Shepherd Center

2024

# Community Health Needs Assessment (CHNA)


# Contents



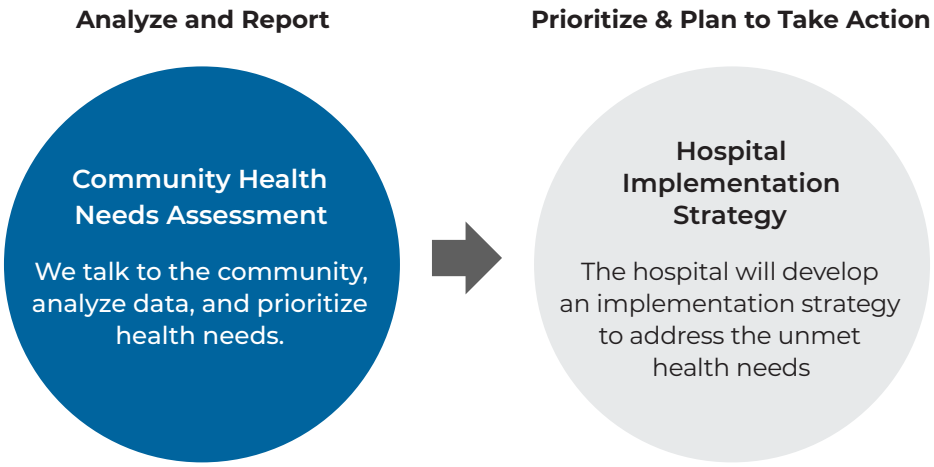
Photo credits: Courtesy of Stephanie Eley, Bita Honarvar, and Joann Vitelli.

# Introduction

With five decades of experience, Shepherd Center provides world-class clinical care, research, and family support for people experiencing the most complex conditions, including spinal cord and brain injuries, multi-trauma, traumatic amputations, stroke, multiple sclerosis, and pain. An elite center ranked by *U.S. News* as one of the nation's top hospitals for rehabilitation, Shepherd Center is also recognized as both Spinal Cord Injury and Traumatic Brain Injury Model Systems. Shepherd Center treats thousands of patients annually with unmatched expertise and unwavering compassion to help them begin again.

The 2010 Patient Protection and Affordable Care Act (ACA) requires hospitals to conduct a community health needs assessment (CHNA) every three years. A CHNA is the activity and end-product of identifying and prioritizing a community's health needs, accomplished through collecting and analyzing data, including the voices of relevant community stakeholders and public health and internal aggregate patient data. It then informs the development of strategies and plans to address prioritized needs to contribute to improvements in the community's health. At its core, a CHNA guides work to boost the overall health of Shepherd's community, focusing on those facing issues in accessing care or experiencing health inequities.

The CHNA process includes two primary elements:




In 2024, Shepherd assessed the health needs of people in its community to understand unmet health needs better. This CHNA is the fifth Shepherd Center CHNA, with Shepherd conducting the others in fiscal years 2013, 2016, 2019, and 2022. While this assessment began and concluded in 2024, it applies to FY25, which spans April 01, 2024, to March 31, 2025.

Through this assessment, Shepherd worked to better understand its community's health challenges, identify health trends among patients and the community, find gaps in the current health delivery system, and craft a plan to address those gaps and the identified health needs. Shepherd named four proposed health priorities to address over the next three years as part of this work. These priorities, presented in no order of importance, are:

**Expand access to appropriate and timely clinical services**

**Support health and wellness for community members**

**Promote engaged and thriving community living**

**Strengthen financial stability for community members**

The CHNA forms the backbone of Shepherd's programming that goes beyond routine care in full support of their community, helping those who have suffered a catastrophic injury or significant neurological diagnosis. Through this work, Shepherd and its community can better understand the issues before them and create a strategy to address them, helping all get – and stay – well.

## Defining Shepherd's community

Because Shepherd is an LTACH that functions as an acute care hospital and a rehabilitation center, its community is defined differently than that of typical acute care hospitals, which most often only examine geographic proximity. Instead, Shepherd defines its community in three ways:

- **Patients and their families and caregivers:** Patients receiving care at Shepherd and their families and caregivers.
- **Individuals with similar conditions:** This includes all persons with the types of injuries and disease states Shepherd treats, regardless of whether they have received care at Shepherd.
- **Residents of Georgia and metro Atlanta:** While Shepherd serves a broad population, half Shepherd's patients come from Georgia, and nearly half live in the metropolitan Atlanta area.

## Process and methods

The Shepherd Center CHNA Steering Committee oversaw the CHNA process, led by its director of professional education and consulting group Public Goods Group (PGG). Together, the two formed the core team to conduct the CHNA. The Committee, comprised of 13 hospital clinical and operations team members, held its first meeting on February 08, 2024, during which the CHNA process was presented and approved. The Committee also guided stakeholder engagement, the definition of Shepherd's community, and potential data indicators to collect.

PGG interviewed 36 stakeholders with relevant expertise and knowledge of Shepherd's community as part of its primary data analysis. These interviews included representatives from Shepherd Center, the Centers for Disease Control and Prevention, Piedmont Healthcare, Grady Health System, and the Brain Injury Association of America. Shepherd also hosted eight focus groups: Shepherd Center's Consumer Advisory Group, two case management groups, people living with MS, caregivers of people with disorders of consciousness, patients of Shepherd's Spine and Pain Institute, adolescent patient and their families, and patient and family support group members.

Additionally, Shepherd conducted a community-based survey widely promoted to ask for input from patients, caregivers, and community members. Approximately 345 patients and community members responded, offering direct insight into their experiences, challenges, and needs. Shepherd distributed the survey through distribution flyers in all clinic waiting rooms, social media for peer and family support groups, online access through email outreach, and outreach by the nonprofit organization Georgia RSVP Clinic. The Clinic provides free rehabilitation services and equipment for patients with injuries and conditions like Shepherd treats.

Shepherd also deployed an internal survey widely advertised throughout the hospital, and 44 clinical and non-clinical employees responded. This survey aimed to gather insights into employee perspectives on patient needs and barriers and understand what works well.

Secondary data analysis included a mix of nearly 10,000 internal and external indicators to give a scaled view of the community and its needs. These data sources included:

- Centers for Disease Control and Prevention (CDC)
- Georgia Brain and Spinal Injury Trust Fund Commission
- Georgia Department of Community Health
- Multiple Sclerosis International Federation
- National Spinal Cord Injury Statistical Center
- Traumatic Brain Injury Model System Program
- U.S. Census
- Uniform Data System for Medical Rehabilitation (UDSMR)

PGG conducted an extensive literature review of rehabilitation hospitals to understand how similar hospitals conducted their CHNA and find any potential new data sources. These CHNAs included Shirley Ryan AbilityLab and Craig Hospital, among others. The group also reviewed CHNAs from health systems within the Atlanta community, including Grady Health System, Piedmont Healthcare hospitals, and WellStar hospitals.

PGG also reviewed reports from databases unique to the Shepherd community, including the National Spinal Cord Injury Statistical Center, the State of Georgia Brain and Spinal Injury Trust Fund Commission, and the Traumatic Brain Injury Model System. The group reviewed multiple studies and journals for potentially relevant data, including those from *Neurology and Acute and Critical Care*. The literature review helped inform both the patient population and the impact of potential health inequities on patient populations traditionally underserved within healthcare.

PGG prepared an interim data report for presentation to the CHNA Steering Committee on April 30, 2024, during which committee members reviewed initial findings and provided feedback. Additionally, in April and May 2024, the core team met with program managers to name any gaps in data and opportunities for future analysis.

## Limitations

There are some limitations to the data. Conducting a CHNA is a year-long process started with data collection, which can quickly become outdated. Additionally, there are significant limitations in external data specific to the community Shepherd serves. This community has unique needs and considerations that traditional public health data sources do not assess. Because of this limitation in public health data, the team relied heavily on internal data and stakeholder engagement, both of which were current at the time of the release of this CHNA. As gaining input from everyone within Shepherd's community is unrealistic, the team relied on representative stakeholders and self-selected involvement for interviews, focus groups, and surveys, which may lead to two sets of biases:

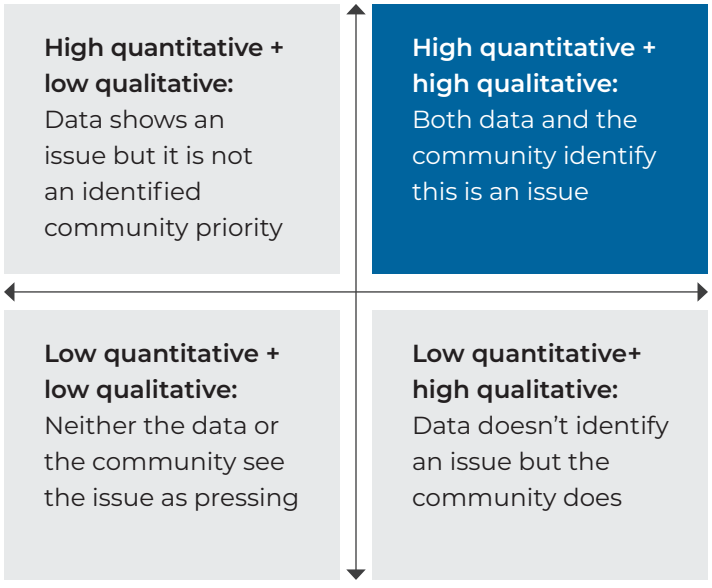
- Representative bias, as we assume the representatives of a given group can adequately reflect the larger group, but the representative might instead be an outlier.
- Self-selection bias, in that some underserved populations might not have the same opportunity as others to take part, or those who choose to participate may differ significantly from those who do not.

Throughout the process, the core team worked to reduce biases to the best of their ability through an expanded stakeholder list, multiple focus groups with a wide-reaching invitation list, and the extension of surveys that included community members who were not Shepherd patients.

## Prioritization

Once data gathering and analysis were complete, the team turned to prioritization. To help inform this process, PGG created a health needs matrix to track trends across all data sources. The matrix offered a clear view of where health issues intersected with data and community voices by evaluating public health data and internal information, comparisons to regional, state, and national figures, input from community leaders in interviews, insights from focus groups, and input from patient and employee surveys.

The matrix plotted issues based on their prevalence in quantitative data and frequency in qualitative feedback. Issues landing in the top right quadrant—showing high quantitative and qualitative significance—were considered potential priorities for FY26, FY27, and FY28.



The following areas emerged as having high quantitative and qualitative values during prioritization.

| High qualitative and high quantitative in data analysis | | |
|---|---|---|
| High qualitative and high quantitative in data analysis | Insurance shortfalls, for patients/families and for providers | Community-based providers who understand the patient |
| Self-advocacy upon return to their home and community | Knowledge of/availability of relevant resources | Accessible and affordable transportation |
| Health costs (for the patient/ family, inclusive) | Opportunities for fitness and exercise | Accessible and affordable housing |
| Mental health and wellbeing | Chronic conditions, and especially heart disease and diabetes | Need for increased opportunities for peer support |
| Access to adequate and supportive community-based care | Access to technology/internet | Access to needed equipment |
| Support for patients in rural communities | Feeling overwhelmed upon discharge | Nutrition and healthy eating |
| Preventative education | | |

The CHNA Steering Committee met on June 04, 2024, to decide its priorities for the next three years. The Committee reviewed progress on the health priorities named during the last CHNA and reviewed data findings and the health needs matrix to establish its next priorities.

The following questions acted as compasses to help inform priority selection:

- Can we make an impact?
- Can we partner with others working within this area?
- Can we make our impact sustainable over the long term?

From that discussion emerged the recommended priorities for the hospital to address within the community. The CHNA Steering Committee recommended the following priorities:

- **Expand access to appropriate and timely clinical services,** including telehealth, telepsychology, and telerehabilitation services, and increased education for community-based providers, including accessibility and access to specialty services like vision screening, OB/GYN, and other specialty services.
- **Support health and wellness for community members,** including increased access to fitness opportunities, nutrition education, promotion of good mental health, and secondary and tertiary prevention.
- **Promote engaged and thriving community living,** including efforts to support accessible transportation and housing, and increased supportive resources post-discharge.
- **Strengthen financial stability for community members,** including efforts to support adaptive workforce development, vocational rehabilitation, and advocacy for increased insurance reimbursement and Medicaid expansion.

