

HHS emPOWER Program

JOB AID | HHS emPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET

The [HHS emPOWER Emergency Planning De-identified Dataset](#) informs and supports emergency preparedness, response, recovery, mitigation, and resilience activities. This restricted tool, updated monthly, provides public health authorities (PHA) with the total number of Medicare claims **by type of electricity-dependent durable medical equipment (DME) and cardiac device, and certain health care services** in a geographic area.

HHS emPOWER Program - November 2019 Update
De-Identified Aggregated U.S. Zip Code - ESRD-Dialysis and Electricity-Dependent DME

Zip Code	County FIPS Code	County	State FIPS Code	State	# Medicare Beneficiaries in Zip Code	Number of Beneficiary Addresses (Excludes P.O. Boxes and Unknowns)	Services	Services	Services	Services	All Power Dependent	Power Dependent Devices and DME		
							# In-Facility ESRD Dialysis (3 months)	# O2 services [tanks] (13 months)	# Home health (3 months)	# At-Home Hospice (3 months)	# Electricity-Dependent Devices and DME	# Cardiac Devices (5 years)	# Ventilators (13 months)	# BiPAPs (13 months)
11111	111	County A	00	AA	4,476	4,348	102	31	146	25	108	0	11	11
22222	222	County B	00	AA	3,981	3,879	93	38	154	27	120	0	11	11
33333	333	County C	00	AA	5,002	4,887	127	32	229	32	122	11	11	11
44444	444	County D	00	AA	6,434	6,124	53	17	247	38	115	11	11	11

How can a PHA access this dataset?

ASPR Regional Administrators and/or Regional Emergency Coordinators ([RA/REC](#)) distribute the HHS emPOWER Emergency Planning De-identified Dataset each month to approved state, territorial, and certain major metropolitan area (MMA) (as defined by ASPR's Hospital Preparedness Program) PHAs. The HHS emPOWER Emergency Planning Dataset is approved for use by the state/territory and local health department, either directly or in collaboration with their ESF-8 and 6, or other partners as appropriate, for public health emergency preparedness, response, recovery, mitigation, and resilience activities only.

This data is not to be used for research purposes, and all other potential uses of this data, including public reports and media, require prior approval from ASPR and CMS. All [requests for approval](#) must be sent to the HHS emPOWER Program Director at empower@hhs.gov.

What information is included in this dataset?

The HHS emPOWER Emergency Planning Dataset provides monthly total counts of Medicare claims **by type** of electricity-dependent DME and cardiac device as well as additional health care services, provided below. More detailed information on each data type is available in the [Quick Data Reference Guide](#):

- **Electricity-dependent DME and Cardiac Devices:** Ventilators, oxygen concentrators, BiPAPs, enteral feeding machines, intravenous (IV) pumps, suction pumps, at-home dialysis machines, electric wheel chairs and scooters, electric beds, and cardiac devices that include right, left, and biventricular assistive devices (LVAD, RVAD, BIVAD) and total artificial hearts (TAHs).
- **Outpatient Facility Dialysis:** Services for dialysis treatment in an outpatient facility.
- **Home Health Care Services:** Services for home health care, including skilled nursing care, physical therapy, etc.
- **Oxygen Tank Services:** Home oxygen tank service delivery for patients with qualifying conditions.
- **Home Hospice Care Services:** Hospice services provided in a personal residence for an individual with a terminal illness.

What are some uses for this dataset?

Authorized PHAs receive the dataset each month and use its detailed de-identified data (the data does not include any protected individual or health information) to inform and support decision making prior to, during, and after an incident, emergency, or disaster. Key activities may include, but are not limited to:



Anticipate potential health system surge and leverage resources to mitigate stress



Assess accessible transportation needs and evacuation routes



Identify and address potential gaps in emergency resources



Identify optimal locations, staffing, resources, and power needs for shelters and/or charging stations



Develop emergency plans, systems, processes, and triggers



Inform power restoration prioritization decisions

HHS EMPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | DE-IDENTIFICATION METHODS

To protect the privacy of Medicare beneficiaries, the HHS emPOWER Program uses several de-identification methods¹ to minimize, if not eliminate, the possibility that someone could identify individuals based on location or the type of DME or health care service used.

