MAHSO

MARKET AREA HEALTH SYSTEMS OPTIMIZATION

# National Planning Strategy

## Spinal Cord Injuries and Disorders (SCI/D)

March 2021

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# Executive Summary

The Department of Veterans Affairs (VA) Market Area Health Systems Optimization (MAHSO) effort developed 96 draft market assessments in the 18 VA Veteran Integrated Service Networks (VISNs) to produce opportunities for the design of high-performing integrated delivery networks. These market assessments were required by the VA Maintaining Systems and Strengthening Integrated Outside Networks (MISSION) Act of 2018.

These market assessments will culminate with a National Realignment Strategy that will present Veterans Health Administration's (VHA's) plan for the future of VA health care, enabling Veterans to access the right high-quality care in the right location. Recommendations from the market assessments will be finalized and submitted by the Secretary of VA to the presidentially appointed Asset and Infrastructure Review (AIR) Commission for consideration. The AIR Commission will submit its recommendations to the President for review and approval, prior to them sending to Congress for review and approval.

This VA Spinal Cord Injuries and Disorders (SCI/D) System of Care National Planning Strategy establishes a consistent set of guidelines that will help develop the opportunities that are specific to SCI/D System of Care services. Using comprehensive VA data, the guidelines can facilitate improved alignment of SCI/D capacity and capabilities with the evolving needs of Veterans.

The VHA Chief Strategy Office (CSO), committed to working with offices across the organization to create programs and services that best serve Veterans, developed the SCI/D System of Care National Planning Strategy in consultation with the SCI/D System of Care Program Office.

## SCI/D System of Care Program Overview

### *Mission*

The mission of VA SCI/D System of Care is to support, promote, and maintain the health, independence, quality of life, and productivity of Veterans with SCI/D throughout their lives.

### *SCI/D System of Care Overview*

The SCI/D System of Care provides access to a full spectrum of clinically appropriate interdisciplinary primary and specialty services to more than 25,000 Veterans with SCI/D throughout their lives. There are four main settings in which SCI/D care is delivered: Inpatient, Outpatient, Home Care and Telehealth. The system of care consists of 25 SCI/D Centers, known as Hubs, and approximately 115 Spokes. [1] Spokes are geographically aligned with SCI/D Centers via defined service areas. Hubs

and affiliated Spokes work together to provide appropriate care in a timely manner in the right setting.

### *Patient Profile*

73.5% of the SCI/D Registry Veteran population has a primary diagnosis for SCI/D. Multiple Sclerosis (MS) and Motor Neuron Disease (MND) diagnoses account for 20.8% and 5.7% of the population, respectively. The SCI/D Veteran population is above the age of 60 years old and is roughly 20 years older than its civilian counterpart.

### *Program Challenges*

The program faces challenges with optimizing its current inpatient infrastructure between acute and long-term care. SCI/D Acute, Sustaining, and Rehabilitation Care (ASR) utilization projections indicate a continual long-term decline in demand which will lead to excess ASR bed infrastructure. In contrast, SCI/D long-term care (LTC) beds are limited, and demand for long-term care is projected to increase as the population ages.

The program also faces challenges with maximizing access to care. Nationally, approximately 69.7% of SCI/D Registry Veterans live within 60 minutes of outpatient SCI/D points of care (Hubs and Spokes), while only 24.8% live within 60 minutes of inpatient SCI/D points of care (Hubs).

## Resulting Planning Guidelines and Thresholds

Planning guidelines and thresholds inform products from the market assessment process. The rationale for establishing VA planning guidelines and thresholds are rooted in the belief that quality of care or patient safety may be compromised when a service falls below identified measures.

### *Program Priorities and Strategy*

The SCI/D program has two major priorities as it seeks improvement over the next 10 years:

1. Better align demand and supply
2. Maximize access to specialized SCI/D care

To better align demand and supply, SCI/D must address the gradual decline of its ASR care and determine how to meet the anticipated increase in SCI/D LTC as Veterans age over the next 10 years. Given the limited geographic distribution of SCI/D LTC beds and anticipated shift in patient demand from ASR to LTC, it is imperative for SCI/D to increase LTC bed supply. The best strategy to increase SCI/D LTC bed supply for Veterans is to:

1. Utilize all existing LTC authorized beds in an SCI/D setting
2. Re-designate ASR beds as LTC beds as Veteran demand shifts

Increasing the number of SCI/D Spokes represents the most realistic strategy to maximize access to primary care for SCI/D Registry Veterans. Although Spokes are already widely distributed, with nearly 70.0% SCI/D Registry Veterans residing within a 60-minute drive time, increasing the number of Spoke sites can improve geographic access for many SCI/D Registry Veterans.

## SCI/D System of Care Planning Guidelines

The SCI/D System of Care National Planning Strategy developed quantitative and qualitative planning guidelines across demand, supply, access, quality, and other applicable domains for each service type. A summary of the planning guidelines is as follows:

| Service | Planning Guideline |
|---|---|
| **Primary Care** | **Open new SCI/D Patient Aligned Care Team (PACT)**<br>• Demand: ≥ 75 SCI/D Registry Veterans within 60 minutes<br>• Supply: VA Medical Center (VAMC) or Multi-specialty Community Based Outpatient Clinic (MS CBOC) with ≥ 8 primary care PACT teams.<br>• Access: Proposed location ≥ 60-minute drive time from existing sites offering SCI/D primary care.<br><br>**Maintain SCI/D PACT**<br>• Demand: There is no minimum number of registry Veterans to maintain a spoke site.<br>• Supply: Trained SCI/D PACT staff, minimum of 1.25 FTE (per Directive 1176(2).<br>• Access: High performing existing primary care service. |
| **SCI/D Long-term Care (LTC)** | **Open new Long-term SCI/D program:**<br>• Demand: ≥ 5 ADC/6 Beds (at 95.0% Occupancy).<br>• Supply: All existing SCI/D Centers with ASR beds and existing or projected surplus acute/sustaining beds.<br>• Access: All SCI/D Centers with potential for conversion of beds to LTC designation are in or near Health Referral Region Town Centers.<br><br>**Maintain current Long-term SCI/D program:**<br>• Demand: 80.0% Occupancy of Operating Beds<br>• Supply: All SCI/D Centers and existing or projected surplus acute/sustaining beds.<br>• Access: SCI/D Centers with existing LTC beds are in or near Health Referral Region Town Centers.<br><br>**Partner with VA Community Living Center (CLC) or Community Care Network**<br>• Demand: No minimum for CLCs or institutional LTC settings.<br>• Supply: Refer to National Planning Strategy for CLC relative to LTC special population capacity, institutional LTC capacity is available in the community.<br>• Access: Refer to National Planning Strategy for CLC relative to LTC access, institutional LTC locations exist in the local market. |

| | |
|---|---|
| **SCI/D Acute Sustaining/ Rehabilitation (ASR) Care** | **Open new SCI/D ASR program:**<br>• Demand: Minimum projected 10-year bed days of care (BDOC) of 6,205 (17.0 average daily census (ADC)), 20 Beds at 85.0% Occupancy.<br>• Supply: Commission on Accreditation of Rehabilitation Facilities (CARF) and The Joint Commission (TJC) accredited VAMCs, VAMCs must maintain a 24/7 Emergency Department (ED), acute medical/surgical (med/surg) beds, and inpatient surgery with tertiary surgery services on-site. Or a nearby VA referral site is available.<br>• Access: A new site should ideally be greater than 60-minute drive time from existing SCI/D Centers and have the capability to admit Veterans who need urgent and elective ASR care.<br><br>**Maintain SCI/D ASR program:**<br>• Demand: No minimum bed days of care for existing ASR settings.<br>• Supply: CARF and TJC accredited VAMCs, VAMCs must maintain a 24/7 ED, acute med/surg beds, and inpatient surgery with tertiary services on-site. Or a nearby VA referral site is available.<br>• Access: Able to admit Veterans who need urgent care and able to accommodate elective admissions for routine care such as annual evaluations and respite care. |

## Future Program Planning

The four-step process for revisiting MAHSO draft opportunities describes how SCI/D System of Care-specific market assessment opportunities will be reviewed and updated, if necessary.

1. Review Phase 1-3 market assessment data and SCI/D System of Care opportunities
2. Apply SCI/D System of Care planning guidelines
3. Update/Create SCI/D System of Care opportunities
4. Review and finalize opportunities with VA Leadership

The SCI/D NPS guidelines and thresholds will be used to ensure that capital planning is matched to Veteran demand and a sound, consistent set of recommendations is established to inform the development of the National Realignment Strategy. The planning guidelines will also inform future quadrennial market assessments and other long-range planning exercises.

# 1. Program Overview

## 1.1 Program Mission

Veterans with spinal cord injuries and disorders (SCI/D) are a vulnerable, complex population due to the unique and extensive nature of impairments, medical complications, functional losses, and disabilities associated with SCI/D. Access to appropriate care is paramount to optimize health, well-being, participation, and community integration for Veterans faced with these challenges.

The Department of Veterans Affairs (VA) SCI/D System of Care mission is to support, promote, and maintain the health, independence, quality of life, and productivity of Veterans with SCI/D throughout their lives. Services provided by this system of care are comprehensive and lifelong, providing more than 25,000 Veterans with spinal cord injuries, spinal cord disorders that are non-traumatic in etiology, motor neuron disease (MND), most commonly amyotrophic lateral sclerosis (ALS), and multiple sclerosis (MS) with spinal cord involvement.

The guiding Veterans Health Administration (VHA) policy for the SCI/D System of Care is VHA Directive 1176(2), Spinal Cord Injuries and Disorders System of Care (September 30, 2019; revised February 7, 2020), which describes the essential resources, structures, procedures, policies, staffing, and beds of the SCI/D System of Care so all enrolled Veterans with SCI/D have access to lifelong, coordinated, team-based comprehensive care. [1]

### Opportunity Statement

With a unique lifelong SCI/D care model, significant volume, and competitive quality scores, VA is a leader of SCI/D care in the United States. There is no comparable system in the country that provides comprehensive or lifelong care for persons with SCI/D. Notably, with Veterans aged 65 years and older, the heaviest users of SCI/D services, continuing to age, coupled with MISSION Act legislation expanding Veteran choice of community care options, the SCI/D System of Care will benefit from national planning guidelines. This will ensure current and future points of care and their respective capacity are equitably aligned with the future demand and access needs of Veterans with SCI/D. Of particular importance, planning guidelines are essential since there is no similar system of care comprised of continual lifelong care including primary, specialty, community-based, and long-term care services outside of VA.

