measurement of short-stay (residents admitted for fewer than 100 days) and long-stay (residents admitted for 100 days or more) was derived from the nursing home admission and assessment dates in MARET.

Medicare Provider Analysis and Review (MedPAR) inpatient claims data from calendar year 2020 were merged with 2020 MARET data using a unique beneficiary ID number to measure overnight hospitalizations among current nursing home residents who are also Medicare beneficiaries. This method was used because the MARET data exclude residents whose last assessment was a discharge, which would include discharges to a hospital. After merging MedPAR and MARET, there were 591,905 Medicare beneficiaries in both the MARET and MedPAR files. Qualifying hospitalizations were measured by having any hospital discharge that occurred after the nursing home admission date.

Inpatient rehabilitation facility patients—

The IPBS IRF data file contained information on IRF patients for whom Medicare-certified IRFs submitted a Medicare claim at any time in calendar year 2020. The total number of IRF patients was 348,825 from 1,115 facilities. However, after merging with IRF CASPER file, 41 IRFs in the IPBS file did not have a matching provider ID in CASPER and were not included in the final analytic file of 1,150. The resulting number of patients represented in the analyses was 345,152. These data were used to estimate the annual number of IRF patients, facility size, use rates, and the percentages of patients by age, sex, race and ethnicity, and selected diagnosed conditions.

Inpatient Rehabilitation Facility-Patient Assessment Instrument (IRF-PAI) contains data at admission and upon discharge for all Medicare Part A fee-for-service patients who received services under Part A from an IRF. The number of IRF patients was 378,766 from 2,206 facilities. Unlike the other user-level files, IRF-PAI was not merged to IRF CASPER because there was no

linking provider ID. Thus the analytic file was aggregated to the provider level but not merged to CASPER. This data set was used to estimate percentages of patients needing assistance with ADLs.

Long term care hospital patients—

The IPBS LTCH data file contained information on patients for whom Medicare-certified LTCHs submitted a Medicare claim at any time in calendar year 2020. IPBS LTCH data were assumed to provide current coverage and information on most patients. The total number of LTCH patients was 81,605from 356 hospitals. However, after merging with LTCH CASPER file, 10 LTCHs in the IPBS file did not have a matching provider ID in CASPER and were not included in the final analytic file of 348 providers. The resulting number of patients represented in the analyses was 80,975. These data were used to estimate the annual number of patients, hospital size, use rates, and the percentages of patients by age, sex, race and ethnicity, and selected diagnosed conditions.

References

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