Data included in this dataset is limited to only the minimum necessary to inform emergency preparedness, response, recovery, mitigation, and resilience public health activities.

This dataset only includes living, current enrollees in Medicare Fee-for-Service (Parts A, B) and Medicare Advantage (Part C) that had a claim for certain DME and health care services during a specific period of time. The primary de-identification methods are as follows:

Remove all personally identifiable information (e.g., name, date of birth, race, gender, age, etc.) to minimize, if not mitigate, risk of re-identification from distinguishability or replicability from other data.

Aggregate all data to the state, territory, county, MMA, and ZIP Code levels to blur data precision.

Identify all states, territories, MMAs, counties, or ZIP Codes that have a claims total **between 1 and 10** (e.g., a ZIP Code with only 3 Medicare claims), and **mask them so that they are shown as 11**. This step most commonly occurs at the ZIP Code level.

- The HHS emPOWER Program **uses a threshold of 11 in accordance with federal government and the Centers for Medicare & Medicaid Services (CMS) policy requirements² to minimize re-identification risk** while still providing an appropriate level of information to inform and support emergency preparedness, response, recovery, mitigation, and resilience activities.
- **State/Territorial and MMA Data Totals.** State and territory aggregated data totals include actual values, unless the state or territory has only one masked ZIP Code.
- **States/Territories/MMAs with only one masked ZIP Code** (with a value of 11) will have an aggregated total that includes the masked ZIP Code as an "11" rather than its actual value. This ensures that the individuals in the ZIP Code cannot be easily discovered.
- **County Data Totals.** When computing county aggregated data totals, the actual ZIP Code values (those greater than 11) and masked ZIP Code values (those less than 11) for that county are added together. This additional protective measure ensures the small cell size cannot be identified by comparing data at the other geographic levels.

Masked ZIP Codes

Electricity-Dependent Devices and DME
181
267
11
221
103
242
55
11

Each of the ZIP Codes marked with an "11" in the Excel file have an actual total between 1 and 11.

County Aggregated Totals

# O2 Services [Tanks]	# Masked Zip Codes in County
426	10
65	3
93	3
185	3

For example, for the first row, the O2 Services (Tanks) actual total may be between 316 and 426:

- If every ZIP Code marked with an 11 was actually a 1, then the total number of O2 Services (Tanks) would be 426 minus 11x10 (110), or 316
- If every cell marked with an 11 was actually 11, then 426 is the real total

Conduct rigorous tests each month on each of the datasets to ensure all protective methods have been applied. If a new risk is identified, additional de-identification methods will be developed, implemented, and integrated into the data cycle to minimize, if not mitigate, risk of small cell value deduction or re-identification from data-linking.

¹ [Methodologies in accordance with the Health Information Portability Act of 1996 information and portability expert determination requirements](https://www.hhs.gov/hipaa/for-professionals/privacy/special-topics/de-identification/index.html). More information is available at <https://www.hhs.gov/hipaa/for-professionals/privacy/special-topics/de-identification/index.html>.

² [CMS Cell Size Suppression Policy](https://www.resdac.org/articles/cms-cell-size-suppression-policy) dictates that no cell can be reported that allows a value of 1 to 10 to be derived from other reported cells or information. More information is available at <https://www.resdac.org/articles/cms-cell-size-suppression-policy>.



HHS EMPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | HOW TO USE (1 OF 4)

Follow this guide to explore the key components of the HHS emPOWER Emergency Planning De-identified Dataset and apply basic analytic techniques to support planning activities.

