**Mission:** Promote the health, independence, quality of life, and productivity of Veterans with spinal cord injuries and disorders (SCI/D) throughout their lives.

**Our SCI System of Care:** We work in a hub and spoke model; our nationally recognized SCI Center serves as the hub for designated spoke SCI teams at other VA facilities in the New England region.

One of our unique strengths is the full continuum of care for Veterans with SCI/D. Acute care, initial and ongoing rehabilitation, comprehensive specialty care, primary care, outpatient care, home care, virtual care, respite care, and long term care are all delivered in an integrated system with life-long access to needed care and resources. Health promotion services, medications, supplies, and equipment are provided life-long to meet individual needs.

**Persons Served:** The Spinal Cord Injury (SCI) Center at VA Boston Health Care System (VA BHS) serves Veterans and Active Duty Service Members throughout New England.

We serve 500-600 Veterans with SCI/D at our SCI Center each year.

Characteristics of persons served in Fiscal Year (FY) 2017:
- Age range: 21 to 95 years (average 61 years)
- 96% male, 4% female
- 87% Caucasian, 7% African-American, 3% Hispanic, 3% other, multiethnic or unspecified ethnicity
- Cause of SCI/D:
  - 55% Traumatic injury (Vehicular 42%, Falls 30%, Sports 13%, Violence 10%, Other 5%)
  - 45% Non-traumatic (Spondylotic/arthritic, tumor, infection, vascular, inflammation,

In addition to offering the full scope of services to the vast majority of persons served in our SCI system of care, we provide more focused care and expert consultation based on individual needs and goals, to Veterans with conditions that are primarily managed by other teams (e.g., motor neuron disease or multiple sclerosis with prominent extra-spinal involvement).

**Team Approach:**
We provide care in a team approach with multiple disciplines and professions working together to achieve the best outcomes. You, the Veteran, are the most important member of the SCI team. You will help make many important decisions. We recognize that each person served is unique and the treatment plan is designed with this in mind. Services are provided in a caring environment using the latest technology. A Fisher House on campus allows family members to be close to their loved ones during hospitalization.
SPECIFIC PROGRAM INFORMATION & OUTCOMES:

We have organized our program goals and outcomes under five Areas of Excellence:

I. Excellence in Population Health

Inpatient SCI/D Rehabilitation Program

We provide a comprehensive inpatient rehabilitation program focused on improving function and independence, and learning important skills and knowledge for life following SCI/D.

Characteristics of persons served – Fiscal Year (FY) 2015 to FY 2017:

- 99 individuals were served in the comprehensive inpatient SCI/D rehabilitation program.
- 40% Traumatic injury: due to falls, vehicular accident, violence, or sports (in descending order)
  60% Non-traumatic: most commonly from damage due to spinal arthritis, narrowing or surgery, other causes included infections, tumors, vascular damage, inflammation, or auto-immune disease
- Age at injury (Table)

<table>
<thead>
<tr>
<th>Age Range (years)</th>
<th>Traumatic SCI</th>
<th>Non-traumatic</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-39</td>
<td>14.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>40-59</td>
<td>20.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>60-79</td>
<td>55.0%</td>
<td>70.0%</td>
</tr>
<tr>
<td>80+</td>
<td>11.0%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

- Level of injury: High Tetraplegia 17%, Low Tetraplegia 6%, Paraplegia 16%, ASIA D (incomplete) 61%, Other/ LOI not applicable 5%

Outcomes:

Improvement in Function: Our 3-year aggregate data demonstrates higher average gains in motor function, achieved in a shorter time, than national benchmarks using the Functional Independence Measure or FIM (Figure 1). Functional gain per day of rehabilitation (FIM Efficiency) is also higher than the national benchmark. Length of the inpatient rehabilitation program averages about 6 weeks, although it can vary from a few days to a few months based on identified needs and goals.

Discharge destination: We aim to optimize discharges to community living following rehabilitation. Last year we exceeded our self-imposed target goal of 90 percent of patients living in a community setting 90-days after discharge following inpatient rehabilitation (Figure 2).

Perceived Overall Value: Veterans who complete our comprehensive inpatient SCI/D rehabilitation program, rate it favorably on items for “overall value” on the uSPEQ Consumer Experience Survey compared to VA and private sector benchmarks for SCI rehabilitation programs (Figure 3).
**Outpatient, Home-Care and Telehealth Programs**

We offer a comprehensive range of services in our outpatient, home-care, and telehealth programs.