# 2. Current State Overview

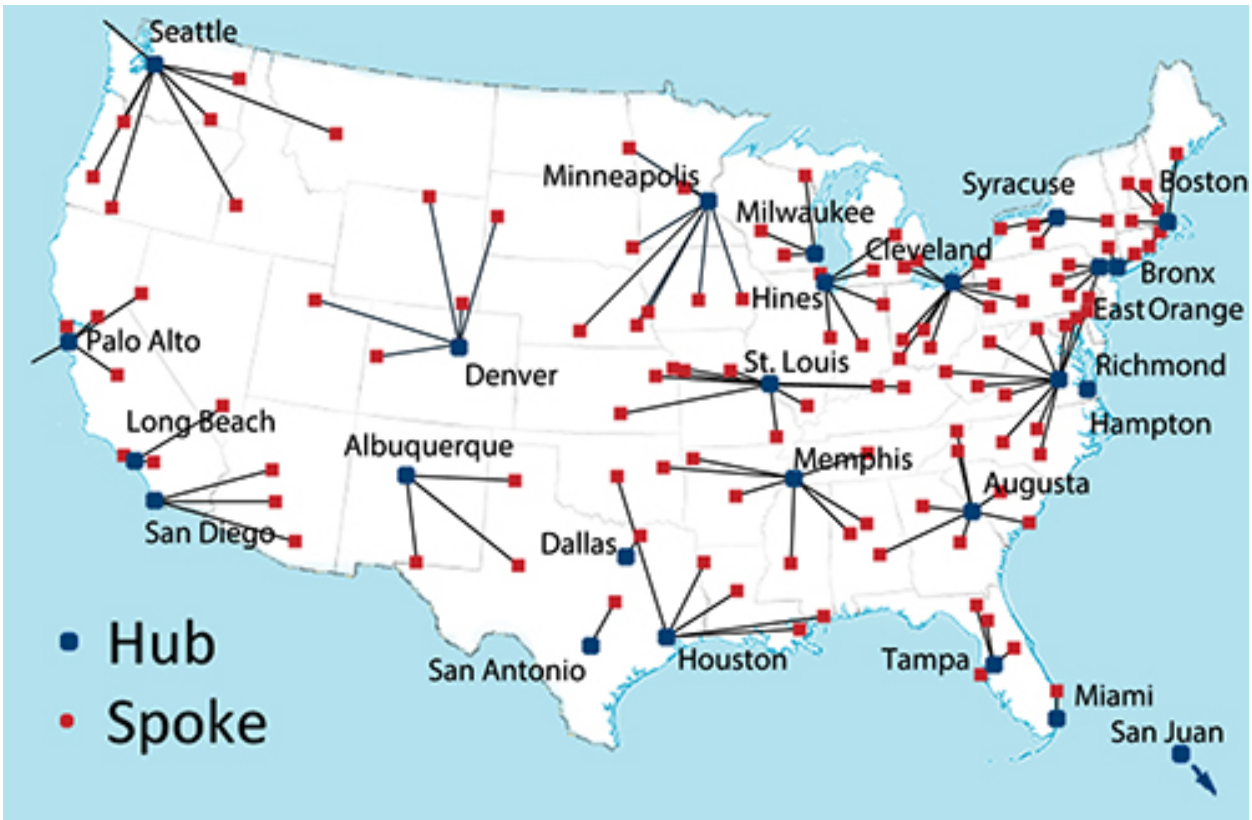
## 2.1 Demographic and Programmatic Distribution Analysis

### Overview

#### *SCI/D System of Care*

VA SCI/D System of Care consists of 25 SCI/D Centers, known as Hubs, and approximately 115 Spokes. Spokes are geographically aligned with SCI/D Centers via defined service areas. Hubs and affiliated Spokes work together to provide appropriate care in a timely manner in the right setting. Hubs offer SCI/D inpatient, outpatient, consultative, home care, extended care, respite care, end-of-life care, telehealth services, and in some cases, institutional long-term care. In each SCI/D Center, there are inpatient units dedicated to SCI/D acute/sustaining care and/or long-term care (LTC). Of the 25 SCI/D Centers, five have both acute/sustaining and LTC units, 19 have only acute/sustaining units, and one has only a LTC unit. Spokes consist of smaller interdisciplinary SCI/D-trained Patient Aligned Care Teams (PACT) and provide primary care as well as some basic specialty care.

**Figure 1:** *SCI/D Center and Spoke Distribution (FY 2019)*



Per VHA Directive 1176(2), the SCI/D system has 915 operating acute/sustaining beds and 174 LTC operating beds. There are also 63 operating beds within VA Community Living Centers (CLC) to supply institutional long-term care for Veterans with SCI/D. The typical SCI/D Center has between 30 and 56 beds. Those SCI/D Centers with acute and sustaining beds undergo a rigorous independent and external review by the Commission on Accreditation of Rehabilitation Facilities (CARF) to obtain accreditation. CARF is an independent, nonprofit organization focused on advancing the quality of health care delivery to optimize outcomes. CARF provides a three-year accreditation for spinal cord injury rehabilitation programs that meet its standards.

## Patient Profile

To qualify for care in VA SCI/D System of Care, specific criteria are met including the following:

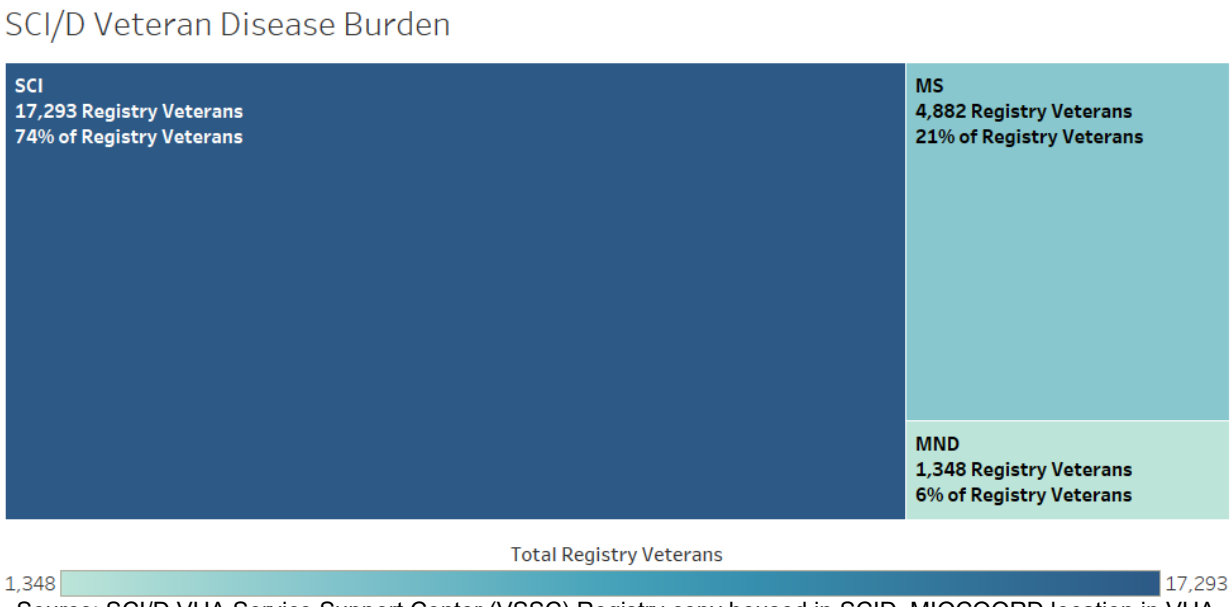
1. The neurologic condition is stable and is not progressive or deteriorating over time.
2. The primary problem is related to a spinal cord disorder (SCD) as opposed to a brain or peripheral nerve disorder.
3. The resultant effects are clinical and functionally significant, resulting in impairments of mobility, activities of daily living (ADL), and/or visceral functions such as neurogenic bowel and bladder.
4. Any level of spinal cord, conus medullaris, or cauda equina is involved.

Veterans with SCI/D are clinically tracked in the SCI/D Registry, a VA database used to monitor the patient population, share information, and improve outcomes across the system.

### *Disease Burden*

FY 2019 Registry data shows that 73.5% of the SCI/D Registry Veteran population has a primary diagnosis for SCI/D. MS and MND diagnoses account for 20.8% and 5.7% of the population, respectively. Planning efforts should reflect this proportionality to ensure resources are equitably aligned with the patient demand profile unless alignments and/or inclusion criteria change in the future.

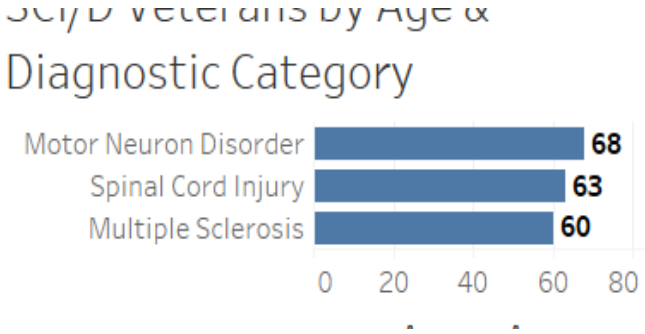
**Figure 2:** *SCI/D Veteran Disease Burden (as of 2019)*




Source: SCI/D VHA Service Support Center (VSSC) Registry copy housed in SCID_MIOCOORD location in VHA Enterprise Clinical Data Warehouse (CDW)
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

## Service Drivers

### *Patient Demographics*




Source: SCI/D VSSC Registry copy housed in SCID_MIOCOORD location in VHA Enterprise CDW
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

The SCI/D Veteran population is generally White, above the age of 60 years old, with the vast majority (81.0%) assigned to priority groups 1 and 4. Per Directive 1630(1) *Catastrophically Disabled Veteran Evaluation, Enrollment, And Certain Copayment Exemptions*, a diagnosis of paraplegia or quadriplegia qualifies a Veteran for catastrophic disability (priority group 4). Once Veterans qualify for this priority group, it is projected they remain in this group for their lifetime. The SCI Model Systems (SCIMS), a group of 14 private sector SCI providers which centrally stores data on its traumatic SCI cohort, has an average patient age of 43. Although VA patient population is comprised of both traumatic and non-traumatic patients with SCI/D, making for an imperfect comparison, the significant difference in age between VA and private sector indicates VA patients with SCI/D may be 20 years older on average. For traumatic SCI specifically, VA age has not been provided and thus a direct comparison is not yet available. Newly

automated VA Corporate Data Warehouse (CDW) data for SCI/D etiology is complete for 86.4%, with near-100.0% completion as a FY 2021 goal.

As shown in Table 1, the SCI-specific patient cohort is comprised of Veterans in priority groups 1 and 4, while MS and MND cohorts are driven by priority group 1. Forecasts of future demand must ensure that Veterans age 60 or older in priority groups 1 and 4 are given the appropriate weighting to improve the accuracy of planning efforts seeking to optimize demand, supply, and access.

**Table 1:** *SCI/D Veterans by Priority Group and Diagnosis*

SCI/D Veterans by Priority Group and Diagnosis

| Enrollment Priority | Spinal Cord Injury | Multiple Sclerosis | Motor Neuron Disorder |
|---|---|---|---|
| 1 Svc Con 50% + | 8,840 | 3,380 | 1,279 |
| 2 Svc Con 30% - 40% | 658 | 191 | 10 |
| 3 Svc Con 20%/POW/Special | 1,302 | 255 | 13 |
| 4 AA/Housebound or Catastrophic | 5,079 | 459 | 16 |
| 5 Non-Service Con Below Income | 1,019 | 344 | 14 |
| Other | 395 | 253 | 16 |

Source: SCI/D VSSC Registry copy housed in SCID_MIOCOORD location in VHA Enterprise CDW
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

## Portfolio of Services

The SCI/D portfolio of care provides Veterans with SCI/D access to a full spectrum of clinically appropriate interdisciplinary primary and specialty services throughout their lives. This care includes acute care following new SCI/D; comprehensive interdisciplinary rehabilitation; sustaining medical and surgical care; primary and preventive care; psychological, social, and vocational care; therapies; prosthetics and assistive technologies; Veteran and family education; research; professional training; and Whole Health care, including complementary and integrative health services. There are four main settings in which SCI/D care is delivered: Inpatient, Outpatient, Home Care, and Telehealth.

### *SCI/D Inpatient Beds and Services*

The two types of care provided in the inpatient setting at SCI/D Centers are acute and sustaining care, and LTC. Of the 25 VA SCI/D Centers, 24 provide acute and sustaining care that includes but is not limited to: acute stabilization after onset of SCI/D; acute and subacute rehabilitation; medical, surgical, primary, and preventive care; ventilator management; respite care; and end-of-life care. If a Veteran with SCI/D is physically located on a unit other than the SCI/D inpatient unit due to exceptional clinical or safety issues, SCI/D team members visit the Veteran on a daily basis, documenting

assessment and clinical recommendations, and providing SCI/D-specific care as needed.

High-quality institutional LTC services for Veterans with SCI/D are in short supply in VA and in the community yet are crucial in supporting short-term and long-term institutional care when the need arises. Addressing the Veterans' health care and social needs, developing and maintaining SCI/D specialized staff, and developing appropriate environments of care are critical. Of the 25 SCI/D Centers, 6 provide SCI/D LTC that includes but is not limited to: high-quality support and care from SCI/D-trained staff consistent with their needs, rights, and personal dignity. VHA institutional LTC is also provided to Veterans with SCI/D in six CLCs with aggregated beds for Veterans with SCI/D, under the purview of the Office of Geriatrics and Extended Care. There are also isolated admissions and stays throughout VA CLCs.