Get Started

1. Access your most recent emPOWER Emergency Planning Dataset or your county's information from your state, territorial, or MMA PHA.
2. Open the Excel formatted dataset in Microsoft Excel.
3. Familiarize yourself with the various dataset tabs:

Beneficiaries by Zip Code	(Excludes P.O. Boxes and Unknowns)	Dialysis (3 months)	[Tanks] (13 months)	(3 months)	Hospice (3 months)	Devices and DME	Devices (5 years)	(13 months)
4,476	4,348	102	31	146	25	108	0	11
3,981	3,879	93	38	154	27	120	0	11
5,002	4,887	127	32	229	32	122	11	11

Menu	Data Overview	State Actual Data	County De-Identified Data	Zip Code De-Identified Data	Parent-Child Zip Code Mapping
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- 1 Menu**
 Table of contents, data descriptions, and lookback periods for each DME, device, and health care service.
- 2 Data Overview**
 Detailed descriptions of data types (e.g., DME) and data reference periods.
- 3 State/ Territory/ MMA Actual Data**
 Totals counts of beneficiaries by type of DME, device, and health care service, and other information at the state, territory, or MMA level.
- 4 County De-identified Data**
 Total counts of beneficiaries by type of DME, device, and health care service at the county or MMA level.
- 5 ZIP Code De-identified Data**
 Total counts of beneficiaries by type of DME, device, and health care service at the ZIP Code level.
- 6 Parent-Child ZIP Code Mapping**
 A key showing the ZIP Codes (Child) without geospatial boundaries (e.g., P.O. Box) that have been added to the ZIP Code (Parent) they reside in that has geospatial boundaries.

Dive In: Familiarize Yourself with the Data

Step 1: Review the Menu Tab

Review the geographic areas covered by this dataset, the types of DME, device, and health care service data provided, and the number of months that the data covers (shown as the "lookback period" column).

Scroll down to note the de-identification methods and considerations included at the bottom of the tab.



Key Concept: Lookback Period

A lookback period is the range of time during which the HHS emPOWER Program looks for a claim for a device, DME, or health care service. The lookback period starts on a reference date and looks backwards for 3, 13, or 36 months, or 5 years, depending on the reimbursement policy for each type of device, DME, or health care service.

For example, a Jan 2019 dataset had accurate data as of Dec 28, 2018. This dataset would include all of the in-facility ESRD claims from the prior 3 months, between Sept 29, 2018 and Dec 28, 2018.

At Risk Populations*:	Lookback Periods
In-Facility ESRD	3 months
Oxygen Services (Tanks)	13 months
Home Health Services	3 months
At-Home Hospice	3 months
Power Dependent [All Devices and DME]**	Varied
Power Dependent Cardiac Devices	5 years
Ventilators	13 months
BIPAPs	13 months
Oxygen Concentrators	36 months
Enteral Feeding	13 months
IV Infusion Pumps	13 months
Suction Pumps	13 months
At-Home ESRD	3 months
Motorized Wheelchairs or Scooters	13 months
Electric Beds	13 months

De-identification Methods/Privacy Protection
Removed all personal identifiers and information.
Aggregated data to the county level using sums of actual and masked zip code values.
Masked all data variables with a cell size between 1-10 to 11.
Number of masked counties provided to allow calculating actual range.

Menu	Data Overview	State Actual Data	County De-Identified Data
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HHS emPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | HOW TO USE (2 OF 4)

Step 2: Review the Data Overview Tab

- 1 Review the **Reference Dates** section: Provides the date for each CMS database that beneficiary and claim data was obtained to generate the current emPOWER Emergency Planning De-identified Dataset.
- 2 Review the **Data Description** section: Provides definitions and criteria for the various DME, device, and health care services included in this dataset.
- 3 Review the **Notes**: Summarizes methods to de-identify the data (described on [page 2](#)) and ZIP Code (parent/child) considerations.

HHS emPOWER Program - November 2019 Update

Data Overview

REFERENCE DATES

Category	Description	Data as of
Enrollment and Death	We restrict the Medicare population to beneficiaries alive as of the most recent Medicare Enrollment Database (EDB) available. We additionally restrict to beneficiaries who are enrolled in either original Medicare (Parts A/B, also known as fee-for-service or FFS), or Medicare Advantage (Part C), as of the most recent month available in the EDB.	9/1/2019
Nursing home	Nursing home residence is determined by using a combination of nursing home-related Medicare FFS/Medicare Advantage claims and the Long-Term Care Minimum Data Set (MDS) assessments as of this date.	8/1/2019
Power Dependent Devices and Durable Medical Equipment Users	Power-dependent device and durable medical equipment use is determined by the presence of Medicare FFS/Medicare Advantage claims during various lookback periods, all ending on this date.	10/25/2019
End-Stage Renal Disease (ESRD)	ESRD patients are identified as receiving in-facility dialysis treatment or at-home dialysis DME by the presence of Medicare FFS claims/Medicare Advantage in the 3 months prior to this date.	10/25/2019