Although not explicitly identified as the priorities Shepherd will address over the next three years, stakeholders identified the following topics as those of top concern:

- Direct transportation services for people with a disability
- Community-based housing services post-discharge
- Community-based resources for chronic conditions for people with disabilities, especially heart disease and diabetes.

The hospital will work to address these issues when possible, and many interventions in place to address the chosen priorities are likely to impact the other problems as well.

# Data analysis

## Primary data – The community's voice

The most important part of a CHNA is the community itself. PGG conducted one-on-one interviews, surveys, and focus groups to hear from key individuals and groups, including patients, their caregivers, and Shepherd staff. This included:

**8** **Focus groups conducted**

Groups included caregivers for patients with disorders of consciousness, case managers, those living with multiple sclerosis, adolescents, and pain clinic patients, among others.

**36** **Stakeholders interviewed**

Organizations represented included Grady Health System, the United Spinal Association, the Georgia Department of Public Health, the Brain Injury Association of America, Piedmont Healthcare, and Shepherd Center.

**345** **Surveys completed**

Patients and employees were surveyed through two online questionnaires that asked what was working well, what wasn't, and what barriers prevented patients from being healthy.

Throughout the gathering and analysis of qualitative data, key themes emerged, including:

- **Cost:** One of the most common concerns for all stakeholders is the cost of care due to insurance shortfalls, copays, or lack of resources, including housing modifications and ongoing needs not covered by insurance. Patient and community survey respondents identified this shortfall; many named cost as a critical barrier to needed services.
- **Community reintegration:** Leaving Shepherd is scary for patients and families who fear they will mishandle care, experience stigma and feelings of being a burden, and face scarce local resources. For many, this fear stemmed from leaving a supportive community where others looked and felt like them and had experiences like theirs.
- **Health and dental access:** Many worry about those who can't access Shepherd's service or return to a community without adequate resources. Many voiced particular concern for rural populations facing shortages in health professions. Some expressed concern for their ability to receive safe and appropriate local care, including the noted lack of specialty exam beds and other logistical shortfalls that made accessible care often out of reach.
- **Resources:** While some resources were available, many weren't sure how to access them or even that they existed. Internet access is challenging for some, a problem that can prove incredibly difficult for those with limited mobility and a heavier reliance on online programming.

## Surveys

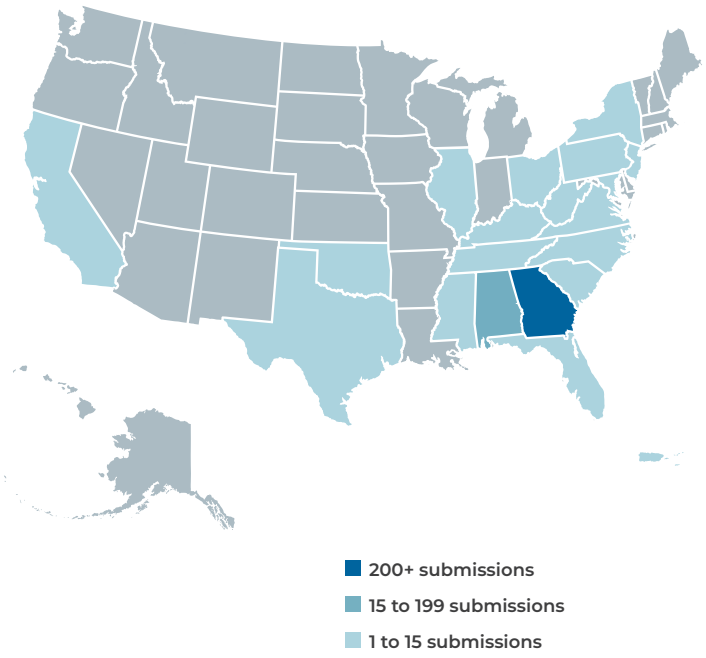
In April 2024, Shepherd launched two surveys to gain insight and feedback from the community:

- A 10-question survey for Shepherd employees
- A 25-question survey for those impacted by a catastrophic injury or significant neurological diagnosis within the Shepherd network or as a client of Georgia RSVP Clinic

### Patient and community survey

By design, the patient and community surveys were nearly identical to the one conducted in the FY21 CHNA, allowing the team to compare what changed and what remained the same from three years ago. Shepherd asked questions related to physical and mental well-being, barriers to necessary care and resources, what's working well now, and what's not working that well. The survey also asked several open-ended questions to support free expression. Because Shepherd treats people from all over the country, respondents came from 20 states.

**Percent and community survey responses, by state and volume**



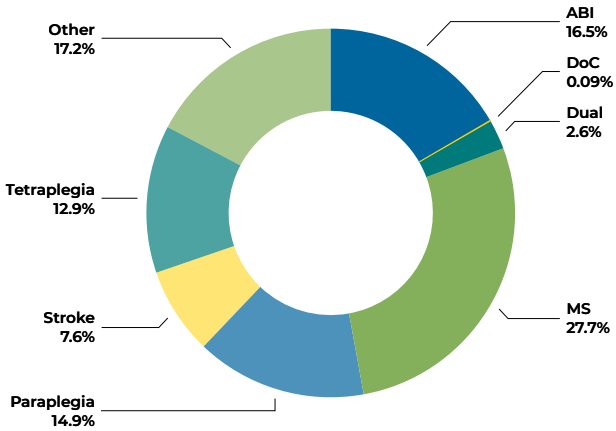

Source: 2024 Shepherd Center CHNA Patient and Community Survey

Approximately 300 people with disabilities and their caregivers, including clients from Georgia RSVP Clinic, took the survey, marking a 38 percent increase in participation from 2021. About 68 percent lived in the metropolitan Atlanta area. More than half the respondents were female, and over 80 percent had attended at least some college.

Respondents had varying injuries or diagnoses, including:

- **Acquired Brain Injury (ABI),** which is any brain damage that occurs after birth.
- **Disorders of Consciousness (DoC),** a condition of altered consciousness in which a patient has severely impaired levels of awareness and wakefulness.
- **Dual,** a diagnosis for when a patient has both an ABI and an SCI.
- **Multiple sclerosis (MS),** a chronic disease of the central nervous system.
- **Spinal cord injury (SCI)** occurs when there is damage to the spinal cord, blocking communication between the brain and the rest of the body, and can result in either:
  - **Tetraplegia,** which occurs with neck injuries, affecting the neck, arms, trunk, and legs.
  - **Paraplegia,** which occurs with injuries to the trunk or low back affecting the trunk and legs.
- **Stroke,** in which blood flow to the brain has been blocked or interrupted, and brain tissue has been damaged or destroyed.

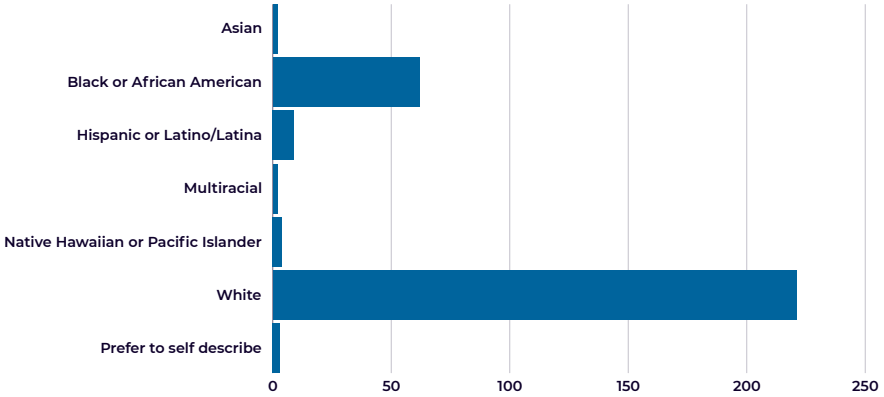
**Injury or diagnosis of survey respondents**




Source: 2024 Shepherd Center CHNA Patient and Community Survey

Most respondents were White, which aligns with national incidence rates. For example, according to a 2023 National Spinal Injury Statistical Center, White populations are nearly two times more likely than other racial or ethnic groups combined to experience a catastrophic SCI.

## Injury or diagnosis of survey respondents

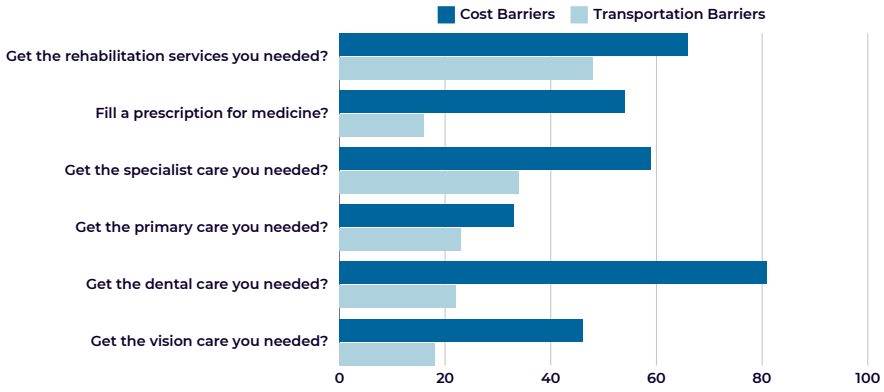



Source: 2024 Shepherd Center CHNA Patient and Community Survey

### Cost and transportation

The survey asked if respondents experienced any moment in the last 12 months when they could not access essential health services due to cost or transportation. The survey results showed that cost was a more significant challenge than transportation to receive services, especially for dental care and rehabilitation services. Transportation did, however, still pose substantial issues in accessing rehabilitation services.

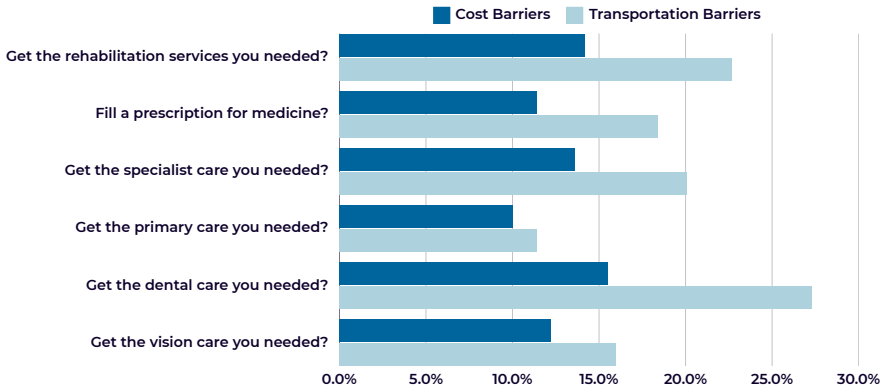
## Survey respondents self-reporting barriers due to cost or transportation during the last 12 months




Source: 2024 Shepherd Center CHNA Patient and Community Survey

When comparing the 2024 survey results to those of 2021, barriers due to cost increased in every tracked category. Overall, cost was named a barrier approximately 51 percent more than in 2021.

## Survey respondents self-reporting barriers due to cost or transportation during the last 12 months, 2021 to 2024 comparison *



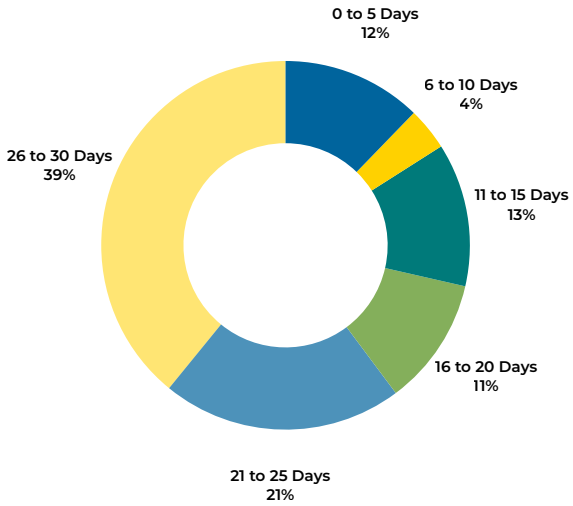

Source: 2024 Shepherd Center CHNA Patient and Community Survey

### Physical and mental health

Physical health is often the core of health care and significantly impacts mental health. Shepherd asked direct questions about physical and psychological well-being to understand better how their patients felt. Mental health is critical to all aspects of well-being, including a successful reintegration into one's community. Once home, mental health can ebb and flow, reaching both highs and lows as life moves forward.