### *SCI/D Outpatient Care and Services*

Care is provided to Veterans with SCI/D in the outpatient setting both at SCI/D Centers and SCI/D Spokes. The SCI/D Center provides the full spectrum of outpatient health care that is patient-centered, interdisciplinary team-based, accessible, efficient, comprehensive, coordinated, and provides continuity of care. Services provided are a part of a continuum from inpatient services to outpatient care and other services including SCI/D Home Care (SCI/D-HC) and telehealth when needed. SCI/D Spokes consist of SCI/D specialty PACTs located at facilities that do not have a SCI/D Center and provide outpatient care for relatively uncomplicated health care issues, referring complex issues to the SCI/D Center with a focus on preventive and primary care.

### *SCI/D Home Care and Services*

SCI/D-HC supports the transition and health care needs of Veterans with SCI/D in the home setting or the institutional LTC setting. SCI/D-HC renders important medical, rehabilitation, and preventive services determined necessary to support Veterans with SCI/D in the community; assists the VHA Medical Foster Home (MFH) Care Coordinator in specialized home assessments, the provision of caregiver training for the MFH caregiver, and routine care visits to ensure proper management of bowel and bladder care, skin care, and pain management. SCI/D-HC enhances the continuum of services offered through inpatient and outpatient care, extends that care in the community, and provides oversight and training in community nursing homes for Veterans with SCI/D. Teams of SCI/D-trained clinicians compose the SCI/D-HC teams.

### *SCI/D Telehealth Services*

The SCI/D System of Care utilizes virtual technologies to help Veterans with SCI/D communicate synchronously and asynchronously with their health care teams and coordinate, track, and manage their health care. These technologies are applied in routine clinical operations at both SCI/D Centers and SCI/D Spokes to improve access to care, complement health care, improve coordination of care between teams and facilities, enhance case management, and improve the health of Veterans with SCI/D.

Real-time Clinical Video Telehealth in particular, is used to enhance communication between facilities, improve access to primary and specialty care for the Veteran, particularly in rural areas and during inclement weather, and connect Veterans in their homes with their SCI/D team.

### *VA's Fourth Mission*

VHA provides emergency management response and disaster relief in times of crisis. During the COVID-19 pandemic, VA provided Fourth Mission support in many communities. This support included placing both clinical and non-clinical staff onsite or at a VA facility, training in infection control measures, and providing personal protective equipment to other health care organizations.

## 2.2 Current VA Program Review and Analysis

This section includes descriptive information and analysis of the current state of demand, supply, and access within the SCI/D System of Care.

### Demand and Supply

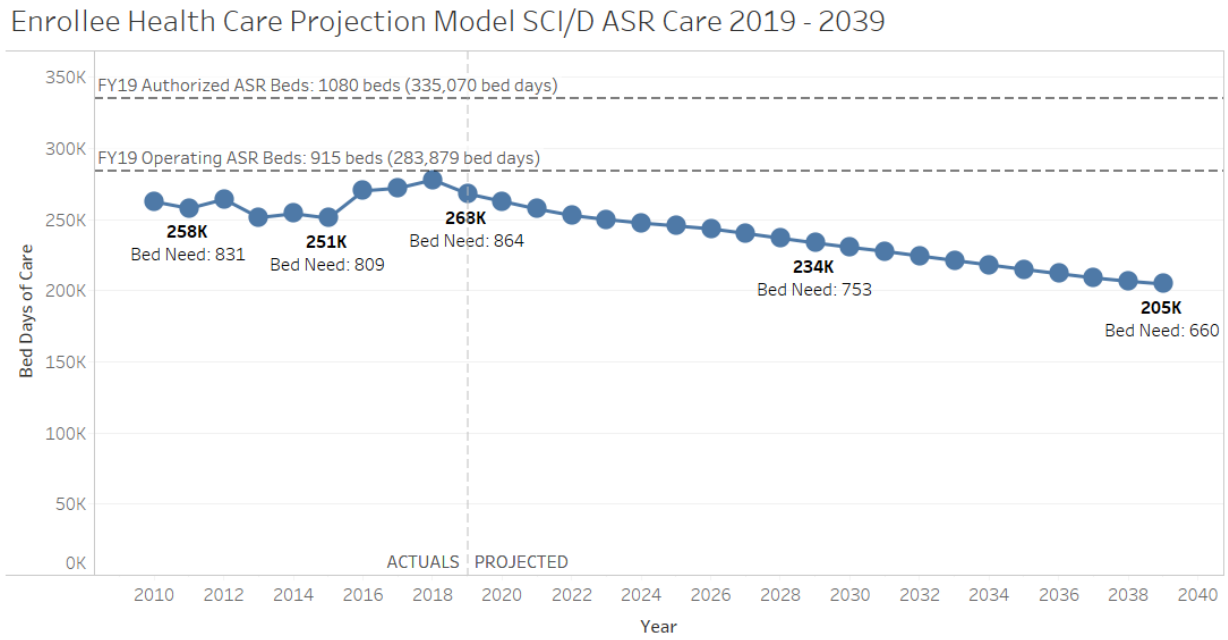
#### *Inpatient*

Current and projected (FY 2019-39) utilization data was collected to analyze VA SCI/D inpatient volume. Projection data is sourced from VA's Enrollee Health Care Projection Model (EHCPM), and historical data comes from the VA CDW.

In general, SCI/D inpatient data is logged under Treating Specialty Code 22 (Acute, Sustaining and Rehabilitation (ASR)) care and Treating Specialty Code 46 (LTC). While projected data only exists for ASR care, this care segment's operating bed allotment accounts for 84.0% (915 of 1,089) of the total operating beds in the SCI/D system. The SCI/D Program Office is currently working to produce LTC projections.

As illustrated in Figure 3, SCI/D ASR bed days of care (BDOC) peaked in FY 2019 at a bed need of 864, 51 beds fewer than the FY 2019 915 operating beds.

**Figure 3:** *SCI/D ASR Future Demand*




Source: BY* 2019 Enrollee Health Care Projection Model Utilization Tool FY 2019–40 – Nationwide
Accessed: 06/19/2021
Bed Need Calculation: [Bed days of care] ÷ 365 ÷ 85.0%
Authorized and Operating Beds: 1176(2) SCI/D Directive

Steadily decreasing projections thought 2039 indicate there is no need to increase the ASR authorized or operating bed count nationally. The SCI/D program has capacity to meet its projected ASR bed requirement; moreover, maintaining the current ASR authorized bed level, if projections prove accurate, will lead to excess inpatient infrastructure. The SCI/D Program Office has indicated that outreach efforts are underway to increase workload capture, however, data was not available at the time of this study.

Section 4 introduces a planning approach to optimize the use of SCI/D ASR bed infrastructure. LTC planning guidelines will require more study to clarify the balance between VA-provided beds and institutional community care. A review of the business cases submitted and approved for recent LTC bed increases at Dallas and San Diego will inform this work.

### *Outpatient*

Veterans can obtain outpatient SCI/D care at Spokes and Hubs. The SCI/D system aligns outpatient demand and supply by prescribing the ideal balance between SCI/D

* The base year (BY) is the first (or index) year of a series of years in a projection model upon which the projections are based

Registry Veterans and staffing of SCI/D PACTs in SCI/D Directive 1176(2) (excerpt shown in Table 2 below).

**Table 2:** *SCI/D PACT Staffing Requirements for Outpatient Care* [1]

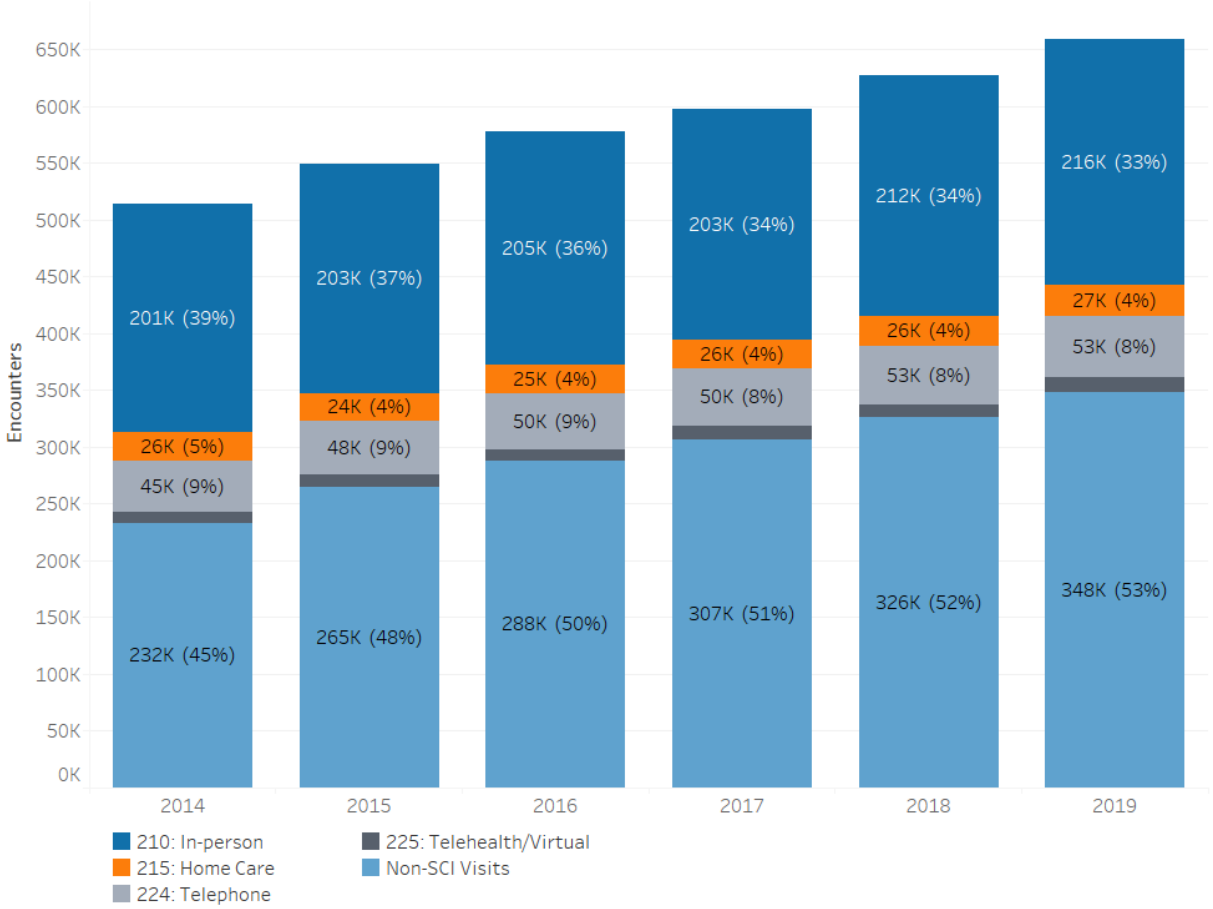
| SCI/D Registry (Number of Veterans) | Dedicated FTEE per position | Total PACT FTEE |
|---|---|---|
| 75+ | 1.00 | 5.00 |
| 50-74 | 0.75 | 3.75 |
| 25-49 | 0.50 | 2.50 |
| 24 or fewer | 0.25 | 1.25 |

To evaluate the current state of the program's efforts to align outpatient demand and supply, historical and current (FY 2016-19) utilization and PACT supply were collected. Utilization data was sourced from the VA CDW and filtered further to reflect only Veterans in the SCI/D Registry. PACT data was sourced from the PACT Compass database housed in the VHA Support Service Center Capital Assets (VSSC).

All outpatient workload is coded under four SCI/D-specific stop codes.