NOTES

- * Power-dependent medical equipment users are included only if they are not residing in a nursing home or are not receiving long term care.
- * All cells with values from 1-10 have been replaced [masked] with 11.
- * County level summary counts reflect sums of masked and unmasked zip codes

DATA DESCRIPTION

End-Stage Renal Disease (ESRD)—In-Facility Dialysis Data: This data is comprised of all Medicare beneficiaries that have been identified as having received dialysis treatment in an outpatient facility in the past 3 months.

Oxygen Services [Tanks] Data: This data is comprised of all Medicare beneficiaries that have been identified as living at home (i.e., not in Long Term Care/Nursing Home) with a rental of oxygen tank services. The rental cap period is 36 months. Oxygen tanks contain oxygen and provide supplemental oxygen required for certain respiratory conditions.

Home Health Services Data: This data is comprised of all Medicare beneficiaries that have been identified as living at home (i.e., not in Long Term Care/Nursing Home) with a home health visit in the past 3 months. Home health visits can be for intermittent skilled nursing care, physical therapy, speech-language pathology services, or continued occupational therapy services.

At-Home Hospice Services Data: This data is comprised of all Medicare beneficiaries that have been identified as receiving hospice care while living at home (i.e., not in Long Term Care/Nursing Home) in the past 3 months. These services can be for skilled nursing care, physical or occupational therapy, speech-language pathology services, medical social services, home health aide services, physician services, related to medical supplies and usage of medical appliances, counseling, and any other services. These services are conferred as part of palliative care for terminally ill beneficiaries who have forgone curative care.

Power-dependent Devices and DME Data: This data is comprised of all Medicare beneficiaries that have been identified as living at home (i.e., not in Long Term Care/Nursing Home) with a rental claim for the specified equipment. The reimbursement cap period for most types of DME is 13 months. The only exceptions are oxygen concentrators, at-home dialysis, and cardiac devices*.

- * Oxygen concentrators have a 36 month rental cap.
- * At-home dialysis is identified through Medicare claims indicating receipt of dialysis treatments at home, not through Medicare DME claims. We use a 3 month lookback. Medicare requires that a dialysis facility be responsible for providing dialysis services to all patients receiving dialysis at-home should their equipment not function.
- * Cardiac devices such as ventricular assist devices (VADs) and/or total artificial hearts (TAHs) are implanted within an individual

Menu Data Overview County De-Identified Data Zip Code De-Identified Data Parent-Child Zip Code Mapping +

Step 3: Review the “Parent/Child ZIP Code Mapping” Tab

Read the description of Parent/Child ZIP Codes in the upper left-hand corner of the “Parent/Child ZIP Code Mapping” tab. Then, review the Parent/Child* ZIP Codes listed on that tab.

Table 1. Complete ZIP Code list

ZIP Code	ZIP Code Name
10001	ZIP Code 1
10002	ZIP Code 2
10003	ZIP Code 3
10004	ZIP Code 4
10005	ZIP Code 5
10006	ZIP Code 6

Table 2. Parent ZIP Codes with corresponding Child ZIP Codes

Parent ZIP Code	Parent ZIP Code Name	Child ZIP Codes Included
10001	ZIP Code 1	10002, 10005
10006	ZIP Code 6	10004

*Parent/Child is a term of art for component geographies, or boundaries selected within larger boundaries. This term does not refer to human parents and children.



Key Concept: Parent/Child ZIP Codes

Some ZIP Codes do not have specific geospatial boundaries (e.g., P.O. Box ZIP Codes). To ensure we continue to capture the population data for planning purposes, the HHS emPOWER Program identified the larger boundary ZIP Code (Parent) within which the non-boundary ZIP Code (Child) resides. The totals are added together and displayed under the parent ZIP Code.