In the 2021 survey, mental and physical well-being were combined into a single overall health question and utilized a ranking system ranging from excellent and very good to poor. About 38 percent of respondents said their overall health was good that year. In 2024, this question was separated into two distinct questions to better understand the impact and influence of physical and mental health on overall well-being.

## Total days within the last 30 days that survey respondent said their mental health was good




Source: 2024 Shepherd Center CHNA Patient and Community Survey

### Top five positive impacts and top five challenges

Shepherd asked community members to rank health needs in two ways: What most positively impacts your life? What causes the most challenges? The chart below represents their answers.

| Ranking | What are the top five variables that positively impact your health and quality of life? | Which are the top five challenges impacting your health and quality of life? |
|---|---|---|
| **1st** | Ability to live independently | Ability to live independently |
| **2nd** | Access to healthcare | Quality of rehabilitation services |
| **3rd** | Accessible housing | Mental health and wellbeing |
| **4th** | Accessible transportation | Healthy eating/nutrition education |
| **5th** | Mental health/emotional wellbeing | Fitness and physical activity |

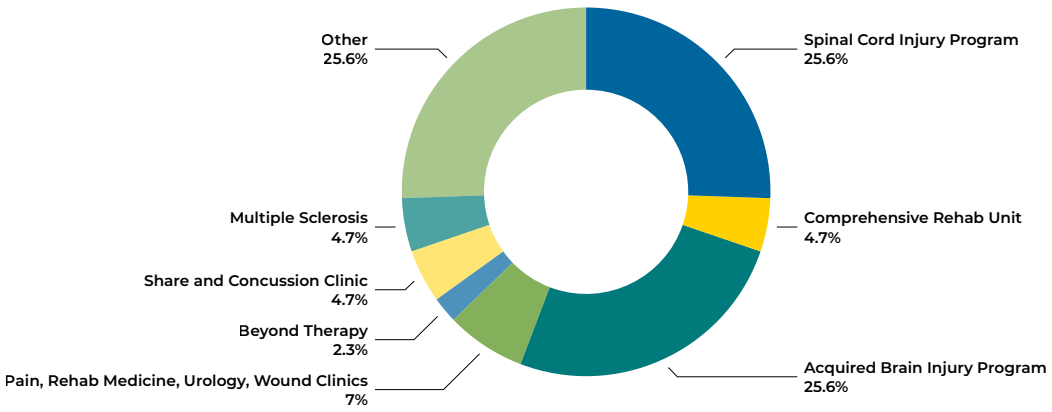
Source: 2024 Shepherd Center CHNA Patient and Community Survey

### Employee survey

The employee survey was new for Shepherd as a part of the CHNA process and was designed to gain insight from those closest to care. The survey was like the community and patient survey, including several open-ended questions that allowed staff to express what was important to consider in their own words.

Nearly 66 percent of the 44 employees who took the survey worked in a clinical capacity, and three-fourths of respondents worked in SCI, ABI, or other clinical areas. Approximately 16 percent worked in administration, 5 percent worked in case management, 5 percent were clinical managers, 3 percent worked in research, and about 7 percent worked in another capacity, including case management, research, environmental services, outreach coordination, and telemetry.

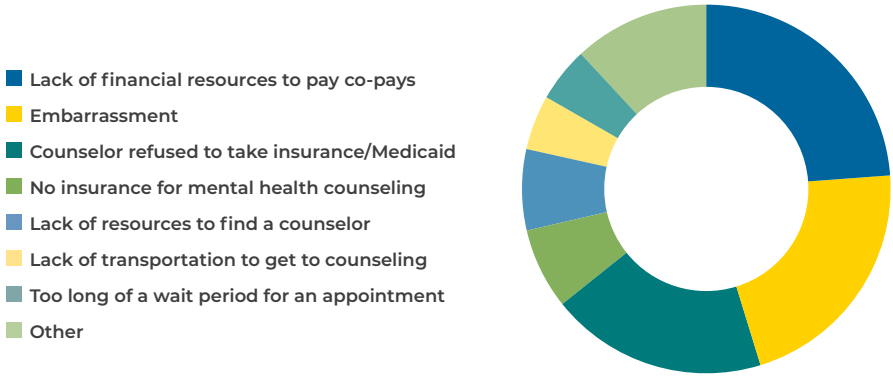
**Areas of work by prevalence, employee survey respondents**




Source: 2024 Shepherd Center CHNA Employee Survey

Shepherd asked its employees what they felt was a common barrier for patients accessing mental health services.

### Common barriers for patients accessing mental health services




Source: 2024 Shepherd Center CHNA Employee Survey

**Top five positive impacts and top five challenges**

As community members, employees were asked to rank the following health needs that positively impact or create challenges within their patients' lives. The chart below represents their answers. A list of all available options can be found in Appendix I, which begins on page 49.

| Ranking | What are the top five variables that positively impact your health and quality of life? | Which are the top five challenges impacting your health and quality of life? |
|---|---|---|
| **1st** | Access to healthcare | Ability to live independently |
| **2nd** | Access to rehabilitation services | Accessible housing |
| **3rd** | Caregiver education, training and support | Accessible transportation |
| **4th** | Access to rehabilitation services | Accessible housing |
| **5th** | Tie: Quality of rehabilitation services and support transitioning back into the community | Financial stability |

Note: Certain health needs arelisted twice in the ranking due to being the top choices based on response volume and there can be ties for answers.

Source: 2024 Shepherd Center CHNA Employee Surv

In the survey, Shepherd asked "What is your vision for a healthy community for those dealing with the injuries and conditions served by Shepherd?" Many answers were like those expressed in interviews and focus groups, often with physical and financial accessibility at the forefront.

For example, one employee wrote: **"My vision for a healthy community is one where transportation is accessible, healthcare is equitable and affordable, and patients and families of all fiscal classes have support."** Within the same vein, another wrote: "Affordable access to transportation, housing, and health care, so patients can pursue their life and living goals."

Others noted shortfalls in resources, including one employee who wrote, **"More community-based facilities that offer a range of services: mental health, caregiver education/support, peer support, health, and wellness activities."**

Shepherd also asked, "What is the most pressing issue you feel our patients face?" Employees found cost, transportation, and accessibility to be key challenges. Several employees noted the isolation many felt when they go home, often due to fear of stigma or just simply having to repeat themselves because most members of the public are not familiar with their condition.

For example, one employee wrote, **"Knowledge and understanding from the general public of their injury. I've heard from many patients that when they go home, they don't want to see people other than their immediate family simply because they don't want to deal with the overwhelming attention, questions, etc."**

## Stakeholder Interviews

In March and April 2024, PGG conducted 36 stakeholder interviews with representatives from public health, Atlanta-based health systems, national advocacy groups, Georgia RSVP Clinic, and Shepherd Center. A list of all interviewees can be found beginning on page 35.

Several common themes emerged from these interviews. Most stakeholders named **funding and insurance coverage disparities** their top concerns, as these shortfalls often obstruct access to essential care and equipment. They stressed the need for increased advocacy initiatives to address these systemic barriers and ensure equitable access to care for all individuals with disabilities. This need holds especially true for rural communities, with most stakeholders reflecting significant concern for those living there.

> "Patients struggle in urban areas so imagine the challenges in rural communities. Even if they have specialists, have they seen spinal cord injuries in one of their patients before? Do they understand all the nuances of this care? And are they reimbursed for everything the patient will need? Likely no to all three."

Many stakeholders promoted **collaboration among healthcare organizations, corporations, community groups, and service organizations.** These collaborative efforts extend to research, training, and community engagement. Stakeholders noted that such partnerships increase access to care and support services, particularly for underserved populations and rural residents. These organizations can advocate for policy changes to address systemic barriers and promote health equity by pooling resources and expertise. Stakeholders hoped these collaborations would expand and grow stronger in the upcoming years.

> "To help the patient achieve true success, we can't be satisfied with the status quo. When we don't see what think is best for the patient, then we'll help find it through research with other companies or partnerships on a more local level."

Many interviewees discussed ways to **improve education among community-based healthcare providers,** especially for those serving patients with brain injury and spinal cord injury. Stakeholders expressed concerns about the lack of specialized equipment and training among community healthcare providers, stressing the importance of enhancing knowledge and sensitivity to elevate the quality of care and support. One

stakeholder talked about the difficulty of routine care, such as annual gynecological care, while another noted challenges in accessing certain dental services. All reported a significant gap in mental health services.

All interviewees stressed the need to **improve efforts to improve mental health.** Mental health can deteriorate upon the injury or onset of disease that leads to a person needing services like the ones offered at Shepherd Center. Often, many emotions accompany a life-changing diagnosis, and several stakeholders relayed these shifts over time as the shock subsides and the new reality of life now sets in. These feelings can ebb and flow over time, with some days better than others. Both big and small events can trigger psychological distress, with one stakeholder relaying a story in which a former patient, months after leaving Shepherd, became significantly upset at no longer being able to carve a turkey during the holidays, plummeting his mental health through the holiday season.

> "There aren't enough resources in general, much less for therapists who understand these patients and their incredibly unique needs, people with a new lived reality, a new way of flowing through the world because their physical changes wholly impacts significant mental changes."

After a catastrophic injury or diagnosis, there can be a **strain on family dynamics.** This can result in other life events, such as divorce or separation. In one interview, a stakeholder directly impacted by a life-altering diagnosis shared the subsequent deterioration of her marriage. Another shared a broken engagement that came after many discussions of their new shared reality of life and the long-term implications of their catastrophic injury. A third talked about how lucky she felt to still have her spouse, as most with her diagnosis were not so fortunate.

The toll a disease or diagnosis can take is not limited just to the singular person; instead, it includes family and caretakers. Stakeholders relayed that families are often overwhelmed, a feeling that tends to grow as discharge planning begins. Once back home, these family members and caretakers can feel isolated and alone, needing to present a solid front to support the family member who now needs their full physical and mental support and the other members of their families who still have their usual needs.

One stakeholder shared the impact of this as particularly hard on parents and spouses, and another expressed the challenges children and teens may have when the impacted family member is their parent. This, coupled with the familiar strains between parent and child during adolescence and teen years, created significant challenges in maintaining a healthy household. All stakeholders expressed that **current mental health networks and coverage are inadequate to address the full spectrum of needs for the whole family.**

Stakeholders advocated for **broader education initiatives aimed at raising awareness about disabilities and promoting inclusivity within communities.** They stressed the importance of preventative education, especially among younger populations, to raise awareness surrounding neurological injuries and promote safe practices. One stakeholder talked about the disregard for safety many younger male populations have and thought there needed targeted messages that this particular group may heed. All felt prevention efforts are crucial for fostering a more empathetic society while reducing preventable injuries through increased awareness.

Stakeholders often discussed how **addressing social determinants of health increases health and well-being,** as transportation can be significant to health services. Particularly in rural areas, inadequate transportation was identified as a barrier to timely access to care, impacting everyday life and hindering community reintegration for individuals with disabilities.

> "Without the basics nailed down, reintegration is going to be challenging. How is your community designed? How can you access healthy foods? Can you get to where you need when you need to? Can you pay your copays? How safe and appropriate your housing is? Is it set up the way you need it? Can you afford it? These are all the things that are going to have a significant impact on patient wellness once they are back home.

Transitioning from Shepherd Center was identified as a daunting experience for patients and their families, with concerns about inadequate community-based care and societal stigma. A central theme that emerged is the sense of loss felt at discharge, as patients leave behind a supportive community where they share similar experiences and identities. The Shepherd community was identified as providing comfort, understanding, and a sense of belonging, making the idea of leaving even more daunting.

To address this loss, stakeholders noted the need for **more community integration during rehabilitation.** They advocated for initiatives that support safe reintegration into daily life, such as promoting social inclusion and facilitating participation in community activities. By fostering inclusive environments, stakeholders believed individuals with disabilities could experience a more comforting reintegration into their community and lead lives recognized for their contributions and abilities.