- Stop Code 210: In-person encounters
- Stop Code 215: Home Care encounters
- Stop Code 224: Telephone encounters
- Stop Code 225: Telehealth and Virtual Care encounters

**Figure 4:** *SCI/D Outpatient Encounters (FY 2014-19)*

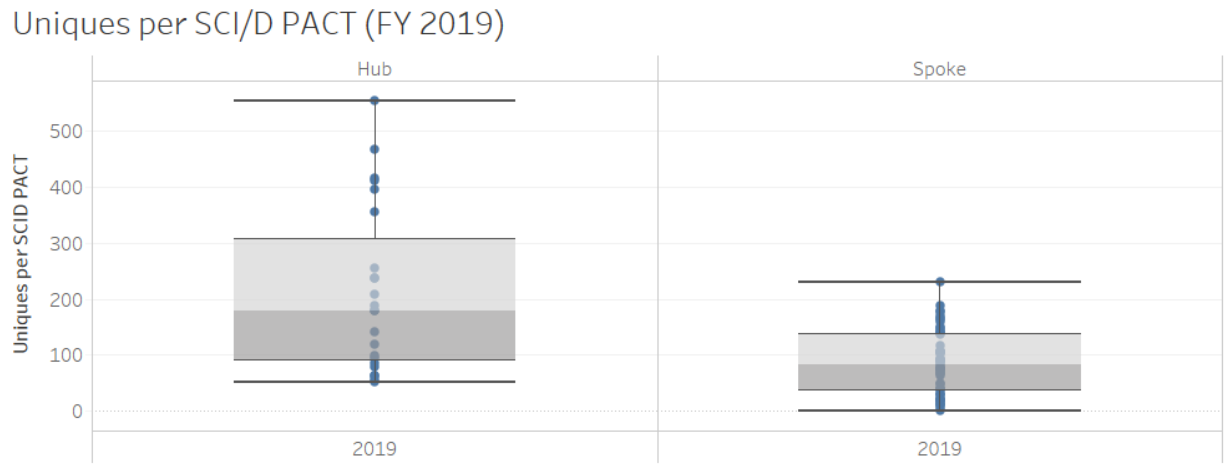



Source: SCI/D VSSC Registry and Encounters Cube (Utilization Data)
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

As Figure 5 illustrates, total outpatient utilization for Veterans with SCI/D is increasing, though proportional share of non-SCI workload is increasing at a higher rate. The SCI/D Program Office indicated that primary care non-SCI workload is a focus area, as it represents opportunities to improve quality, coding efficacy, and address training issues. SCI/D planning efforts should be designed to maximize access to SCI/D trained primary care teams, potentially requiring growth among Spokes.

To assess one layer deeper, the relationship between SCI/D Registry Uniques and total PACTs was assessed among 75 SCI/D Hubs and Spokes in FY 2019. As shown in Figure 6, Hubs exhibit the greatest variance in demand/supply alignment.

**Figure 5:** *SCI/D Registry Uniques per PACT (FY 2019)*




Source: SCI/D VSSC Registry, Encounters Cube (Utilization Data), and PACT Compass (PACT team data)
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

The median SCI/D Registry Uniques per PACT was 179.7 at Hubs and 83.5 at Spokes. Moreover, the standard deviation (Sd) of SCI/D Registry Uniques per PACT among Hubs was more than double that of the Spokes. Table 3 summarizes the variance in the relationship between SCI/D demand and supply for outpatient care among Hubs and Spokes.

**Table 3:** *SCI/D Registry Uniques per PACT Summary Statistics*

| Role | Variable | N | Min | Max | Median | Mean | Sd |
|---|---|---|---|---|---|---|---|
| Hub | Uniques per SCID PACT | 23 | 51.9 | 553 | 179.7 | 214.3 | 149.4 |
| Spoke | Uniques per SCID PACT | 52 | 1 | 231 | 83.5 | 86.2 | 57.6 |

Results indicate that the number of PACTs is not properly scaling to meet the larger outpatient volume at Hubs. It also highlights that SCI/D's staffing requirements, which are based on Veterans who live closest to a facility, do not lead to an equitable alignment of demand and supply for outpatient SCI/D care across all settings. The SCI/D system could benefit by establishing staffing requirements based on actual utilization to achieve more equitable alignment.

## Access

The SCI/D regional Hub and Spoke model is designed to serve as a network of care, where a small number of facilities cover broad swaths of the country through large service areas. This model minimizes the total SCI/D specialty inpatient footprint, but still ensures SCI/D services are offered in all regions of the country via outpatient points of care. This regionally organized care model is not designed to be evaluated by traditional VA drive time standards (30-minutes and 60-minutes to primary and specialty care respectively). For this reason, VA SCI/D program has not defined a geographic access-

to-care planning standard. The private sector lacks a true comparable system of care to VA SCI/D System of Care, making private-sector access benchmarks unavailable in the private sector for all but SCI/D Acute Inpatient Rehabilitation (CARF program).

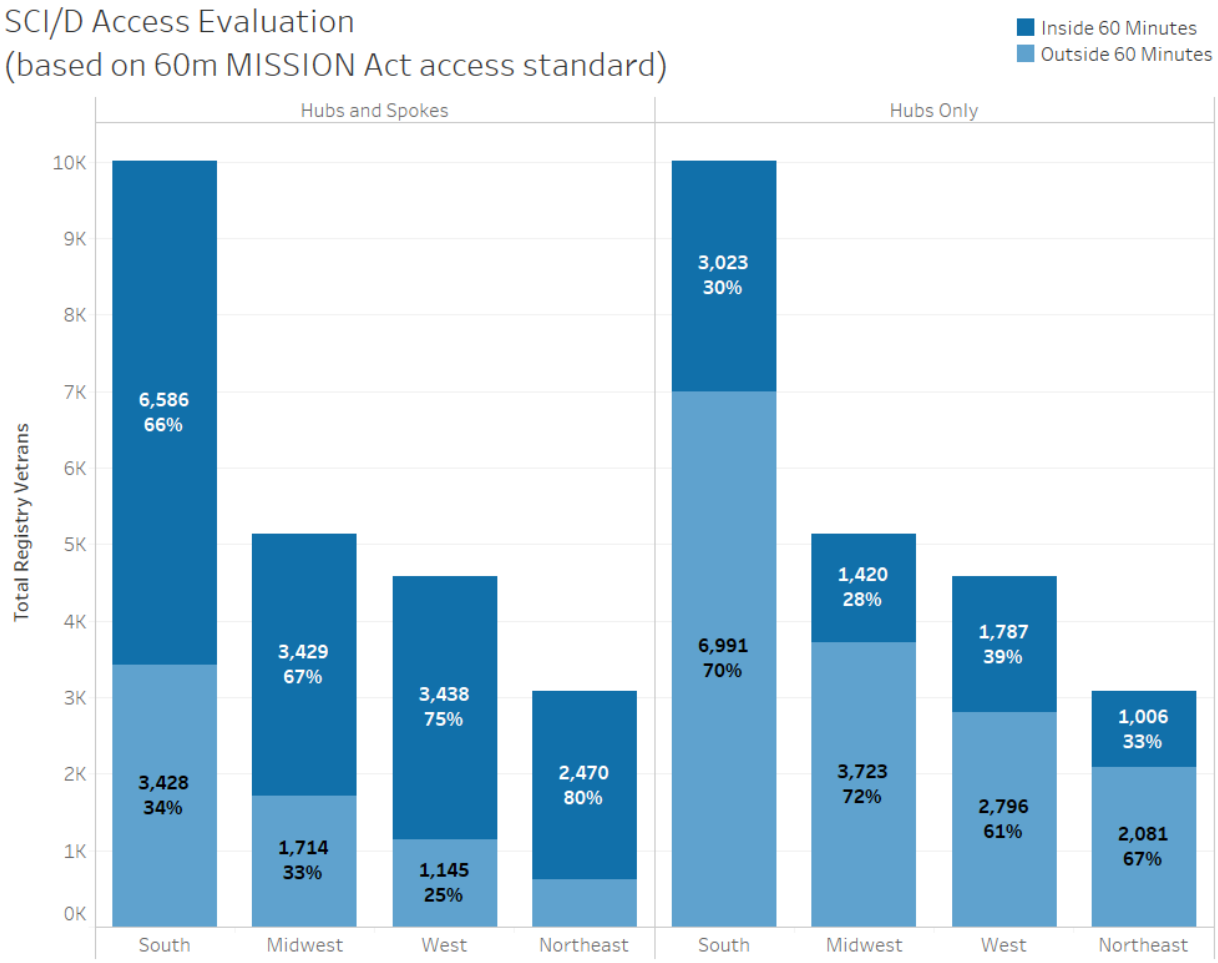
Despite these challenges, the MISSION Act allows Veterans to seek care in the community if they reside outside of a 60-minute average drive time to a VA specialty care provider. Consequently, this standard is used to evaluate current access to SCI/D care as prescribed by the MISSION Act.

Nationally, approximately 69.7% of SCI/D Registry Veterans live within 60 minutes of outpatient SCI/D points of care (Hubs and Spokes), while only 24.8% of SCI/D Registry Veterans live within 60 minutes of inpatient SCI/D points of care (Hubs only).

To assess one layer deeper, an analysis was performed at the census region level to determine if access issues were more problematic in specific areas of the country. Results, shown in Figure 7, highlight that, while the proportional balance of Veterans inside and outside the 60-minute drive time standard is fairly consistent, the absolute number of Veterans outside the drive time standard in the South census region is relatively significant. More specifically, 69.8% (6,991) of Registry Veterans living in the South are beyond a 60-minute drive from inpatient SCI/D care and meet the criteria required to seek care from inpatient SCI/D providers in the community.

The analysis also shows a range of access to SCI/D primary care across the four census regions, with 80.0% of Registry Veterans residing within 60 minutes' drive time to a Hub or Spoke in the Northeast, but only 65.8% in the South. This points to the need to evaluate adding additional Spoke sites to enhance geographic access.

**Figure 6:** *SCI/D Access Performance Across Census Regions (by latitude / longitude of Registry Veteran)*




Source: SCI/D VSSC Registry
Cohort: FY 2019, living only, all diagnosis categories meeting Registry business rules since 10/01/2012
Accessed: 02/02/2021

While a 60-minute drive time is appropriate for certain services, evidence shows that for highly specialized care, patients typically travel further distances. Other agencies, such as the Centers for Medicare and Medicaid Services (CMS), have outlined drive time standards as high as 390 minutes for certain types of low-volume, highly specialized services.

## 2.3 Commercial Provider Trends

This section identifies applicable trends among commercial health care providers that can inform the SCI/D National Planning Strategy. As the majority (73.5%) of SCI/D Veterans do not have an MS or MND diagnosis, the trend discussion is focused on SCI/D traumatic SCI and nontraumatic SCD specifically as opposed to MS or MND. While trends do exist, it is important to note that across commercial and Federal, there

is no other single provider that treats persons with SCI/D across multiple regions of the country integrating lifelong primary and specialty care.

SCIMS does not integrate care delivery across a shared patient population but does share data to enhance research and improve care among its participating providers. There are 78 private sector CARF accredited (spinal cord inpatient rehabilitation) providers. Additionally, there are several other high-performing SCI providers who are not CARF-accredited and do not participate in SCIMS.

Although many SCI/D providers exist, the only significant source of commercial trended SCI data is owned by SCIMS. As a result, the national SCIMS data, which represents 6.0% of all spinal cord injury care in America, is used to identify trends in care for traumatic SCI patients in the commercial sector. Among its 14 providers, the SCIMS data includes patient representation from all U.S. census regions across 34,504 patients.

## Patient Driver Trends

SCI patient trends, shown in Table 4 below, highlight the general direction of key descriptive categories of this population over the past 30 years.