HHS EMPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | HOW TO USE (3 OF 4)

Obtain Insights: Review and Evaluate the Data by Geographic Area

Step 1: Review the “State Actual Data,” “Territory Actual Data,” or “MMA Actual Data” Tab

This tab provides the total number of beneficiaries with a claim for select electricity-dependent DME and devices and/or health care services. This tab’s single row of data provides PHAs with an overview of the at-risk population in their state, territory, or MMA.

1. Open the “State Actual Data,” “Territory Actual Data,” or “MMA Actual Data” tab.
2. Review each of the columns and their totals. Scroll to the right on the Excel spreadsheet to view all of the columns.
3. Review the Common Questions and Key Concepts below.

Common Questions and Key Concepts

State	A # Medicare Beneficiaries by Plan/Enrollment Type			B Demographic Information		Services	Services	Services	Services
	# Medicare Beneficiaries in State	# Medicare Fee-for-Service Beneficiaries [Part A/Part B] in State	# Medicare Advantage Beneficiaries [Part C] in State	# Dual-Eligible Medicare Beneficiaries in State*	# Beneficiary Addresses (Excludes P.O. Boxes and Unknowns)	# In-Facility ESRD Dialysis (3 months)	# O2 services [tanks] (13 months)	# Home health (3 months)	# At-Home Hospice (3 months)
AA	4,428	2,952	1,476	700	500	22	15	11	11

A Why is it important to know the number of beneficiaries enrolled in each Medicare plan or enrollment type?

CMS may temporarily [waive or modify](#) certain Medicare requirements in the event of a [Presidential emergency or disaster declaration](#), or [HHS Secretary-declared public health emergency](#),³ to help ensure sufficient health care items or services are available to meet the needs of individuals enrolled in Medicare residing within the emergency area. Due to [plan differences between Medicare Fee-for-Service and Medicare Advantage](#), there may be variation in what is allowed and/or how it is implemented, which is important for informing continuity of care. Additional information in accessible formats is also available on the [Medicare.gov](#) website or by contacting 1-800-MEDICARE (1-800-633-4227).

B Why do we include information about Medicare beneficiaries that are “dual eligible” and enrolled in both a Medicare and state-operated Medicaid program?

Studies have shown that at-risk individuals that qualify and are enrolled in both a Medicare and state-operated Medicaid Program may be more adversely impacted in the event of an emergency due to their chronic illness, disability, and socioeconomic status. Many of these at-risk individuals commonly depend on public or locally supported medical and other accessible transportation services for transportation to and from their health care providers and services, including outpatient dialysis facilities.

All Power Dependent	C Power Dependent Devices and DME									
	# Electricity-Dependent Devices and DME	# Cardiac Devices (5 years)	# Ventilators (13 months)	# BIPAPs (13 months)	# O2 Concentrators (36 months)	# Enteral Feeding (13 months)	# IV Infusion Pumps (13 months)	# Suction Pumps (13 months)	# At-Home ESRD Dialysis (3 months)	# Motorized Wheelchairs or Scooters (13 months)
71	11	11	11	50	11	26	11	25	11	12

C Why is the number in the “All Power Dependent” column lower than the combined numbers under “Power Dependent Devices and DME”?

The “All Power Dependent” column may be lower for two reasons:

1. Some columns are masked (11), so they represent anywhere from 1 to 11 individuals with that DME/device, and each column represents the aggregated total for just one specific DME or device within a geographic area.
2. Medicare beneficiaries are counted just once in the “All Power Dependent” column; however beneficiaries with claims for multiple DME and devices may be double-counted across all other columns for which they apply.

³ Presidential declarations may be made under the Stafford Act or National Emergencies Act; HHS Secretary public health emergency declarations may be made under Section 319 of the Public Health Service Act.

HHS EMPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | HOW TO USE (4 OF 4)

Step 2: Review and Understand the “County De-identified Data” Tab

This tab provides the monthly total Medicare claims for select electricity-dependent DME and devices, as well as health care services, at the county level.