In this delicate transition, stakeholders noted that peer support programs and community engagement initiatives were valuable resources for individuals and caregivers navigating disability-related challenges. They stressed the importance of peer support programs to offer emotional validation, practical advice, and a sense of belonging. Stakeholders believed that by nurturing supportive communities and networks, individuals with disabilities could receive the encouragement and assistance needed to thrive.

**Common themes throughout interviews, in order of prevalence:**

- **Challenges with funding and insurance:** Significant funding and insurance coverage disparities exist. Insurance limitations often hinder access to necessary care and equipment.
- **Community integration and support:** Patients and their families need resources and knowledge to integrate into their communities safely. Peer support programs, education initiatives, and partnerships with community organizations are vital in this integration, particularly in rural communities.
- **Challenges in access and transportation:** Patients, especially those in rural areas, face challenges accessing healthcare resources and reliable transportation. Addressing transportation barriers and improving access to care, including specialized therapies and equipment, are crucial for promoting overall well-being.
- **Mental health and emotional support:** Mental health care and emotional support are integral to rehabilitation, but patients often struggle to find providers who understand their unique needs. Peer support programs and family involvement significantly address emotional challenges and promote well-being.
- **Prevention and education:** While Shepherd actively promotes preventive measures to reduce injuries, education, particularly on injury prevention and healthy lifestyle choices, is vital to reduce preventable catastrophic injuries.
- **Collaboration and partnerships:** Shepherd partners with other institutions and community organizations to address healthcare needs, share resources, and improve patient outcomes. Collaborative efforts extend to research, training, and community engagement.
- **Empowerment and advocacy:** Empowering patients and caregivers with knowledge, resources, and control over their care journey is essential for achieving successful outcomes. Advocacy efforts aim to promote accessibility, inclusion, and support for individuals with disabilities.

- **Health equity and social determinants of health:** Addressing health disparities, particularly among underserved and minority communities, is essential. Programs and initiatives focus on improving access to care, addressing social determinants of health, and promoting community reintegration and support.
- **Telehealth and technology:** The COVID-19 pandemic showed the benefit of telehealth for remote consultations and follow-up care, especially for patients facing transportation barriers. Technology is a tool to support patients' transition from hospital to home and to provide convenient access to health information and services.

## Focus groups

In April 2024, PGG conducted eight focus groups to gain insight from people with disabilities, their families, and case managers. These groups were:

- Shepherd Center's Consumer Advisory Group
- Current and former Shepherd Center patients living with MS
- Caregivers of Shepherd Center patients with disorders of consciousness
- Shepherd Center case managers
- Shepherd Center access case managers who help newly diagnosed patients find the care they need
- People receiving treatment at the Dean Stroud Spine and Pain Institute at Shepherd Center
- Shepherd Center adolescent patients and their families
- Members of Shepherd Center's Patient and Family Support Group

These discussions focused on challenges and opportunities in rehabilitation and care for individuals with severe injuries and neurological conditions. The groups provided a unique picture of navigating the healthcare system while living with or caring for someone with a disability.

The focus groups revealed several critical successes in rehabilitation and care. **Mental health support proved crucial, helping people navigate challenging times and gain new perspectives on their situations.** Many successfully adapted their hobbies and daily activities to accommodate physical limitations, demonstrating resilience and determination. Telehealth services were named as a valuable tool, offering convenient access to care, particularly for those with mobility challenges or living in rural areas, bridging geographical gaps in healthcare access.

People reported positive outcomes from intensive therapy programs, noting their flexibility and goal-oriented approaches. **The personalized nature of rehabilitation, tailored to each person's unique goals and aspirations, was particularly appreciated.** This individualized approach contributed significantly to improvements in mobility and overall well-being, allowing people to work toward returning to activities they love. People with disabilities and caregivers developed strong self-advocacy skills and gained skills to help navigate complex healthcare systems effectively.

Peer support networks provide emotional and practical guidance, fostering a strong sense of community among people with disabilities and caregivers. These networks played a vital role in recovery, offering a platform for sharing experiences and coping strategies. Volunteer-assisted fitness programs helped people maintain physical activity despite energy management challenges, contributing to their overall health and recovery.

However, participants also identified significant challenges, particularly in transitioning back to their communities. Many expressed concerns about the **lack of ongoing care and community support once home, often leading to feelings of isolation for both people with disabilities and caregivers.** The discontinuation of care and support outside specialized centers was a key theme, pointing to the need for better continuity of care.

The shortage of trained healthcare professionals and well-equipped facilities in the community to meet the unique needs of people with disabilities was a primary concern. This gap covers specialized rehabilitation services and everyday healthcare needs like dental, optometry, and obstetrics/gynecology. **Many participants expressed frustration with encountering doctors unfamiliar with their conditions or lacking the necessary equipment,** which added difficulties in managing their health. Patients and caregivers continuously expressed hope for satellite offices in different communities, potentially increasing access to specialized care and support closer to home.

All focus group members stressed that **community healthcare provider education is crucial for creating access to high-quality healthcare.** Participants acknowledged existing efforts in this area and noted the importance of growing these initiatives. By further empowering local healthcare professionals with specialized knowledge and resources, the community can work toward reducing reliance on emergency services for routine care, as some focus group members shared that EMS sometimes proved to be a better option than traditional providers.

**Insurance limitations posed significant barriers, often restricting access to essential healthcare services and support.** Many shared experiences of struggling to obtain insurance approvals for extended stays, necessary equipment, and vital medications. These restrictions hampered people's recovery and rehabilitation and added to the financial strain on families. The emotional toll of navigating complex insurance processes during an already challenging period was evident.

The financial burden faced by people with disabilities and caregivers is significant, with challenges in coping with loss of work, managing employment while caring for or living with a diagnosis, and the need for costly home modifications. Despite the personal determination many felt during inpatient rehabilitation, many felt overwhelmed by the financial responsibilities upon returning home.

**Transportation is a substantial hurdle,** especially for those outside metro Atlanta. The complexities of traveling into the city added to existing caregiving duties and the strain of managing a diagnosis. Focus group members want more accessible transportation solutions to ensure people can reach their healthcare providers without undue stress or hardship.

Many participants noted how important comprehensive and ongoing support is for individuals transitioning back into their communities. While resources like myshepherdconnection.org exist, only about half of the participants were aware of it, suggesting a need for broader promotion. Many preferred human interaction to guide them through these resources, citing a lack of confidence in their computer skills or having complex questions that require personalized assistance, pointing to a need for more direct, person-to-person support alongside online resources, mainly when dealing with the intricacies of post-discharge care and administration.

Participants stressed the importance **of expanding and enhancing online and in-person programs to meet diverse needs.** Several suggested expanding online wellness programs for individuals who cannot travel or live far from specialized care centers, increasing accessibility to vital health maintenance resources. Participants suggested diversifying in-person options, with music therapy mentioned as an example of a creative approach to rehabilitation. Participants also noted the need for additional caregiver tutorials and resources, both online and in-person. These recommendations show the importance of continually evolving comprehensive care options to accommodate various circumstances and preferences.

These discussions demonstrate the impact of comprehensive care, community support, and innovative rehabilitation approaches in improving the lives of those affected by severe injuries and neurological conditions. They also reveal the ongoing challenges and the need for systemic changes to address roadblocks encountered during the transition phase and beyond. The focus groups provided valuable insights into the successes, challenges, and opportunities for improving care and support for individuals with severe injuries and neurological conditions, pointing to the need for continued innovation and increased community-based solutions.

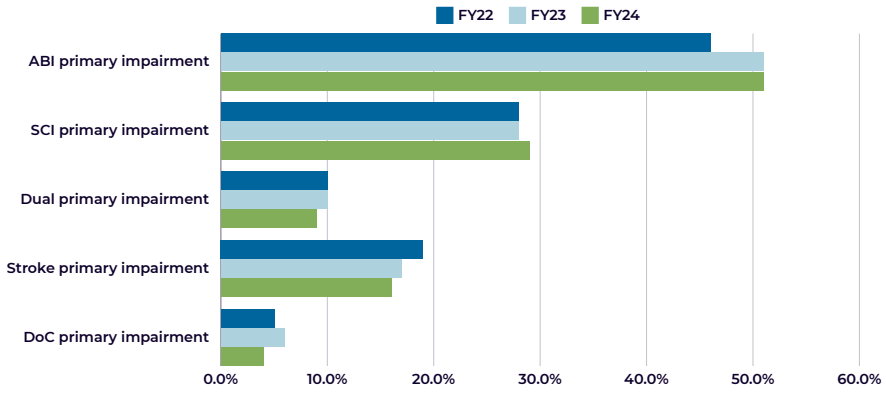
## Secondary data – The numbers

Each year, Shepherd treats those with complex catastrophic injuries and neurological conditions, including spinal cord and brain injuries, multi-trauma, traumatic amputations, stroke, multiple sclerosis, and pain, all with a goal of community reintegration to support the patient's successful return to their daily lives.

### Inpatients

From FY22 to FY24, of all inpatients, those with an acquired brain injury (ABI) as their primary impairment made up the highest percentage of patients. Patients with an SCI as their primary impairment were the second highest percentage of patients.

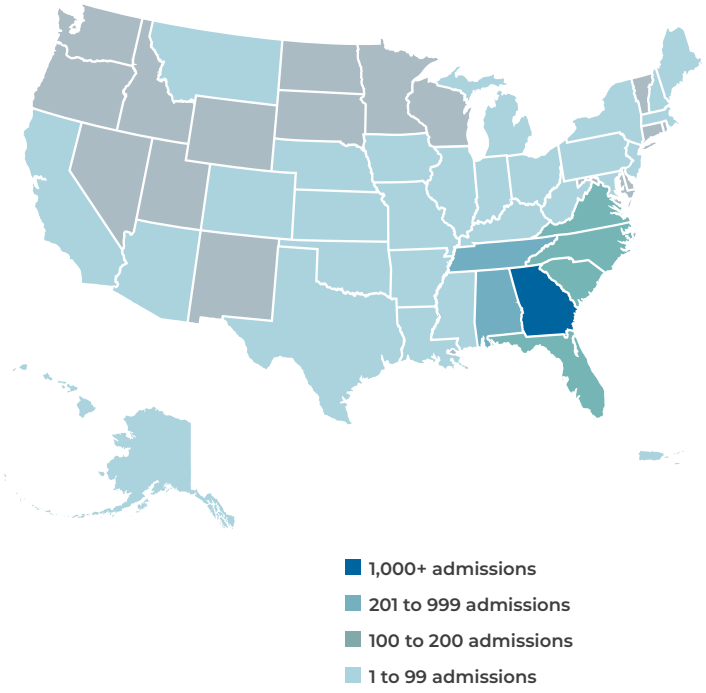
**Percent of inpatients by primary impairment, FY22 to FY24**




Source: Shepherd Center Internal Data

From FY22 to FY24, Shepherd treated an annual average of nearly 900 inpatients from all over the U.S.

### Admissions by state, FY22 to FY24




Source: 2024 Shepherd Center internal data

From FY22 to FY24, patients from 115 Georgia counties were admitted to Shepherd. Of those, the Atlanta metropolitan area counties had the most significant volume of community members admitted to the hospital. The following table ranks the top 10 Georgia counties by Shepherd hospital admission volume for FY22 to FY24.

| Georgia County | Number of Patient Admissions, FY22 to FY24 |
|---|---|
| **Fulton** | 205 |
| **Dekalb** | 122 |
| **Cobb** | 100 |
| **Gwinnett** | 93 |
| **Henry** | 48 |
| **Clayton** | 43 |
| **Cherokee** | 39 |
| **Fayette** | 32 |
| **Paulding** | 26 |
| **Coweta** | 21 |

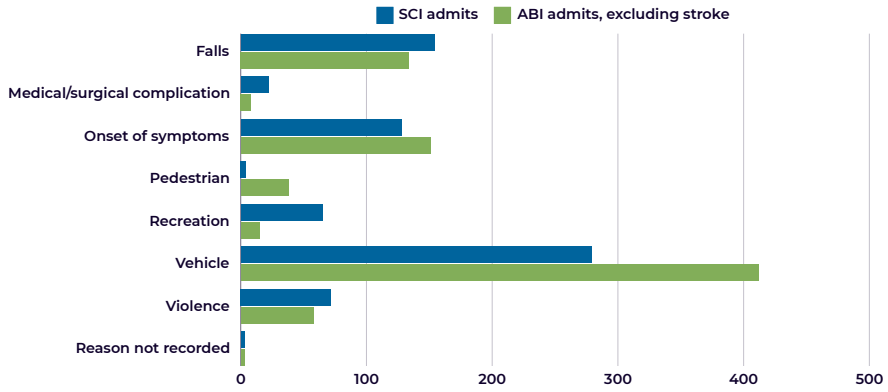
Source: Shepherd Center internal data

These counties represented approximately 27 percent of all inpatient admissions for FY23 and FY24. Overall, patients living in Georgia comprised approximately half of all admissions for FY23 and FY24.