**Table 4:** *Spinal Cord Injury Patient Trends (1970s - 2019)*

| Category | Trend / Potential Drivers (not exhaustive) | 1970s | 2019 |
|---|---|---|---|
| Patient Volume | SCIMS' total Registry patient count has decreased significantly from its 30-year peak | 608 patients | 299 patients |
| Patient Age | Average age at injury of SCI patient is increasing | 28.7 years old | 43.1 years old |
| Patient Race | Increasing racial complexity of SCI patient population as the Caucasian share decreases and African American share of total SCI increases. | 3,505 (77.0%) Caucasian | 2,587 (67.0%) Caucasian |
| | | 648 (14.0%) African American | 948 (25.0%) African American |
| Patient Etiology | Vehicular-based SCI is declining, most likely due to improved car safety | 2,141 (47.0%) | 1,471 (38.0%) |
| | Violence-based SCI has remained steady | 605 (13.0%) | 543 (14.0%) |
| | Sports-based SCI is declining, most likely due to improved regulations and equipment | 655 (14.0%) | 305 (8.0%) |
| | Falls-based SCI is increasing significantly, as the baby boomer generation ages | 752 (17.0%) | 1,238 (32.0%) |
| | Iatrogenic medical and surgical events are increasing, most likely due to an increase in total surgeries performed | 53 (1.0%) | 164 (4.0%) |

Source: SCIMS 2019 Annual Report

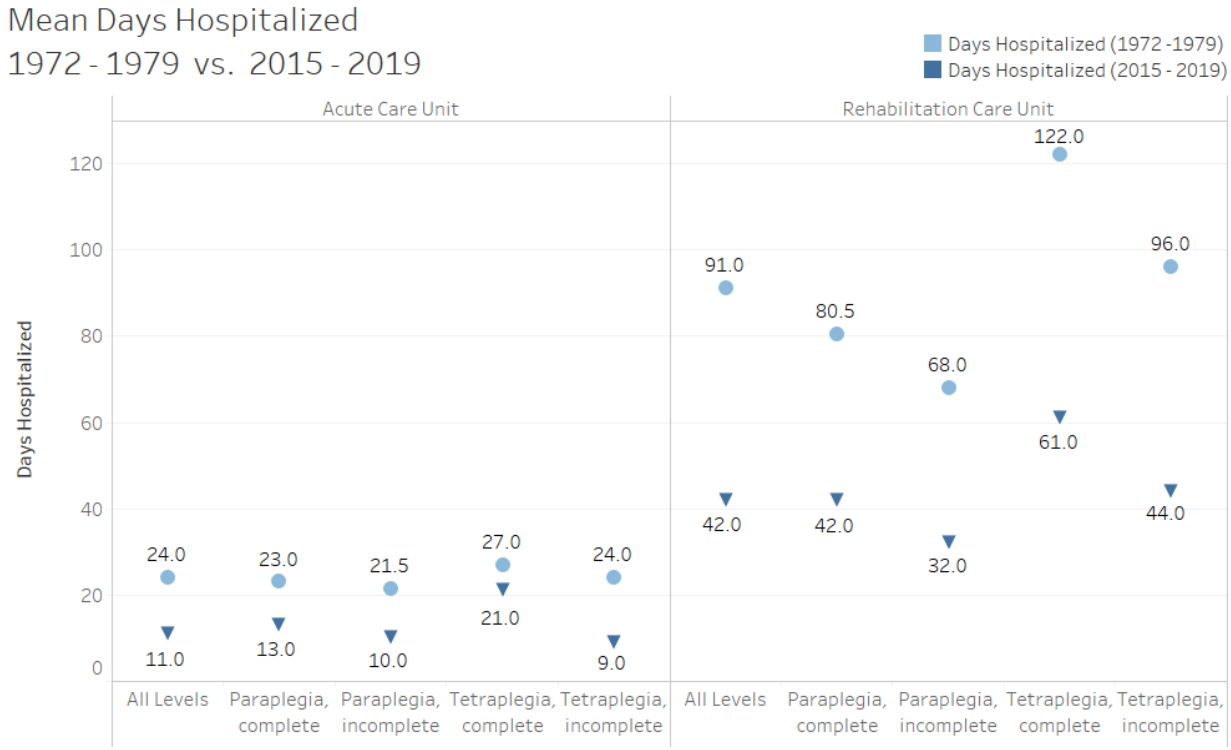
## Service Portfolio Trends

Over the past 20 years, providers have moved away from the traditional general rehabilitation hospital to a more tailored, specialized rehabilitation hospital. Specialized rehabilitation hospitals typically offer a targeted subset of the full rehabilitation suite of services. For example, Shepherd Center in Atlanta, GA, a world-renowned facility with outcomes above the applicable national benchmarks year over year, offers only spinal cord injury, brain injury, stroke, and multiple sclerosis services. The value proposition of specialized rehabilitation providers is the provision of this smaller set of services, ensuring all investments remain focused on a smaller scope of services aimed at greater outcomes than general rehabilitation hospitals.

## Demand Trends

For SCI specifically, the length of stay (median days hospitalized) in acute care units has decreased from 24 to 11 days in acute care settings, and from 98 to 31 days in rehabilitation care units [2] over the past 30 years.

**Figure 8:** *Mean Days Hospitalized (SCIMS 2019)*




Source: SCIMS 2019 Annual Report

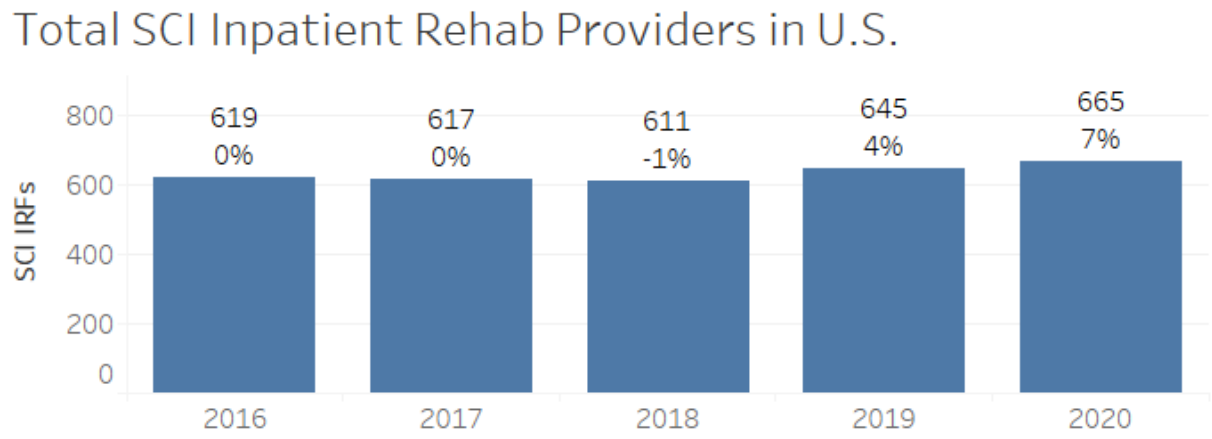
## Access Trends (Acute Rehabilitation)

VA is unique in its ability to measure geographic access to SCI/D care due to its known beneficiaries and active maintenance of an SCI/D registry. Equivalent community

access data is not available. To identify community trends in access to SCI acute rehabilitation care, data is available to measure the number of inpatient rehabilitation facilities per 100,000 population. A subset of the total number of providers offering SCI services was summed year over year. The subset was defined by identifying the total number of inpatient rehabilitation facilities (IRF) participating in the CMS IRF Quality Reporting program seeing 11 or more Medicare beneficiaries with traumatic or non-traumatic spinal cord injuries each year.

The total number of IRFs meeting the criterion has increased from 619 to 665 in the last five years. While there are 46 additional SCI IRFs, the U.S. population has increased by eight million. As a result, the total SCI IRFs per 100,000 people has dropped slightly from 5.22 to 4.98 nationally. These results indicate that access to SCI services has remained roughly the same across the country over the past five years.

**Figure 9:** *Total Inpatient Rehabilitation Providers (Spinal Cord Injury)*




| | Total People | SCI IRFs | SCI IRFs per 100,000 People |
|---|---|---|---|
| 2016 | 323M | 619 | 5.22 |
| 2017 | 325M | 617 | 5.27 |
| 2018 | 327M | 611 | 5.36 |
| 2019 | 328M | 645 | 5.09 |
| 2020 | 331M | 665 | 4.98 |

Source: Centers for Medicare and Medicaid 2019 Inpatient Rehabilitation Facilities Report

# 3. Leading Practices

## 3.1 Leading Practices Analysis

This section highlights select global leading SCI/D practices. In general, leading SCI/D practices have integrated models of care, provide expertise across the care continuum, and supply equipment and resources necessary for the highest patient functional outcomes.

### Acute Inpatient and Inpatient Rehabilitation

With multiple services provided under one roof, a leading practice can transition a patient seamlessly through all phases of their rehabilitation from acute and sub-acute care to outpatient services.

While interventions for a traumatic SCI or non-traumatic SCD typically initiates at a tertiary referral hospital, follow up care is often performed in a rehabilitation hospital. As noted in section 2.3, those facilities within the SCIMS are rich in research and data and have offered treatment to the SCI/D population for over 50 years. [3] SCIMS' practices are similar to the SCI/D Hub Centers within VA, and at their core these leading practices provide comprehensive evidence-based treatment of medical and surgical issues such as spine stabilization and treatment of autonomic dysreflexia; treatment of complications and co-morbid problems such as management of neurogenic bladder and bowel; maximization of function with training and use of assistive technology; self-care management including bathing and self-catheterization; and resumption of social and vocational roles.

### Outpatient Services

There has been increased survival following spinal cord injuries during the past 50 years. In part, this is because co-morbid conditions have been successfully managed. Since complications and co-morbidities remain a major source of illness and death for people with SCI/D, there is a critical need to manage these conditions. Comprehensive early detection and prevention measures are a significant component of integrated care. Secondary conditions such as autonomic dysreflexia, urinary tract infections, spasticity, respiratory dysfunction, pain and pressure ulcers are often addressable in the outpatient setting with appropriate management. [4] An advantage for the Veteran population is that primary care providers at SCI/D Centers and Spokes are expected to provide a high level of expertise for conditions related to the underlying spinal cord injury or disorder to prevent further morbidity or mortality. [1] This is not always the case in the commercial sector as primary care providers typically do not have SCI/D training or always have the expertise to handle a person with SCI/D. [5]

From a facility standpoint, the Americans with Disabilities Act (ADA) requires that all medical practices provide accessibility for those with disability. For example, the ADA requires that in treatment rooms a space of 30 inches by 48 inches be accessible along

at least one side of an adjustable height examination table so that a patient in a wheelchair has the necessary space to transfer from their chair to the exam table. A leading practice would allow this space to be accessible to both sides of an examination table recognizing that all patients are not able to transfer in a similar fashion to either side. Similarly, the ADA requires that rooms be large enough to maneuver a portable lift. Ceiling mounted lifts may instead be utilized for practices that see a high volume of patients needing assisted transfers. [6]

VA SCI/D Space Planning Criteria goes beyond ADA requirements to ensure enhanced accessibility to outpatient services. Chapter 104 outlines the spaces and room sizes required for Outpatient treatment within an SCI/D Hub site.

Primary care clinics such as the Centre for Family Medicine Family Health Team (CFFM FHT) in Ontario, Canada, are specifically designed to improve access to quality care for persons with severe disabilities. [7] This fully accessible clinic is staffed with physicians, nurses, and physical and occupational therapists with expertise in delivering primary care for SCI/D. Although these resources may not equate to better quality of care, it does suggest to a person with SCI/D that there is a commitment to understanding their health care needs. [4]

The practice of annual evaluations is also common among the leading SCI/D facilities across the country. In addition to the standard medical history and physical evaluation, annual visits for a person with SCI/D will focus on body systems and co-morbidities for the prevention and early detection of conditions that cause further morbidity and mortality.

Craig Hospital refers to its comprehensive re-evaluations as Interdisciplinary Outpatient Evaluations (IOE). [8] Within VA it is required that a Comprehensive Preventative Health Evaluation be offered to all Veterans in the SCI/D program. [1] Comprehensive examinations of this kind require a significant level of expertise, often with a multi-disciplinary specialty approach, and a consideration of the time required to address all current and future concerns.

## Mental Health

Leading practices should address not only the physical condition of a person with SCI/D but also address the mental health issues commonly found in this population. Persons with SCI/D are particularly vulnerable to depression in the post-injury phase with studies estimating between 20.0-30.0% displaying symptoms of depression. [4] Furthermore, “depression is associated with fewer improvements in functioning, increased health complications such as pressure ulcers, and urinary tract infections (UTI), high rates of suicide, increased rates of hospitalization and higher medical expenses.” [4] In recognition of mental health disorders and substance use disorders that are in high prevalence in persons with SCI/D, Paralyzed Veterans of America (PVA) have published the 2nd Consortium for Spinal Cord Medicine clinical practice guideline (CPG) on mental health.