1. Open the “County De-identified Data” tab and review all of the columns. Reminder: County-level data totals include actual (>11) and masked (11) ZIP Code values.
2. Analyze the data using sort and filter functions, create charts, and/or map the data using a Geographic Information System (GIS) application.

County FIPS Code	County	State FIPS Code	State
111	County1	71	AA
222	CountyA	71	AA
222	CountyA	71	AA
222	CountyA	71	AA

What is a FIPS Code?

A Federal Information Processing Series (FIPS) code is a numeric code assigned by the National Institute of Standards and Technology to uniquely identify geographic areas. They are included in this dataset to assist GIS analysts in mapping and analyzing the data geospatially.

Services		All Power Dependent		Cardiac Devices (5 years)	
At-Home Hospice (3 months)		Cardiac Device, Ventilator, BPAP, Oxygen Concentrator, External Feeding, IV Infusion Pump, Suction Pump, At-Home EMS, Motorized Wheelchair, Scooter, or Electric Bed		Cardiac Devices (5 years)	
# At-Home Hospice	# Masked Zip Codes in County	# Electricity-Dependent Devices and DME	# Masked Zip Codes in County	# Cardiac Devices	# Masked Zip Codes in County
2,021	113	25,462	7	1,336	120
44	4	577	6	55	5
33	3	233	5	0	0
22	2	181	6	22	2
22	2	76	2	11	1
101	8	1,226	10	44	4
11	1	117	4	22	2
11	1	312	2	11	1

Why are there columns called “# Masked ZIP Codes”?

Since county aggregated totals are summarized from actual (>11) and masked (11) ZIP Code values, the number of masked ZIP codes, per county, is included to help analysts understand potential inflation.

In this example, the second county has 4 masked ZIP Codes for At-Home Hospice. The actual number of Medicare beneficiaries with a claim for at-home hospice is between 4 and 44, depending on the true value of the masked cells. Planners may want to use the baseline number, or they may use the higher number in this range. Using the higher number may help better address potential needs of these beneficiaries and individuals who are not included in the dataset but similarly rely on these essential services. For more information on why and how the data is masked, see [page 2](#).

HOW TO SORT AND FILTER THE DATA



To start **sorting and filtering** the data, select the down arrow in any column.

To Sort: On the pop-up menu, select “Sort Largest to Smallest” or “Sort Smallest to Largest,” depending on what you’re looking for. This will re-order the list by number of claims.

To Filter: On the pop-up menu, type a number in the search bar to find a specific number (e.g., all of the 11’s), or select only the numbers you wish to display.

Step 3: Review and Understand the “ZIP Code De-identified Data” Tab

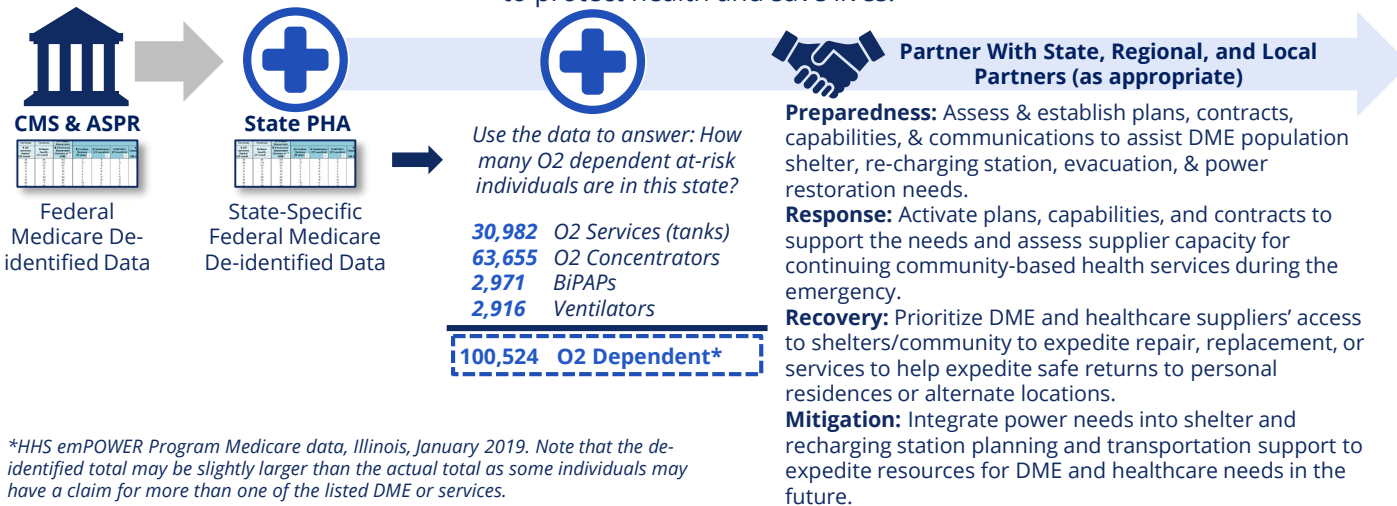
This tab provides the monthly de-identified total number of Medicare claims for select electricity-dependent DME and devices, as well as health care services, at the ZIP Code level.