## Injuries

A person will need Shepherd's care for many reasons, often due to a catastrophic injury.

### Cause of injury, FY22 to FY24




Source: Shepherd Center Internal Data

As demonstrated in the chart above, vehicle crashes are the most common cause of injury for both SCI and ABI admissions. Of those, the majority are from automobile crashes – about 450 total for years FY22 to FY24. Of falls, the overwhelming majority occurred on the same level, such as a slip or a trip. Gunshot wounds were the leading sub-cause of injuries due to violence.

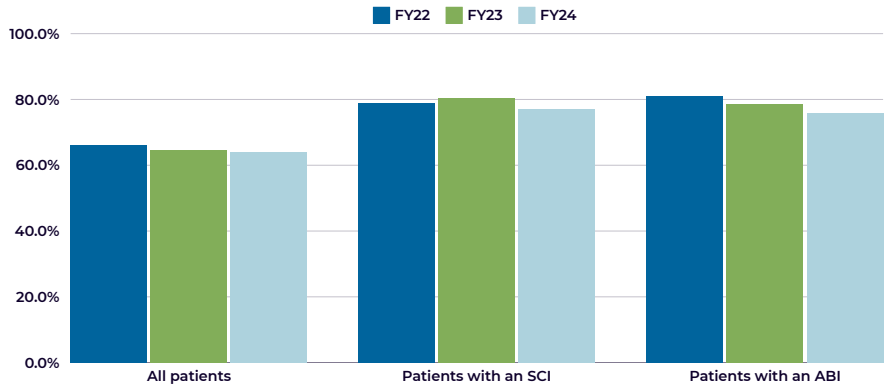
Rehospitalization is when a patient is admitted to any hospital for any reason (may not be related to their previous condition) within 30 days of discharge. Rehospitalization is a crucial indicator of a hospital's quality of care, as it can demonstrate how well the hospital prepared the patient to transition home and if the patient was truly ready to be discharged.

Patients self-report this information through a phone survey. In these calls, Shepherd's quality and outcomes team can better understand what led the patient to return to a hospital, which, in turn, helps Shepherd better prepare future patients. In FY23, Shepherd Center's rehospitalization rate was 6.1 percent, an increase of 1.5 percent from FY22. While there is no available national rehospitalization data for 2023, the average readmission rate is 9.2 percent at inpatient rehabilitation facilities nationally, according to a 2022 study analyzing historical data published in the *Journal of Post-Acute and Long-Term Care Medicine*.

### Traumatic injuries and severity of injury

Due to their injuries and conditions, an annual average of 65 percent of Shepherd's patients were considered traumatic, compared to 11 percent nationally.

**Percent of patients with Injuries that are traumatic, FY22 to FY24**

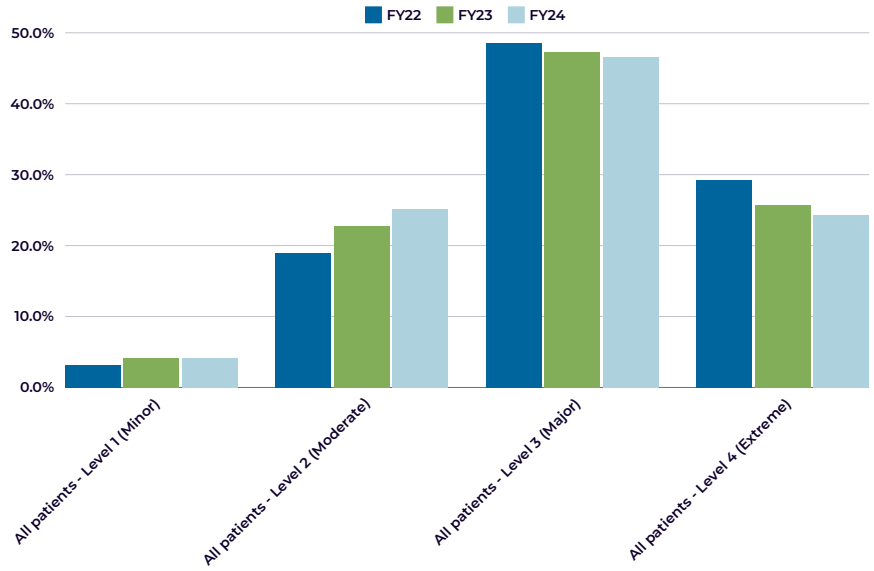



Source: Shepherd Center Internal Data

When broken out by type of injury, this number shifted. For example, in FY24, nearly 79 percent of all Shepherd patients with brain injuries had traumatic injuries, a number almost three times higher than other hospitals reporting brain injury data.

Additionally, between FY22 and FY24, an average of 74 percent of all Shepherd Center patients had a severity of illness (SOI) of 3 or 4, indicating a major or extreme level.

**Severity of illness, FY22 to FY24**

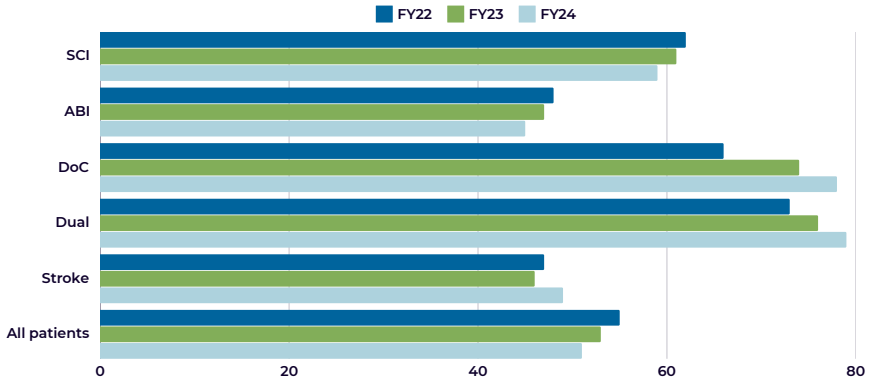



Source: Shepherd Center Internal Data

Due to the high complexity of injuries and illnesses treated at Shepherd, its average length of stay significantly exceeded that of other facilities that offer rehabilitative services. From FY22 to FY24, Shepherd patients averaged 53 days (nearly two months) annually as inpatients at the hospital.

By comparison, from 2021 to 2022, the average length of stay for an inpatient rehabilitation facility (IRF) was 13 days (about two weeks), about a quarter of the average stay at Shepherd during the same period, according to eRehab Data. This difference in length of stay reflected the complexity of cases treated at Shepherd Center compared to typical IRFs.

### Average length of stay, by diagnosis, FY22 to FY24




SABI includes DoC and Stroke

Source: Shepherd Center Internal Data

## Outpatients

Between FY22 and FY24, Shepherd treated approximately 7,860 unique outpatients each year, totaling about 244,000 outpatient visits. Included among those patients and visits were about 700 people with an ABI, more than 400 people with an SCI, and about 3,000 people with MS, annually. Shepherd treated these patients through 20,000 outpatient visits for individuals with ABI, nearly 5,000 outpatient visits for individuals with SCI, and about 21,000 outpatient visits for individuals with MS, annually.

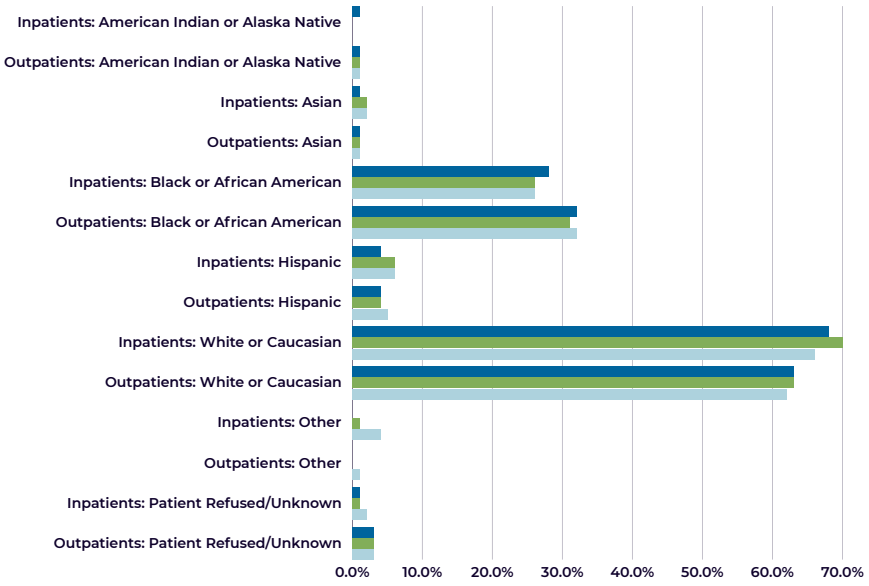
From FY22 to FY24, the top three clinics utilized for outpatient care were:

- The Dean Stroud Spine and Pain Institute, with nearly 4,200 unique patients and 23,000 visits.
- The Rehabilitation Medicine Clinic, with more than 6,100 unique patients and almost 15,300 visits.
- The Dora and Ed Voyles Assistive Technology Center, with more than 5,300 unique patients and 7,800 visits.

## Patient demographics

Due to the unique nature of its care, Shepherd does not see the usual type of patient profile most typical acute care hospitals see: their direct geographic community. Instead, and even though Shepherd is in the heart of the diverse city of Atlanta, Georgia., Shepherd's community more closely reflects that of national catastrophic injury and significant neurological condition diagnosis trends, which bend significantly toward White populations.

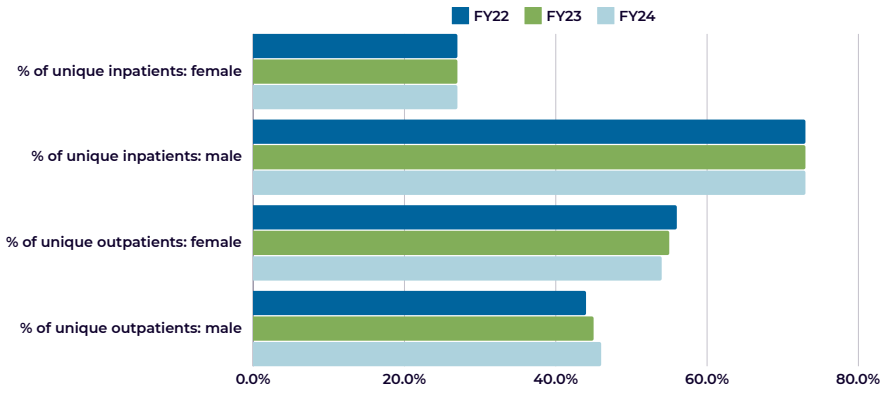
### Percent of patients by race and ethnicity, FY22 to FY24




Source: Shepherd Center Internal Data

When looking at gender, Shepherd is impacted by two trends reflective of national demographics. Catastrophic injuries tend to happen more to males than females, especially for people with SCIs whose care often begins within the hospital as an inpatient. MS diagnoses, though, are far more common in women and are most often treated in an outpatient setting.

### Percent of patients by gender, FY22 to FY24




Source: Shepherd Center Internal Data

The overwhelming majority of inpatients and outpatients spoke English – about 98 percent each year between FY22 and FY24, on average. Spanish is the most common second primary language spoken.