The report focuses on early detection of mental health disorders in a population that is commonly associated with having a high risk of suicide. [9]

Organizations dedicated to the treatment and management of SCI/D should have measures in place including early screening, education, and counseling to prevent and treat mental health issues. Annual evaluations at VA are attentive to the psychosocial aspect of a Veteran's care and may also include peer counseling services for Veterans and programs dedicated to Veteran families. Treatment may address substance abuse, provide vocational counseling, and discuss sexuality as well as help to adapt to new social situations and relationships. [1]

## Alternative Service Delivery Models

Alternative options of service delivery must be explored to address the needs of members of the SCI/D community who are unable to access outpatient services. Home Health programs in the private sector are not as comprehensive as the SCI/D Home Care program within VA. National providers such as Bayada Home Health Care [10] may provide specialized nursing and physical and occupational therapy; however, the SCI/D Home Care team focuses on the primary and specialty care as well as rehabilitation and caregiver assistance and includes an interdisciplinary team consisting of a provider, nurse, social worker, psychologist, therapist, dietician, and pharmacist.

When transportation or accessibility is a barrier, it has been identified by the World Health Organization (WHO) that "teleconsultation and web-linked guidance for medical care and rehabilitation has been used for the treatment of specific SCI complications such as wound care, with suggestions that it may be an appropriate service delivery model for other areas such as bladder management." [4] With transportation and accessibility often a barrier to those persons with SCI/D and with the advent of telehealth, at the International Spinal Cord Society Annual Scientific Meeting in 2016, delivering health care in this fashion was referred to as "teleSCI". Further study of teleSCI has found that it is inconclusive as to the efficacy of providing care in this method and standards of care are lacking. However, the deficiency of providers, high cost of care, and the opportunity to identify issues such as the onset of pressure sores, respiratory conditions, and urinary tract infections make teleSCI an advantageous means of delivering primary care. [11] VA SCI/D System of Care has adopted tele-modalities in their own care models and SCI/D telehealth services are outlined in the VHA SCI/D Program Directive. [1]

## Assistive Technology

A patient's need for Assistive Technology begins at SCI/D, ALS, or MS onset and must be continually evaluated throughout their lifetime. The current standard of practice ensures that an informed clinician will examine an individual's function within their context and environment with the goal to design and customize assistive technology and equipment to maximize function. Specific to mobility devices, Physical Therapists and Occupational Therapists with SCI/D subject matter expertise should be involved in

the assessment and prescription of assistive technology that will meet each person's needs. Further evidence of expertise in this area is demonstrated through the Assistive Technology Professional (ATP) certification and the Seating and Mobility Specialist (SMS), both through the Rehabilitation Engineering Society of North America (RESNA).[12] There should be adequate space within a facility for both the examination and trial of equipment as well as substantial storage for manual and power wheelchairs.

### Long-term Care

As persons with SCI/D age, they are more likely to have medical comorbidities and to face psychosocial barriers such as loss of domestic partner or caregiver support, limited social networks, need for financial assistance, and depression. These challenges often result in a loss of independence and need for institutional long-term care. VA staff are well trained in all aspects of the care for SCI/D Veterans including ventilator care, restorative, hospice, and palliative care. Veterans share residence with other Veterans with a SCI/D diagnosis in the residential home model setting where they have access to therapeutic activity and outings tailored to their needs and ability level. However, as identified in section 2.1, SCI/D LTC beds are limited and not available in every market with a SCI/D Hub or Spoke.

# 4. Market Framework

## 4.1 Program Priorities

The SCI/D program has two major priorities as it seeks to improve over the next 10 years:

1. Better align demand and supply
2. Maximize access to specialized SCI/D care

### Strategy to Address Priorities

To better align demand and supply, SCI/D must address the gradual decline of its ASR care and determine how to meet the anticipated increase in SCI/D LTC as Veterans age over the next 10 years. The SCI/D Program Office will develop a review process to regularly evaluate demand and supply of services provided.

#### *Inpatient SCI/D Acute/Sustaining Care*

SCI/D ASR care is currently in 16 of 18 VISNs. Projections show ASR demand will decrease significantly over the next 10 years, leading to increased bed surplus year-over-year. With the mean age of Veterans with SCI/D over 60 years old, a percentage of the total ASR workload will convert into LTC, indicating a need to repurpose, as opposed to down-size ASR infrastructure.

### *Long-term Care*

SCI/D LTC is maldistributed nationally, currently in 6 of 18 VISNs. While CLCs have helped bridge gaps for SCI/D LTC patients where community and VA SCI/D LTC is limited, the preferred setting of care for SCI/D patients is in a dedicated SCI/D LTC bed. This approach ensures the necessary specialized staff and resources are in place, leading to the highest quality care.

Given the limited geographic distribution of SCI/D LTC beds and anticipated shift in patient demand from ASR to LTC, it is imperative for SCI/D to increase LTC bed supply. Opening SCI/D Centers has proven to be a lengthy tactic to increase supply, with the average SCI/D Center opening taking over 10 years from approval to ground-breaking. Considering these constraints, the best strategy to increase SCI/D LTC bed supply for Veterans is to:

1. Utilize all existing LTC authorized beds in an SCI/D setting
2. Re-designate ASR beds as LTC beds as Veteran demand shifts

**Step 1** ensures that all existing LTC beds are employed to meet the anticipated increase in SCI/D LTC demand, prior to opening new LTC units.
**Step 2** will identify where excess ASR beds exist throughout the system and determine which portion of the surplus ASR beds should be re-designated as LTC beds. This tactic is advantageous for multiple reasons. First, the SCI/D Program Office has indicated that Veterans with SCI/D have shown a preference to obtain LTC at a specialized center as opposed to a CLC or community nursing home and SCI/D LTC Centers are the safest setting for this vulnerable population. Second, considerable portions of the staff from the ASR unit may also be leveraged to treat patients in the newly created SCI/D LTC unit, creating economies of scale. Last, re-designating beds from ASR to LTC is realistic, cost efficient, and the quickest tactic to ensure SCI/D LTC beds are available for Veterans with SCI/D. Moreover, this type of bed re-designation was done at the Tibor Rubin VA Medical Center in Long Beach, CA, proving the model is a viable option for the SCI/D System of Care.

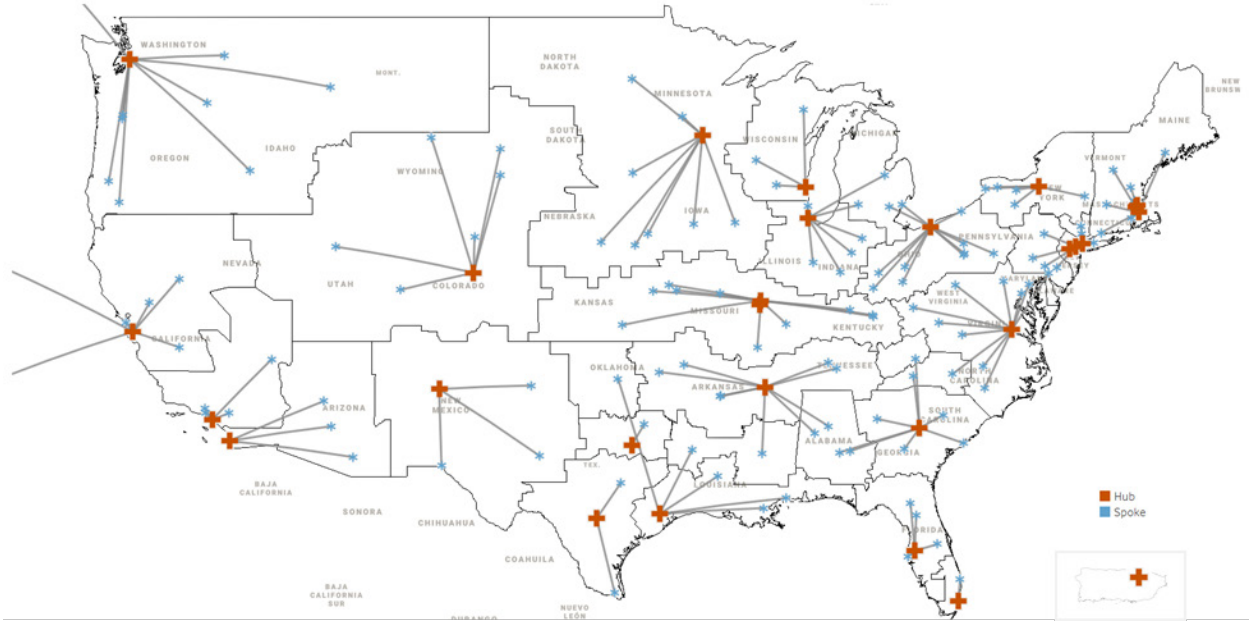
### *Primary Care*

Increasing the number of SCI/D Spokes represents the most realistic strategy to maximize access to primary care for SCI/D Registry Veterans. Although Spokes are already widely distributed, with 60.0% or more SCI/D Registry Veterans within a 60-minute drive time, increasing the number of Spoke sites can improve geographic access for many SCI/D Registry Veterans. One area is in broadening the facility classification type where Spokes may be established. Despite a few exceptions, VAMCs are the preferred location for SCI/D Spokes and there is currently one SCI/D PACT located in a MS CBOC. Moreover, the SCI/D Program Office has communicated that in some high-density SCI/D Registry Veteran areas such as the Florida panhandle, CBOCs are used as a setting to obtain primary care in the absence of a nearby SCI/D Spoke. Accordingly, CBOCs, MS CBOCs, and Health Care Centers (HCC) in high-density

SCI/D Registry Veteran areas should be evaluated as a growth platform to maximize access.

## 4.2 Geographic Service Area

**Figure 10:** *SCI/D Hub and Affiliated Spoke Service Areas (Illustrative)*




Current SCI/D service areas, shown above, are roughly represented by grouping the markets that each Hub and its affiliated Spokes administratively serve. While similar to VISNs, SCI/D service areas were established prior to the development of VISNs and have changed when new SCI/D Centers have opened and when there have been changes in medical centers. As VISN geographic boundaries occasionally change over time, SCI/D service areas have not changed in parallel.

**Table 5:** *SCI/D Geographic Service Areas by Service Line*

| SCI/D Service Line | Service Area |
|---|---|
| SCI/D Primary Care (outpatient) | Market |
| SCI/D LTC (inpatient) | Hub and Affiliated Spoke |
| SCI/D ASR Care (inpatient) | Hub and Affiliated Spoke |

The geographic service areas in Table 5 above represent the current service area of each Hub and its affiliated Spokes. While in some instances, SCI/D Registry Veterans travel long distances to receive SCI/D care, tighter geographic service areas are recommended for planning, especially as it relates to standing up new services.

## 4.3 Planning Guidelines

Planning guidelines and thresholds seek to inform the market assessment process. The rationale for establishing VA planning guidelines and thresholds is rooted in the belief that where a VA service falls below the identified measure, quality, patient safety, or operational efficiency may be compromised. Therefore, a service must be carefully examined to ensure that Veteran needs are appropriately met. Planning guidelines and thresholds focus on a broad range of access, demand, staffing, quality, and facilities/ environment of care considerations and are meant to help identify areas where the teams should carefully consider measurable performance indicators. The guidelines and thresholds developed are not meant as standalone decision criteria to be used to make specific recommendations.

When conducting the market assessments, the opportunities developed were standardized across a range of move (or strategic task) types. Those developed included major moves as well as opportunities defined to be addressed during the ordinary course of business. Major moves represent the platform which will be vetted with senior VA leadership, with the VHA Under Secretary of Health, the Secretary of VA, the Asset and Infrastructure Review (AIR) Commission, and ultimately with Congress.