1. Open the “ZIP Code De-identified Data” tab and review all the columns.
2. Analyze the data using sort and filter functions, create charts, and/or map the data using a GIS application.

Services	Services	Services	Services	All Power Dependent	Services
# In-Facility ESRD Dialysis (3 months)	# O2 services [tanks] (13 months)	# Home health (3 months)	# At-Home Hospice (3 months)	# Electricity-Dependent Devices and DME	# Cardiac Devices (5 years)
22	15	11	11	44	50
35	66	59	50	13	11
35	66	59	50	13	11

HHS EMPOWER EMERGENCY PLANNING DE-IDENTIFIED DATASET | PRACTICE

De-identified emPOWER data can be used to understand the needs of specific at-risk populations, including oxygen-dependent, and implement targeted public health activities across the emergency management cycle to protect health and save lives.



*HHS emPOWER Program Medicare data, Illinois, January 2019. Note that the de-identified total may be slightly larger than the actual total as some individuals may have a claim for more than one of the listed DME or services.

Exercise: Using the Data to Identify Oxygen Needs

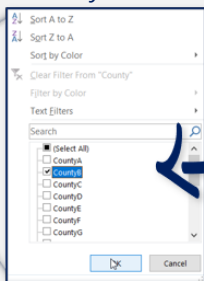
Example Scenario: A county is facing a wildfire threat and working to open a general population shelter to accommodate evacuees and their access and functional needs. Use the HHS emPOWER Emergency Planning De-Identified Dataset to help inform potential oxygen needs in the shelter. Open the most recent dataset or access county specific data in the dataset to complete this exercise.

Step 1: On the "ZIP Code De-identified Data" tab, sort the dataset so that you only see data for a specific county.

A. Select the triangle on the County column

County
CountyZ
CountyA
CountyB
CountyC
CountyD
CountyE

B. In the drop-down box, unselect "Select All" and select the county name



C. Select the "OK" button to finish

After filtering, this example shows only the three rows for County B:

Zip Code	County FIPS Code	County
33333	333	CountyB
92243	333	CountyB
99999	333	CountyB

Step 2: Scroll to the right to view the de-identified claims totals for oxygen tank services, oxygen concentrators, and BiPAPs in the county.

Step 3: Add all totals together to identify a baseline total of oxygen needs for the shelter. In this example for County B, the baseline oxygen need for concentrators is roughly between 101 and 111.

Step 4: Using a Geographic Information System (GIS) application, if available, assess the density of oxygen populations across the county and in relation to identified shelter locations in the county.

Step 5: Determine if the county's current contracted amount for oxygen can address the oxygen needs of at-risk individuals based on evacuation plans and routes and current geospatial densities of them in relation to the locations of shelters. Determine if current shelter staffing and credentialed medical volunteers can assist the projected number of individuals that may require assistance. Based on these analyses, adjust emergency planning and response operation asset allocation and resources to better ensure continuity of services and assistance for the oxygen dependent populations.

Services	# BiPAPs (13 months)	# O2 Concentrators (36 months)
# O2 services [tanks] (13 months)	11	11
66	11	50
15	11	50