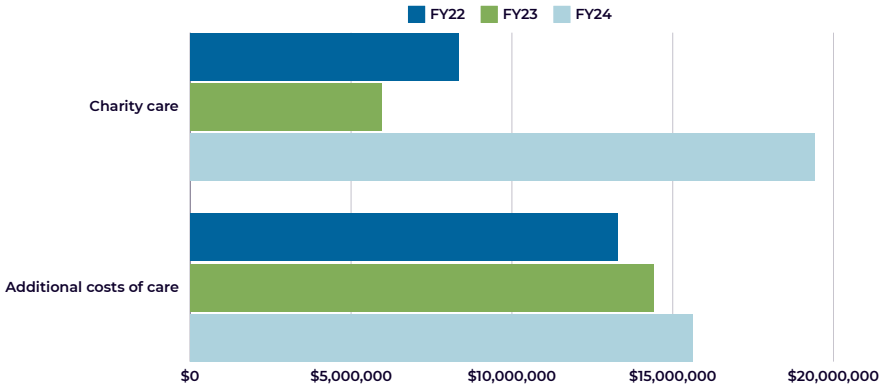
**Military status**

On average, 1 to 2 percent of Shepherd's inpatients are active-duty military or veterans annually. Through its outpatient program SHARE Military Initiative, from FY22 to FY24, Shepherd treated 155 military veterans, service members, and first responders with traumatic brain injuries and mental health concerns.

**Income and financial assistance**

Between FY22 and FY24, Shepherd provided $19.4 million in charity care for qualifying patients. Additionally, Shepherd provided $43.3 million in additional services not typically paid for by insurance of government payors. Between FY22 and FY24, Shepherd incurred $43.3 million in expenses supporting programs including, but not limited to, recreation therapy, patient equipment, assistive technology, housing, vocational services, research, transition support, the Noble Learning Resource Center, professional development, injury prevention, and advocacy.

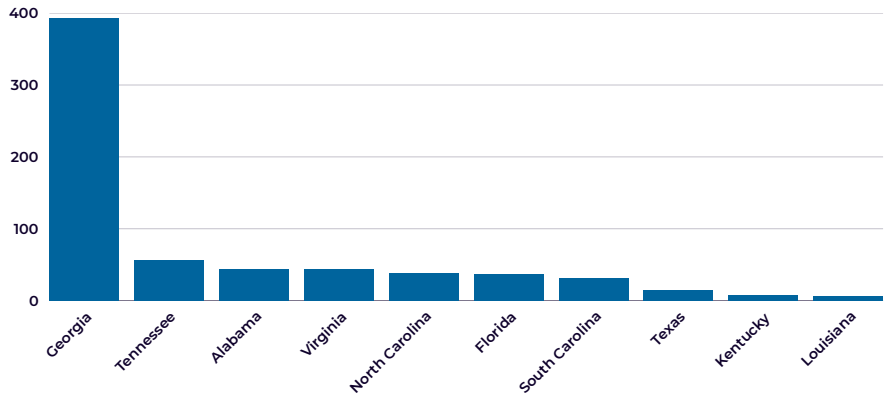
**Charity care and other foregone costs of care**




Source: Shepherd Center Internal Data

Approximately 716 individuals received financial assistance for their care at Shepherd through the hospital's financial assistance programs, including those who received assistance through the SHARE Military Initiative. The average qualifying patient was 39, which is in line with other Shepherd age averages. A slight majority were single. More than half were from Georgia, and nearby states comprised the other origin states with the highest volume.

### Top ten home states for those qualifying for financial assistance, by number of patients, FY22 to FY24




Source: Shepherd Center Internal Data

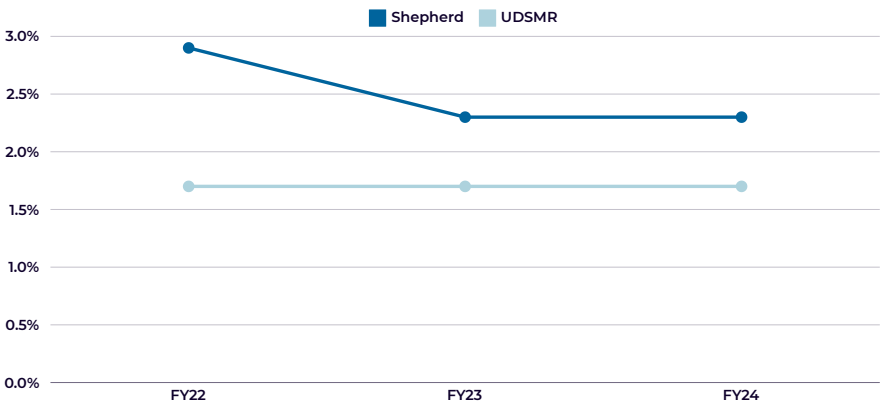
More than a third of those qualifying for assistance were employed full-time when approved. Approximately 12 percent were disabled, 8 percent were full-time students, 6 percent were retired, and 2 percent were on active military duty.

## Patients with a spinal cord injury

Annually, between FY22 and FY24, about 29 percent of all inpatients at Shepherd were people with an SCI. On average, Shepherd treated 257 inpatients annually with SCI as their primary impairment, a decrease from FY21 when 310 inpatients had SCI as their primary impairment. Shepherd treated an annual average of 434 outpatients and 249 day program participants with SCI as their primary impairment.

The graph below outlines the case mix index (CMI) for patients with SCI, which reflects the diversity, complexity, and severity of the injuries for patients treated at Shepherd. From FY22 to FY24, patients with an SCI had an average CMI of 2.5 compared to the national average of 1.7, based on data from the Uniform Data System for Medical Rehabilitation.

### Case mix index for patients with a SCI, FY22 to FY24




Source: Shepherd Center Internal Data, UDSMR

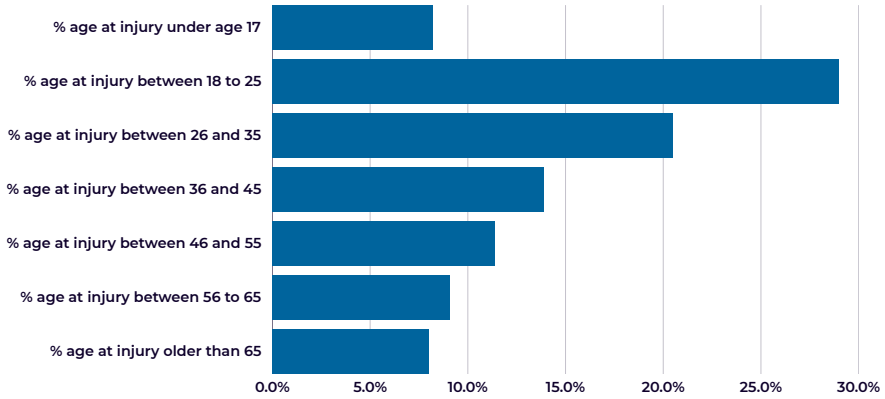
Vehicle crashes were the leading cause of spinal cord injuries for Shepherd patients, comprising an average of 36 percent of all people with spinal cord injuries in FY22 to FY24. Falls were the second leading cause of spinal cord injuries during that same time, with one in five Shepherd patients with an SCI having sustained their injury by fall. The average age for a person with a SCI being treated at Shepherd was 40 years old.

**People with a spinal cord injury, nationally**

When analyzing national data on people with an SCI, common topics emerged. These individuals tended to be predominantly male, with 80 percent falling into this category. Additionally, 67 percent were White, and 90 percent were not veterans at the time of injury.

The overwhelming majority of people who have an SCI were between the ages of 18 and 35 at the time of their injury – nearly 50 percent of all injuries resulting in an SCI happened between those ages. Of all age groups, those older than 65 statistically represented the smallest group, with only 8 percent of those with a SCI in 2023 being within that age group at the time of their injury.

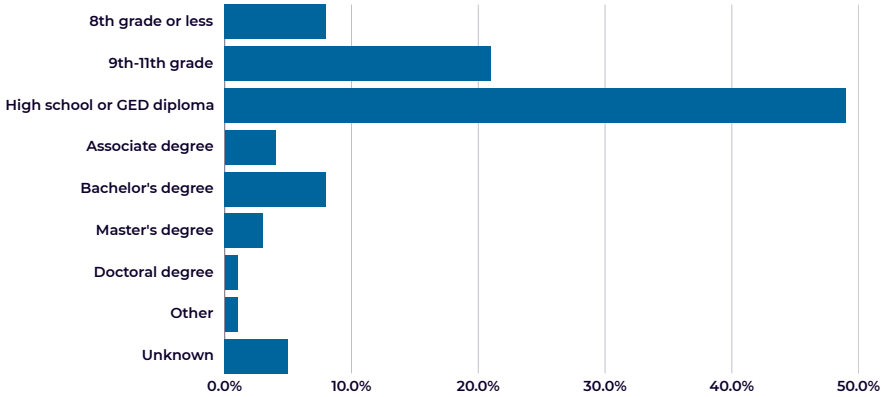
### Age at injury for people with an SCI, nationally, 2023




Source: National Spinal Cord Injury Statistical Center, University of Alabama at Birmingham, 2023 Annual Statistical Report

Nearly half of all people who have a SCI had only a high school diploma or GED at the time of their injury. As education level increases, the likelihood of an injury resulting in an SCI decreases.

### Education level at injury for people with an SCI, nationally, 2023



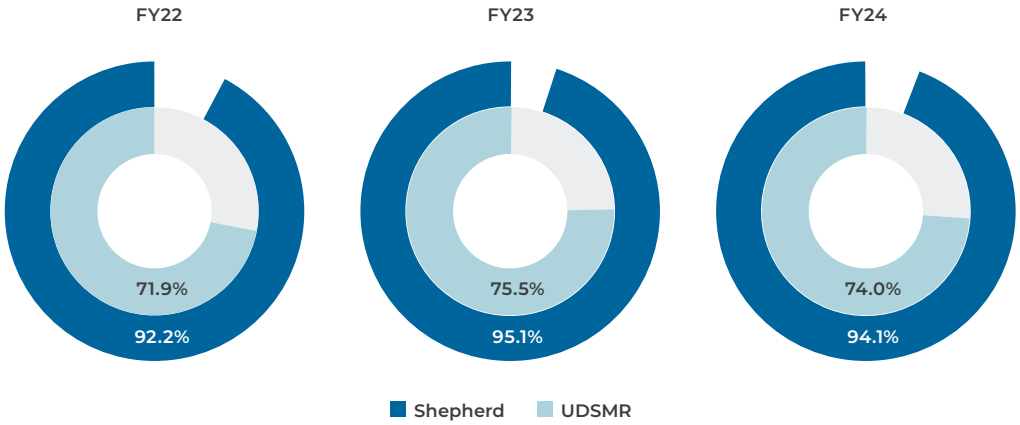

Source: National Spinal Cord Injury Statistical Center, University of Alabama at Birmingham, 2023 Annual Statistical Report

Nationally, physicians referred people with an SCI who had private insurance to rehabilitation services 85 percent of the time, while publicly insured and the uninsured were referred to rehabilitation 56 percent and 55 percent of the time, respectively, despite these populations having similar injury severities. Statistically, publicly insured and uninsured patients tend to have lower incomes, especially for non-elderly adults. Adults aged 26 to 34 are most likely to be uninsured, corresponding with overall national insurance rate trends, as the Kaiser Family Foundation reported.

**Patients with a traumatic spinal cord injury**

On average, annually between FY22 and FY24, 80 percent of patients with spinal cord injuries had a traumatic injury at Shepherd, far above the average of 23 percent of all people with SCIs nationally. The rate of discharge to the community for these patients was also much higher than the national average; in FY24, the average percentage of patients with a traumatic spinal cord injury (tSCI) discharged to the community was 93 percent, compared to the national average of 74 percent.