**Outpatient Rehabilitation for Mobility and Function:** Our outpatient rehabilitation services for mobility, activities of daily living, and assessment and training for equipment and assistive technology, have been growing. Walking speed on standardized tests improved in 75% of those who received outpatient physical therapy for walking with or without assistive devices in 2017.

**Chronic Pain Management:** Our outpatient pain program incorporates practical skills to manage chronic pain and overcome maladaptive behaviors and pain-related negative thoughts. A primary goal is to improve overall quality of life while reducing psychological distress. To improve access to the program, we have started offering sessions via Video Telehealth at home, in addition to in-person visits. We are also expanding complementary and integrative modalities to assist with pain management.

**Evidence-Based Supported Employment (EBSE):** EBSE is a tested and validated method for increasing competitive employment. Principles include a zero-exclusion policy regardless of severity or type of disability, rapid job search with typical contact with an employer within 30 days of referral, and attention to individual preferences. Vocational and clinical staff work together, and support continues after a job is obtained. Following demonstrated initial success, over 100 individuals were referred to the program in the past 3 years, and we anticipate ongoing growth.

**Adaptive Sports and Recreational Programs:** We offer year-round access to a wide and ever-expanding range of adaptive sports and recreational programs to fit individual interests and preferences.

**Supporting Veterans in Home and Community:** Our SCI Home-Care (HC) program supports the transition and health of Veterans in the home setting. It typically serves Veterans living within a 100-mile radius of the SCI Center, with the frequency and duration based on clinical need. 87 Veterans were served by SCI HC in FY 17, with 311 visits.

**Supporting Caregivers:** To provide the best care to our Veterans, we also need to pay attention to our Veterans’ caregivers. We systematically assess and address caregiver burden. We administer a brief version of the Zarit Burden Interview (ZBI) to caregivers who accompany Veterans at their SCI annual evaluation, those followed by Home-Care, and reach others through mailings. Caregivers with moderate or severe burden score are offered appropriate interventions, targeted to individual needs and situation.

**Clinical Video Telehealth (CVT):** We have an active CVT program, including virtual visits to the home (Figure 4). CVT provides support during transition to home after hospitalization, virtual appointments with specialists and providers from multiple disciplines, and can provide access to many other resources. With incorporation of new and emerging technologies, we plan even further expansion based on our initial experience and successes.

![Figure 4](image-url)
II. Excellence in Patient Experience

Consistently high scores in standardized satisfaction surveys for our inpatient, outpatient, and home-care programs (Figure 5) validate the overwhelmingly positive feedback we receive from Veterans, families, and stakeholders. Ongoing initiatives to further enhance patient experience include an enhanced attention to Whole Health and staff training in communication that engages Veterans as full partners in their care.

![Overall Patient Satisfaction FY2015-FY2017](image)

Figure 5

III. Excellence in Financial Stewardship

We have implemented several measures to minimize waste and inefficiencies that don’t add value to persons served in our programs. Examples include significantly reduced missed opportunities from no-shows or cancelled appointments, and actions to optimize timely delivery of durable medical equipment.

IV. Excellence in Workforce

Our SCI staff consistently report amongst the highest overall satisfaction in the VA All Employee Survey (Figure 6), and score significantly higher on measures of employee engagement (Figure 7). We have measures to fully harness staff commitment and creativity and develop their capacity as engaged work teams for continual improvement of their daily work. We have been increasing nurse staffing (Figure 8), with increases in calculated nursing hour per patient that fully account for time for activities such as patient and family education and professional self-development.

![Employee Engagement Index: VA All Employee Survey](image)

Figure 7

![SCI Inpatient Nurse Staffing - West Valley](image)

Figure 8

V. Excellence in Service to Our Communities

We support many activities to support SCI-related education, research, and advocacy. We are the primary training site for the Harvard Medical School SCI fellowship program and the national hub-site for the VA Advanced Fellowship in SCI Medicine. We educate residents, nursing, psychology, social work and physical therapy trainees. Our staff performs cutting-edge research and regularly publishes peer-reviewed research, books and book chapters, and presents at national meetings.

We are proud of the achievements of our SCI Center, and are committed to continued excellence!