Planning guidelines derived from these efforts have been designed to assist in the standardization of major market moves and include the following:**

- **Open** – Establish a new site or program in an area with no current SCI/D services
- **Maintain:**
    - **Maintain** – no major move is recommended
    - **Resize** – maintain services at the current site and size appropriately to accommodate projected demand
    - **Relocate Program** – maintain services within the same geographic service area but relocate to another VA site
    - **Relocate Facility** – maintain services and relocate the site within the same county to better place services closer to where Veterans live or to a site that can better fit services
    - **Modernize Facility** – update environment of care by improving or adding new building systems without changing the function of the existing space
    - **Replace Facility** – applicable for standalone programs – maintain services within the same area in a new facility due to the current facility's inability to modernize efficiently
- **Partner –** create a partnership where VA providers deliver care in coordination with a partner or where VA transitions care to a partner
    - **Partner (VA Delivered)** – a partnership in which VA providers deliver care to Veterans in coordination with a partner, such as through a VA hospital within a hospital (HwH) on a partner hospital campus, credentialing VA providers

** All National Planning Strategy service planning guidelines may not include all major market move types

within a partner facility, or establishing a VA point of care within a partner space

- **Partner (CCN/AA/Federal)** – transition care from a VA site and from VA providers to the Community Care Network, an Academic Affiliate, or to Federal providers and facilities; VA provides care coordination but does not deliver clinical care

## Planning Guidelines Summary

### *Primary Care*

| MAHSO Planning Guidelines and Thresholds | |
|---|---|
| **Service** | SCI/D Primary Care (and limited outpatient specialty care) |
| **Geography** | Market |
| **Prerequisites** | VHA Directive 1176(2) specifies that a fully staffed SCI/D Spoke PACT must be in place at all VA medical facilities that are not Centers and have 75 or more SCI/D Registry Veterans |

| Open | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • ≥ 75 SCI/D Registry Veterans within 60 minutes. | • The full SCI/D Spoke PACT size is fulfilled at a minimum of 75 Registry Veterans per SCI/D Directive 1176(2). |
| Supply | • VAMC or MS CBOC with ≥ 8 primary care PACTs. | • A VAMC, MS CBOC, or HCC with 8 or more primary care PACTs typically has the other services Veterans with SCI/D may rely on such as Geriatric and Women's Health PACTs, Outpatient Mental Health, Physical Therapy, Pharmacy, Nutrition, Laboratory and Basic Imaging. |
| Access | • Proposed location ≥ 60-minute drive time from existing sites offering SCI/D primary care. | • Maximizing SCI/D Registry Veteran access requires that newly established Spoke service areas minimize overlapping service geographies. |
| Quality | • N/A | |
| Other | • N/A | |

| Maintain<br>No Change, Resize, Relocate, Modernize, Replace | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • There is no minimum number of Registry Veterans to maintain a spoke site. | • SCI/D Program Office indicated there is no comparable community alternative to existing VA capabilities.<br>• Per SCI/D Program Office leadership, historically in SCI/D (and other programs), there are shared FTE that follow outpatients with various disorders. Although there are challenges with such an arrangement, that is the structure that has been in place for many years. |
| Supply | • Trained SCI/D PACT staff, minimum of 1.25 FTE. | • Trained SCI/D staffing must be in place to provide appropriate care to current SCI/D Registry Veterans.<br>• PACT staffing should reflect VHA Directive 1176(2). |
| Access | • High performing existing SCI/D primary care service. | • Primary care services indicate sufficient access to SCI/D primary care services. Key measures to consider are:<br>○ Primary care wait time<br>○ Consult wait times<br>○ No shows and canceled by clinic<br>○ Panel fullness<br>○ Patient satisfaction with primary care access<br>○ Ability to recruit and retain SCI/D interdisciplinary staff trained and educated to provide high quality primary care to Veterans with SCI/D |
| Quality | • N/A | |
| Other | • N/A | |

| Partner VA and Partner AA/Federal/CCN (Buy) | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • N/A | The full continuum of VA SCI/D care is not replicated in the private sector, particularly lacking SCI/D trained primary care providers. As a result, partnering with other entities is not acceptable. |
| Supply | • N/A | |
| Access | • N/A | |
| Quality | • N/A | |
| Quality | • N/A | |

### *Long-term Care*

| MAHSO Planning Guidelines and Thresholds | |
|---|---|
| **Service** | SCI/D Long-term Care (LTC) |
| **Geography** | SCI/D Hub/Spoke Service Areas |
| **Prerequisites** | VHA Directive 1176(2) specifies that the SCI/D System of Care must provide and maintain access to non-institutional extended care and institutional LTC settings must prioritize environments that maintain high quality care and promote privacy, dignity, autonomy, independence, and activities. |

| Open | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • ≥ 5 ADC/6 Beds. | • The SCI/D Center Design Guide plans LTC in 6-resident pods. The occupancy target for SCI/D LTC is 95.0% which translates to 5 ADC.<br>• Services are provided to Veterans with SCI/D and length of stays can last from several months to many years (SCI/D Center Design Guide, page 2-9, 2-10).<br>• Space is designed to be warm and welcoming and to encourage Veteran engagement. Homes are connected through a Neighborhood Center with common areas and SCI/D therapy spaces shared by the residents (SCI/D Center Design Guide, page 2-9, 2-10).<br>• Caveat: there is not a definite minimum patient volume, however, care plans of LTC patients are unique and may be more efficiently followed with enough patient volume to support a small dedicated interdisciplinary team. |
| Supply | • All existing SCI/D Centers with ASR beds.<br>• Existing or projected surplus acute/sustaining beds. | • To address scarcity of SCI/D institutional LTC services, the Program Office has a goal to increase VA SCI/D LTC bed supply by utilizing all authorized SCI/D LTC beds and re-designating surplus ASR beds to LTC use.<br>• There is no minimum LTC bed capacity if beds are located within an existing SCI/D Center. |
| Access | • All SCI/D Centers with potential for conversion of beds to LTC designation are in or near Health Referral Region Town Centers. | • Availability of existing VA SCI/D inpatient capacity to address the needs and preferences of Veterans with SCI/D who require LTC.<br>• Adding SCI/D LTC to existing SCI/D Center locations that do not currently have LTC capability will increase geographic access. |
| Quality | • N/A | |
| Other | • N/A | |

| Maintain<br>No Change, Resize, Relocate, Modernize, Replace | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • 80.0% Occupancy of Operating Beds. | • Existing LTC operating beds are evaluated for match to demand. 80.0% occupancy recognizes that some units cannot be more fully occupied due to space limitations such as 4-bed rooms. |
| Supply | • All SCI/D Centers.<br>• Existing or projected surplus acute/ sustaining beds. | • To address scarcity of SCI/D institutional LTC services, the Program Office has a goal to increase VA SCI/D LTC bed supply by utilizing all authorized SCI/D LTC beds and re-designating surplus ASR beds to LTC use. Program Office has indicated that all SCI/D Centers should have a LTC component.<br>• 6 SCI/D Centers have authorized LTC beds, ranging from 12 to 64 authorized beds.<br>• Surplus SCI/D acute/sustaining beds may be re-designated to LTC use, providing new capacity at existing SCI/D Centers.<br>• There is no minimum LTC bed capacity if beds are located within an existing SCI/D Center. |
| Access | • SCI/D Centers with existing LTC beds are in cities with are in or near Health Referral Region Town Centers. | • Availability of expanding existing VA SCI/D inpatient capacity to address the needs and preferences of Veterans with SCI/D who require long-term institutional care. |
| Quality | • N/A | |
| Other | • N/A | |

| Partner- VA CLC | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • No minimum for CLCs. | • Many CLCs without authorized SCI/D LTC beds report current SCI/D LTC ADC. |
| Supply | • Refer to National Planning Strategy for CLC. | • 6 CLCs have authorized SCI/D LTC beds, ranging from 8 to 15 authorized beds.<br>• Bed availability and patient complexity are often barriers to placing Veterans with SCI/D in CLCs.<br>• Geriatrics Extended Care leadership has oversight responsibility for CLC. |
| Access | • Refer to National Planning Strategy for CLC. | • Geriatrics Extended Care leadership has oversight responsibility for CLC. |

| Partner- VA CLC | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Quality | • Refer to National Planning Strategy for CLC. | • Geriatrics Extended Care leadership has oversight responsibility for CLC. |
| Other | • N/A | |

| Partner- CCN (Buy) | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • No minimum for institutional LTC settings. | • VHA Directive 1176(2) recognizes SCI/D Veterans may choose to be admitted to community LTC settings. |
| Supply | • Institutional LTC capacity is available. | • VA identifies appropriate institutional LTC settings that can manage Veterans with SCI/D. |
| Access | • Institutional LTC locations exist in the local Market. | • Non-contract community nursing homes are carefully evaluated for capacity and staff to care for Veterans with SCI/D before placement (VHA Directive 1176(2), page I-1). |
| Quality | • Refer to National Planning Strategy for CLC. | • Geriatrics Extended Care leadership has oversight responsibility for community nursing homes and does so in partnership with SCI/D Leadership.<br>• Ensuring that Veterans with SCI/D in LTC settings are tracked and that their care is appropriately managed per VHA Directive 1176(2). |
| Other | • N/A | |

## *SCI/D Acute/Sustaining/Rehabilitation Care*

| MAHSO Planning Guidelines and Thresholds | |
|---|---|
| **Service** | SCI/D Acute/Sustaining/Rehabilitation (ASR) Care |
| **Geography** | Existing Hub/Spoke Service Areas |
| **Prerequisites** | • CARF Accreditation<br>• VHA Directive 1176(2) specifies that the establishment of a new SCI/D Center must be located at VA medical facilities that are capable of providing complete primary, specialty, and tertiary care |

| Open | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • Minimum projected 10-year BDOC of 6,205 (17.0 ADC), 20 Beds at 85.0% Occupancy. | • Analysis of projections from EHCPM.<br>• A 20-bed demand minimum is suggested for new ASR sites based on projected bed level results from the CARES analysis and aligns with staffing matrices in VHA Directive 1176(2).<br>• ADC is one factor in evaluating demand but does not fully capture the complexities of workload within the SCI/D System of Care.<br>• Other factors to analyze demand for ASR care include function (FIM, Jones Dependency Tool), acuity (Rothman Index, Indian Health Service), mental health diagnoses (behavior management), and ventilator status. |
| Supply | • CARF and TJC accredited VAMCs.<br>• VAMCs must maintain a 24/7 ED, acute med/surg beds, and inpatient surgery.<br>• Tertiary surgery services on-site or a nearby VA referral site is available. | • VHA Directive 1176(2) specifies that SCI/D Centers with ASR beds must sustain accreditation from CARF and The Joint Commission for acute care beds.<br>• Acute stabilization, rehabilitation, medical care, and surgical care are integral services in the ASR program and any new SCI/D Centers should be at VAMCs with 24/7 ED and acute med/surg services.<br>• Having tertiary surgery services, such as neuro, plastic, and urology surgery, on-site is preferred, however it is recognized that a nearby VAMC or community hospital with tertiary services and experience with persons with SCI/D can satisfy this service requirement.<br>• SCI/D Centers are to be resourced as specified in VHA Directive 1176(2) and VHA Handbook 1000.01 Inpatient Bed Change Program and Procedures. |
| Access | • A new site should ideally be greater than 60-minute drive time from existing SCI/D Centers.<br>• Capability to admit Veterans who need urgent and elective ASR care. | • New SCI/D Centers should increase the percentage of SCI/D Registry Veterans with 60-minute drive time access to ASR services.<br>• All SCI/D Centers with ASR must be capable of staffing to provide care in a variety of settings, which may include inpatient, outpatient, SCI/D home care, and telehealth. All settings inter-connect to maximize access to SCI/D specialty care and address needs of Veterans with SCI/D per VHA Directive 1176(2). |
| Quality | • N/A | |

| Open | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Other | • SCI/D ASR bed spaces will be constructed in accordance with VA Office of Facilities Management SCI/D Center Design Guide. | • New SCI/D Centers with ASR should conform to the latest VA design standards to support the latest care delivery practices. |