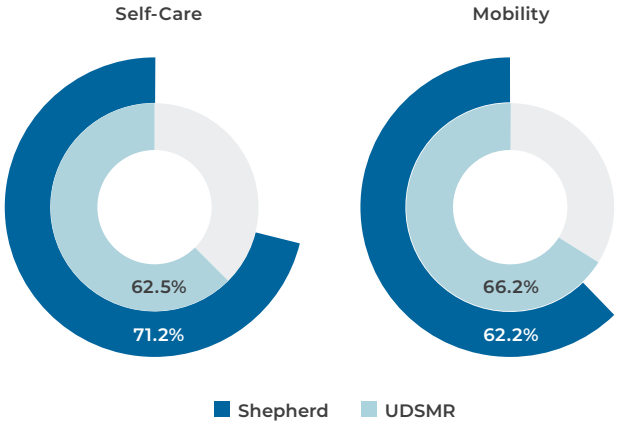
**Percent of patients with a tSCI discharged to the community, FY22 to FY24**




Source: Shepherd Center Internal Data, UDSMR

Over the past few years, outcomes for Shepherd patients generally remained more favorable than national averages, except for patients meeting or exceeding risk-adjusted expected values for mobility at discharge.

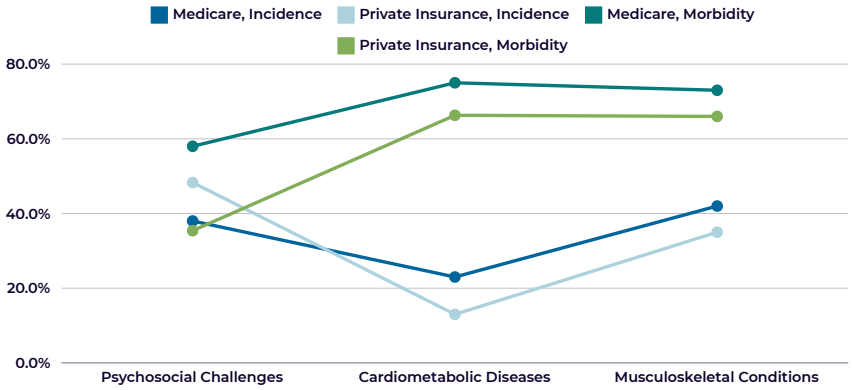
**Percent of patients with a TBI meeting or exceeding risk-adjusted expected value at discharge, FY22 to FY24, annually on average**




Source: Shepherd Center Internal Data, UDSMR

The influence of socioeconomic factors on health outcomes was evident in the significant differences in comorbidity rates among patients with SCI and tSCI. Those with private insurance experienced lower rates of preventable comorbidities, highlighting the role of social determinants in shaping health disparities.

**Morbidity and four-year incidence rates of common comorbidities for people with tSCI, nationally**

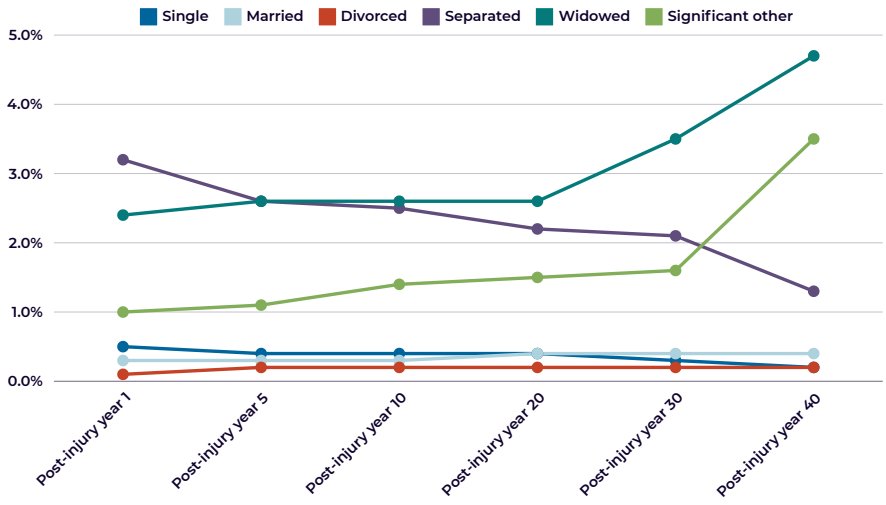



Source: "Disparities in morbility after spinal cord injury across insurance types in the United States," *Mayo Clinic Proceedings: Innovation, Quality, and Outcomes, June 2022.*

The economic challenges faced by people with SCI are significant. In 2023, according to the National Spinal Cord Injury Statistical Center, approximately one in five people with an SCI had a household income of or below $25,000, placing them at or near the poverty level. This was particularly significant as Health and Human Services defined poverty in 2023 as a family of three with a household income of $25,820. This threshold aligned closely with the average family size in Georgia that same year.

Overall, having a SCI impacts marital status, particularly in the early years post-injury. Data suggested that while some individuals found new partners or married, others experienced marital breakdowns, leading to increased rates of divorce and separation. The impact seemed more significant in the earlier years post-injury and stabilized somewhat as time progressed.

## Marital status following SCI by post-injury year




Source: National Spinal Cord Injury Statistical Center, University of Alabama at Birmingham, 2023 Annual Statistical Report

### Income for people with a spinal cord injury, nationally

The data on family household income for people with SCI highlighted significant changes over time. At the time of injury, nearly 22 percent of people with SCI had a household income of less than $25,000. This percentage sharply increased to 39 percent by the first year after the injury. It remained relatively high, peaking at about 42 percent by the 20th year post-injury, indicating a substantial financial impact on households of people with SCI, pushing a more significant proportion into lower income brackets over time.

Households that earned $75,000 or more decreased from 24 percent at the time of injury to 18 percent by the first year after an injury. This amount gradually increased, reaching 31 percent by the 45th year post-injury, suggesting that, while some households recovered financially, SCI's initial impact was significant.

The number of households earning $25,000 to $49,999 remained relatively stable over time, hovering around 20 percent initially and ranging between 19 percent and 24 percent over 20 years. Overall, the data revealed that an SCI had a profound and long-lasting impact on family household income, with a significant portion of people experiencing lower income levels following their injury. The financial burden appeared most acute in the early years post-injury, with some recovery over the long term. However, many households struggled financially even decades after the injury.

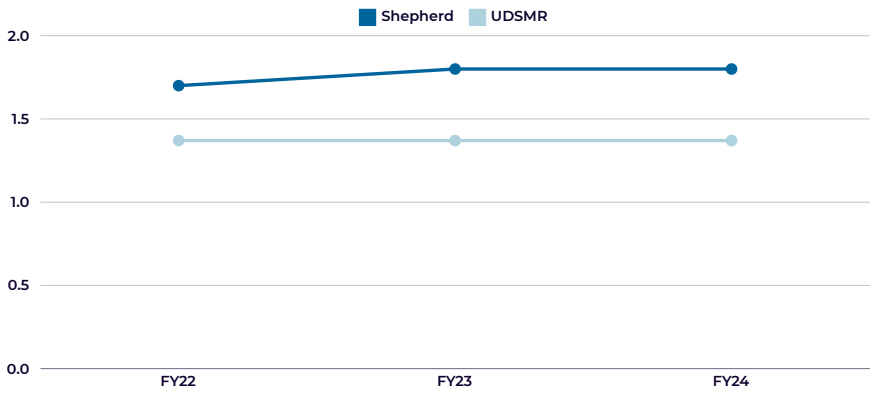
## Patients with acquired brain injury

At Shepherd, acquired brain injury (ABI) is the overarching classification for all patients with brain injury, including those with traumatic brain injury (TBI) and patients with a non-traumatic brain injury (nTBI), stroke, and disorders of consciousness (DoC). Annually, between FY22 and FY24, about 49 percent of all inpatients at Shepherd had an ABI, totaling 1,324 patients. Among these inpatients, 705 were patients with a TBI, 155 were patients with an nTBI, and 463 were patients having had a stroke.

Additionally, Shepherd treated an annual average of 684 outpatients and 223-day program participants with ABI as their primary impairment. From FY22 through FY24, an average of 67 percent of Shepherd patients treated for an ABI had an SOI of 3 or 4, indicating a significant or extreme level of severity. Organic factors, like stroke, tumors, or disease, accounted for 45 percent of all ABI cases on average from FY22 to FY24 at Shepherd.

The graph below outlines the case mix index (CMI) for patients with an ABI, which reflects the diversity, complexity, and severity of the injuries for patients treated at Shepherd. From FY22 to FY24, patients with an ABI had an average CMI of 1.8 compared to the national average of 1.4.

### Case mix index for patients with an ABI, FY22 to FY24




Source: Shepherd Center Internal Data, UDSMR

### Disorders of consciousness

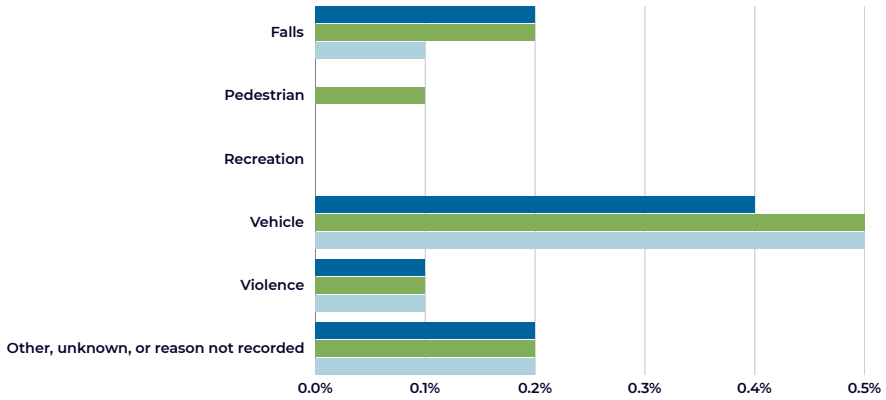
Patients with disorders of consciousness are in a state of prolonged altered consciousness, which can mean they are in a coma, a vegetative state, or a minimally conscious state based on neurobehavioral function. Between FY22 and FY24, Shepherd treated 125 patients with a disorder of consciousness. Nearly three-fourths were male at an average age of 33. Approximately 54 percent advanced to rehabilitation care after having emerged from this state. During that time, patients who advanced to rehabilitation had an average of 73 days at Shepherd, while those who did not emerge and advance to rehabilitation had an average length of stay of 80 days.

### Patients with traumatic brain injury

Annually, between FY22 and FY24, about 53 percent of all patients at Shepherd with an ABI had a TBI. The percentage of Shepherd-treated patients with TBI was 79 percent. Nationally, only about 32 percent of patients with an ABI were classified as having TBI during the same period.

Between FY22 and FY24, the leading cause for TBI were vehicle crashes, which comprised 47 percent of all cases on average each year. Falls were the second leading cause and acts of violence were the third leading cause of TBI for Shepherd patients, averaging 16 percent and 7 percent of cases, respectively and on average each year.

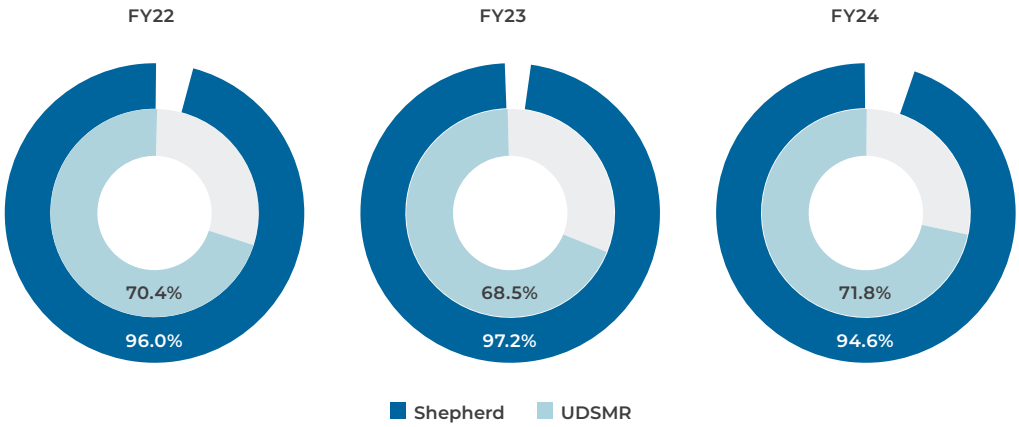
**Top causes of injury for patients with an TBI, FY22 to FY24**




Source: Shepherd Center Internal Data, UDSMR

The rate of discharge to the community for Shepherd patients with a TBI was 96 percent, which is 24 percent higher than the national average of 70 percent.