| Maintain<br>No Change, Resize, Relocate, Modernize, Replace | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • No minimum bed days of care for existing ASR settings. | • SCI/D Program Office indicated there is no comparable community alternative to existing VA capabilities.<br>• ADC is one factor in evaluating demand but does not fully capture the complexities of workload within the SCI/D System of Care.<br>○ Other factors to analyze demand for ASR care include function (FIM, Jones Dependency Tool), acuity (Rothman Index, Indian Health Service), mental health diagnoses (behavior management), and ventilator status.<br>• All existing ASR settings are Centers co-located at existing VAMCs. |
| Supply | • CARF and TJC accredited VAMCs.<br>• VAMCs must maintain a 24/7 ED, acute med/surg beds, and inpatient surgery.<br>• Tertiary services on-site or a nearby VA referral site is available. | • VHA Directive 1176(2) specifies that SCI/D Centers with ASR beds must sustain accreditation from CARF and The Joint Commission for acute care beds.<br>• Acute stabilization, rehabilitation, medical care, and surgical care are integral services in the ASR program and any SCI/D Centers should be located at VAMCs with 24/7 ED and acute med/surg services.<br>• Having tertiary surgery services such as neuro, plastic and urology surgery on-site is preferred, however it is recognized that a nearby VAMC or community hospital with tertiary services and experience with persons with SCI/D can satisfy this service requirement<br>• Centers should have sustainable staffing and resources as specified in VHA Directive 1176(2). |
| Access | • Able to admit Veterans who need urgent care.<br>• Able to accommodate elective admissions for routine care such | • Factors limiting ability to admit all patients include, but are not limited to, high occupancy rates, facility constraints, and effective recruitment which may result in delays in elective, urgent, and/or emergent admissions and diversion of admissions to other VA SCI/D Centers.<br>• SCI/D Centers with ASR must be able to provide care in a variety of settings, which may include |

| Maintain<br>No Change, Resize, Relocate, Modernize, Replace | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| | as annual evaluations and respite care. | inpatient/outpatient/home care/telehealth. All settings inter-connect to maximize access to SCI/D specialty care and address needs of Veterans with SCI/D per VHA Directive 1176(2). |
| Quality | • Rehabilitation outcome measures:<br>○ International Standards for Neurologic Classification of Spinal Cord Injury (ISNCSCI)<br>○ Functional Independence Measure (FIM)<br>○ SF-8 Health Survey<br>○ Craig Handicap Assessment<br>○ Satisfaction with Life Survey<br>○ Discharge to community living<br>• Inpatient clinical outcome measures:<br>○ Hospital-acquired pressure injuries (HAPI)<br>○ Catheter associated UTI.<br>○ Central Line associated bloodstream infections (CLABSI)<br>○ Methicilin-resistant staphylococcus aureus (MRSA) Infection Rates<br>○ uSPEQ patient experience measure<br>○ Influenza vaccination rates<br>○ Pneumococcal vaccination rates | • These are the critical quality measures ASR SCI/D Centers monitor (not exhaustive).<br>• SCI/D Program Office is continually monitoring and evaluating the quality measure set. |

| Maintain<br>No Change, Resize, Relocate, Modernize, Replace | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| | ○ Diabetes mellitus process and outcome measures (HgbA1c, retinal exam, blood pressure parameters)<br>○ Tobacco cessation process measures such as counseling, and offering medications<br>○ Pressure injury/ulcer process and outcomes including examination within 24 hours of admission, plan of care in place within 48 hours, and rates of hospital acquired pressure injuries/ulcers | |
| Other | • Facilities with SCI/D ASR bed units should have potential to be remodeled or replaced in accordance with VA Office of Facilities Management SCI/D Design Guide. | • SCI/D Centers with ASR should conform to the latest VA design standards to support the latest care delivery practices. |

| Partner- VA CLC Partner-AA/Federal/CCN (Buy) | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • N/A | SCI/D Program Office indicated there is no comparable community alternative to existing VA capabilities. |
| Supply | • N/A | |
| Access | • N/A | |
| Quality | • N/A | |
| Other | • N/A | |

| Partner-AA/Federal/CCN (Buy) | | |
|---|---|---|
| **Planning Domain** | **Planning Guideline** | **Rationale** |
| Demand | • N/A | SCI/D Program Office leadership recognizes Veterans may choose to use community SCI/D providers, but these entities are not considered partners because they do not offer comparable services. |
| Supply | • N/A | VA SCI/D program has a (Memorandum of Understanding (MOU) with Department of Defense (DoD) for treatment and rehabilitation of active-duty service members. |
| Access | • N/A | |
| Quality | • N/A | |
| Other | • N/A | |

## Detailed Guideline Rationale

The SCI/D planning guidelines were driven by the MISSION Act, current VHA Guidelines and Directives, analysis of Facility, Market, VISN, Regional, and National level data including the EHCPM projections and the SCI/D Registry, and interviews and working sessions with the SCI/D Program Office. Rationale describing the various analyses underlying the planning guidelines are described below:

- Geographic distribution criteria were based on the analysis of the current program locations and types, current and projected Enrollee Population, current and projected regional BDOC, and a regional analysis of Registry Veterans inside and outside a 60-minute drive time. The resulting regional distribution criteria provides the full SCI/D continuum of care within each service area and optimizes travel time for Veterans.
- Minimum demand criteria were based on an analysis and comparison of projections from the EHCPM, coupled with 1) interviews with the Program Office for insights into minimum size for operational effectiveness, 2) staffing guidelines,

and 3) current VHA Guidelines and Directives. The resulting demand criteria ensure sustainable, operationally efficient programs.

- Occupancy rate targets were established in conjunction with the SCI/D Program Office.
- Access guidelines were determined based on analysis of VHA directives and in conjunction with the SCI/D Program Office.
- Staffing criteria and resourcing guidelines reflect VHA directive 1176(2) and VHA Handbook 1000.01.
- Quality guidelines were determined based on analysis of VHA directives and in conjunction with the SCI/D Program Office.
- Program and facility location and attributed guidelines were based on VHA Directive 1176(2) and the SCI/D Center Deign Guide. The resulting guidelines ensure safe, effective treatment in a therapeutic environment, provide efficient adjacencies, and aim to place points of care in communities that support SCI/D goals.

# 5. Future Program Planning

## 5.1 Applying the SCI/D National Planning Strategy to VA Market Assessments

The VA MAHSO effort completed an initial assessment of VA markets, facilities, and service lines to produce recommendations for the design of high-performing integrated delivery networks. VA Leadership identified select service lines, studied during the market assessments, for development of a standard national strategy or approach to planning and maintaining programs. SCI/D System of Care was identified as a service line requiring a set of national planning guidelines and thresholds that would be applicable for use in current (MAHSO) and future planning efforts.

This document, the SCI/D System of Care National Planning Strategy, establishes the definitive, consistent planning guidelines to be used for all VA SCI/D planning efforts moving forward.

The national planning guidelines will be used to ensure that the final market assessments apply standardized programmatic criteria across the nation, but with full consideration of the range of care archetypes that exist within VA. The guidelines will be useful to VA planners to inform future quadrennial market assessments and other planning exercises.

### How will MAHSO apply the SCI/D National Planning Strategy?

The four-step process for revisiting MAHSO draft opportunities describes how SCI/D-specific opportunities will be reviewed and updated, if necessary.

1. *Review Phase 1-3 Market Assessment Data and SCI/D Opportunities*

   The scope of review will include revisiting Phase 1-3 markets, re-assessing all market opportunities using new thresholds and data (as applicable), and potentially developing new opportunities.

2. *Apply SCI/D Planning Guidelines*

   For each market and applicable draft SCI/D opportunity, the planner will review market assessment data and apply SCI/D planning guidelines. The reassessment will include any new data sources in the updated methods described previously. Next, planning guidelines developed here (demand, supply, access, quality, and mission, and other applicable MISSION Act § 203 criteria) will be applied to existing opportunities.

3. *Update/Create SCI/D Opportunities*

   As needed, existing market optimization or capital opportunities will be revised. In addition, after application of the planning guidelines and thresholds, new SCI/D opportunities may also be created.

### *4. Review and Finalize with VA Leadership*

Once draft opportunities are revised or developed and are ready for VA Leadership approval, a review with the Chief Strategy Office (CSO), VHA Leadership and VISN Directors will move the opportunities towards finalization.

## Conclusion

The SCI/D System of Care National Planning Strategy, created in conjunction with the SCI/D System of Care National Program Office, is a framework for designing consistent service delivery planning for SCI/D services. Based on SCI/D System of Care program priorities, the SCI/D System of Care National Planning Strategy provides guidance on how SCI/D System of Care programs can respond to varied market demands and trends while optimizing VA resources in a Veteran-centric framework. These guidelines and thresholds will be used to ensure that capital planning is matched to Veteran demand and a consistent set of recommendations is established to inform and support the development of the National Realignment Strategy.

# Appendix A: References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12. United Spinal Association Spinal Cord Resource Center. 4.7. Rehabilitation Engineering and Assistive Technology Society of North America (RESNA). *United Spinal Association Spinal Cord Resource Center*. 2021.

# Appendix B: Interviews

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | October 5, 2020 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Jennifer Nemeth | Business Manager | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | October 19, 2020 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | November 16, 2020 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Meaghan Park | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | December 9, 2020 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | January 12, 2021 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | January 19, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | February 2, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | February 16, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | February 24, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | March 2, 2021 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Meghan Park | Health Systems Specialist | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | March 10, 2021 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | March 12, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | March 16, 2021 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Barry Goldstein, MD | Deputy Executive Director | March 17, 2021 |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Sabrina Fredrichs | Health Systems Specialist | |

| Office | Interviewee | Title/ Position | Date(s) |
|---|---|---|---|
| SCI/D System of Care, National Program Office | Itala Wickremasinghe, MD | Executive Director | March 19, 2021 |
| | Barry Goldstein, MD | Deputy Executive Director | |
| | Jennifer Sippel, Ph.D | National Outcomes Director | |
| | Annette Couchenour, MSN, MBA, RN, | Nursing Program Director | |
| | Sabrina Fredrichs | Health Systems Specialist | |

# Appendix C: Acronyms

| Acronym | Description |
|---|---|
| **ADA** | American with Disabilities Act |
| **ADC** | Average Daily Census |
| **ADL** | Activities of Daily Living |
| **ALS** | Amyotrophic Lateral Sclerosis |
| **ASR** | Acute and Sustaining Rehabilitation |
| **BDOC** | Bed Days of Care |
| **CARF** | Commission on Accreditation of Rehabilitation Facilities |
| **CDW** | Corporate Data Warehouse |
| **CFFMFHT** | Centre for Family Medicine Family Health Team |
| **CLC** | Community Living Center |
| **CMS** | Centers for Medicare and Medicaid Services |
| **DoD** | Department of Defense |
| **EHCPM** | Enrollee Health Care Projection Model |
| **FIM** | Functional Independence Measure |
| **FY** | Fiscal Year |
| **HAPI** | Hospital-Acquired Pressure Injuries |
| **HC** | Home Care |
| **HCC** | Health Care Center |
| **IOE** | Interdisciplinary Outpatients Evaluation |
| **IPEC** | Inpatient Evaluation Center |
| **IRF** | Inpatient Rehabilitation Facilities |
| **LTC** | Long-term Care |
| **MFH** | Medical Foster Home |
| **MISSION** | Maintaining Internal Systems and Strengthening Integrated Outside Networks |

| Acronym | Description |
|---|---|
| **MOU** | Memorandum of Understanding |
| **MND** | Motor Neuron Disease |
| **MS** | Multiple Sclerosis |
| **MS CBOC** | Multi-specialty Community Based Outpatient Clinic |
| **MST** | Military Sexual Trauma |
| **PACT** | Patient Aligned Care Team |
| **PTSD** | Post-Traumatic Stress Disorder |
| **RESNA** | Rehabilitation Engineering Society of North America |
| **SCI** | Spinal Cord Injury |
| **SCI/D** | Spinal Cord Injury/Disorder |
| **SCIMS** | Spinal Cord Injury Model Systems |
| **Sd** | Standard deviation |
| **TJC** | The Joint Commission |
| **UDSMR** | Uniform Data System for Medical Rehabilitation |
| **UTI** | Urinary Tract Infection |
| **VA** | Veterans Administration |
| **VAMC** | Veterans Administration Medical Center |
| **VBA** | Veterans Benefits Administration |
| **VHA** | Veterans Health Administration |
| **VSO** | Veteran Service Organization |
| **VSSC** | VHA Support Service Center |
| **WHO** | World Health Organization |