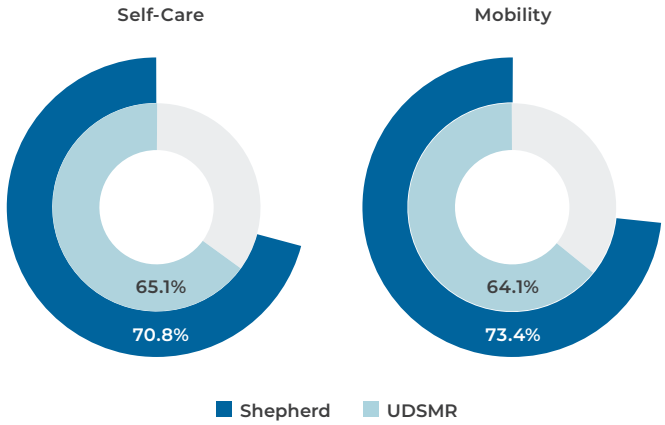
**Percent of patients with a TBI discharged to community, FY22 to FY24**




Source: Shepherd Center Internal Data, UDSMR

As shown in the chart below, these patients tended to exceed expectations at discharge for self-care and mobility which is a key indicator of independence and caregiver burden.

**Percent of patients with a TBI meeting or exceeding risk-adjusted expected value at discharge, FY22 to FY24, annually on average**

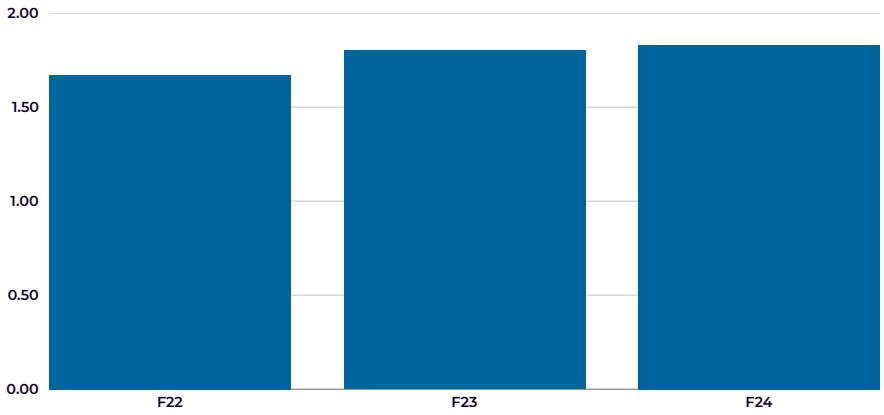



Source: Shepherd Center Internal Data, UDSMR

Due to the distinct nature of traumatic brain injuries, many significant factors vary from the overall ABI diagnosis. For instance, the average person with a TBI has a severity of illness score of 3 or more, indicating a major or extreme level, which was 5 percent higher than that of people with an ABI overall.

The graph below outlines the case mix index for patients with a TBI, reflecting the diversity, complexity, and severity of the injuries treated at Shepherd. From FY22 to FY24, patients with a TBI had an average CMI of 1.8.

**Case mix index for patients with a TBI at Shepherd, FY22 to FY24**




Source: Shepherd Center Internal Data

### Income and TBI, nationally

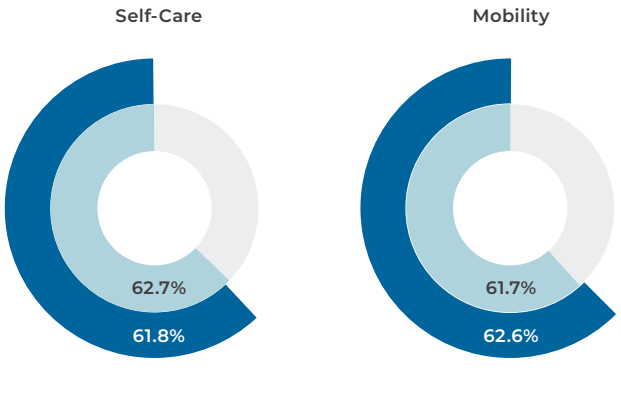
Nationally, individuals with TBI who were uninsured or had public insurance were statistically more at risk for poorer functional status at the point of rehabilitation discharge than those with private insurance, particularly compared with those with workers' compensation or auto insurance, according to a 2023 study published in *The Journal of Head Trauma Rehabilitation*. A shorter acute rehabilitation stay may have mainly driven this effect.

A 2024 study published in *World Neurosurgery* proved that TBIs have an impact on income, with 59 percent of patients with mild TBI not working two weeks after the accident, 17 percent not working after one year, and 21 percent experiencing a decline in overall annual income. For moderate and severe TBIs, the situation worsens, with 55 percent of those employed before the accident having no job five years after. Nationally, people who were homeless experienced a disproportionately high lifetime prevalence of TBI, according to a 2019 study in The Lancet. Nationally, one in two homeless or marginally housed individuals had experienced a TBI, and one in four had experienced a moderate to severe TBI.

## People who have had a stroke

Between FY22 and FY24, Shepherd treated a total of 463 inpatients who had experienced a stroke, making up approximately 17 percent of all inpatients during that period. From FY22 to FY24, the average case mix index of people with stroke at Shepherd was 2.0, which is higher than the national average case mix index of 1.6. From FY22 through FY24, an average of 67 percent of Shepherd patients having experienced a stroke had an SOI of 3 or 4, showing a major or extreme level of severity. Despite this, Shepherd's outcomes are favorable for people who have experienced a stroke in terms of discharging to the community, self-care, and mobility.

**Percent of patients with a stroke meeting or exceeding risk-adjusted expected value at discharge, FY22 and FY24 annually, on average**



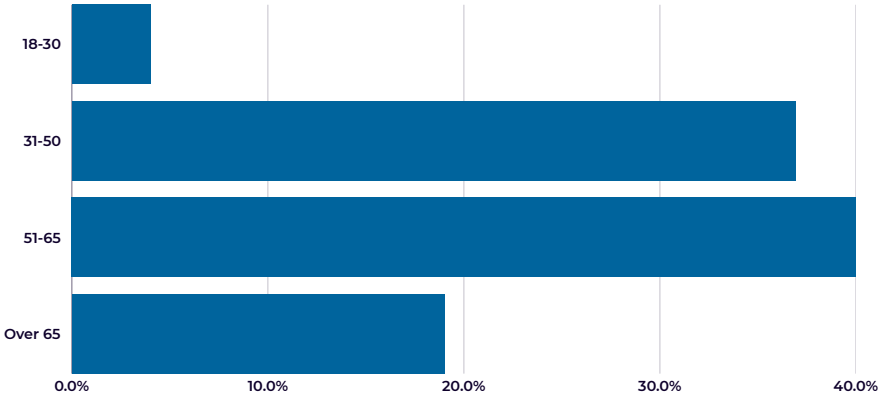

Source: Shepherd Center Internal Data, UDSMR

## People living with multiple sclerosis

Between FY22 and FY24, Shepherd treated an annual average of 3,017 people diagnosed with multiple sclerosis (MS) through an average of 21,000 visits annually. Unlike other diagnoses, MS care at Shepherd Center is mostly addressed in the outpatient setting through the Andrew C. Carlos Multiple Sclerosis Institute and the Eula C. and Andrew C. Carlos Multiple Sclerosis Rehabilitation and Wellness Program. Through its MS Rehabilitation and Wellness Program, about 500 people received lifestyle and exercise education through approximately 6,775 visits in FY23.

Within the medical community, doctors diagnose MS more often in White populations compared to other races. Women are three times more likely to have MS than men, with percentages of 76 percent and 24 percent, respectively. This gender discrepancy holds both nationally and at Shepherd. From FY22 to FY24, an annual average of 62 percent of Shepherd patients with MS were White, while 34 percent were Black. This difference aligned with national trends as well. During that time, the average MS onset for patients served at Shepherd Center with MS was 36.

### Average age of patients with MS at Shepherd Center, FY22 to FY24




Source: Shepherd Center Internal Data

According to the National Multiple Sclerosis Society, MS is the leading progressive neurologic condition of young working-age adults nationally. An estimated one million people lived with MS nationally, and the average age of diagnosis was 36, with slight variations for women and men. Nearly 30 percent of working-age people with MS relied on Social Security Disability Insurance. This number increases as the patient ages due to the progressive nature of MS on the individual.

As with many conditions, living with MS is expensive. According to a 2022 study published in *Neurology*, the annual average excess medical costs for a person with MS was $65,612. When broken down by category, disease-modifying therapies made up the highest percentage of the cost, which was more than half the total cost of care. Costs reached as high as $92,719, depending on variables for sex and age. Excess medical expenses are those a person must pay once insurance benefits have been exhausted.

The average indirect and non-medical costs were $18,542 and could reach about $23,000 when including caregiver costs. Non-medical costs included expenses for formal daily personal care and home modification, purchases of special motor vehicles, food or dietary supplements, increased travel costs for medical visits, and medical tourism. None of these amounts include lost earnings due to early retirement, presenteeism, and absenteeism at work, all of which tally to high indirect costs.

### Chronic conditions among those with disabilities

Between 2018 and 2022, the last year for which data was available, the following trends in chronic conditions among those living with a disability were observed:

- Diabetes was more than twice as common, on average, for those with disabilities both in Georgia and across the nation than for those without disabilities.
- Obesity was about 1.4 times more likely to be present in those with a disability than those without a disability nationally and in Georgia.
- Heart disease was nearly three times more likely to be present in those with disabilities than those without, nationally. In Georgia, that figure increased to a 3.26 higher probability.
- The percentage of adults who had had a stroke was 4.27 times higher for adults with a disability than those without a disability, nationally. That figure was 5.13 times for Georgia.

Adults with disabilities were nearly four times more likely to have ever had depression than those without disabilities. This aligns with stakeholder feedback, as interviewees and focus group members consistently ranked mental health as a crucial area for further development. They also noted that those with life-changing catastrophic injuries or diagnoses can experience particular emotional turmoil.

Though trends for the nation and Georgia for the occurrence of diabetes, obesity, and heart disease in the non-disabled population are trending downward, people with a disability continue to need resources for education, fitness, and wellness to combat the risk for these secondary health conditions.

# CHNA Approval

On October 28, 2024, the Shepherd Center Board of Directors reviewed and approved the proposed priorities. The board members who approved the priorities were:

- Andrew Alias
- Shaler Alias
- Cyndae Arrendale
- Beth Boatwright
- Sara Chapman
- Bryant Coats
- Bob Cunningham
- Chip Davidson
- Clark Dean
- John Dryman
- Larry Ellis
- Susan Hawkins
- Justin Jones
- Molly Lanier
- Doug Lindauer
- Sally Nunnally
- Talbot Nunnally
- Juli Owens
- John Rooker
- Jamie Shepherd
- Clyde Shepherd
- Boynton Smith
- Jim Stephenson
- Jim Thompson
- Dr. Michael Yochelson
- Dr. David Apple
- Alana Shepherd

# 2024 Shepherd Center CHNA

**Executive Summary**

## Overview

The 2010 Patient Protection and Affordable Care Act (ACA) requires hospitals to conduct a community health needs assessment (CHNA) and create an implementation strategy every three years. A CHNA is the activity and end-product of identifying and prioritizing the community's health needs by collecting and analyzing data, including the voices of relevant stakeholders, public health information, and internal aggregate patient data. Once data was analyzed, the CHNA Steering Committee identified the prioritized health needs on which Shepherd will focus its work over the next three fiscal years. An implementation strategy outlines the activities and programs the hospital will do to address those priorities.

## Defining our community

Because Shepherd is a long-term acute care hospital (LTACH) that functions as an acute care hospital and a rehabilitation center, its community is defined differently than that of typical acute care hospitals that use geography as its primary population. Instead, Shepherd defines its community in three ways:

- Shepherd patients and their families and caregivers
- Individuals with similar conditions, including all persons with the types of injuries and disease states Shepherd treats, regardless of whether they have received care at Shepherd.
- Residents of Georgia and metro Atlanta: While Shepherd serves a broad population, only half of Shepherd's patients come from Georgia, and nearly half of those live in the metropolitan Atlanta area.

## Methodology

For this assessment, we analyzed two sets of data:

- Primary data, which included an employee survey, a patient and community survey, 36 one-on-one interviews, and eight focus groups
- Secondary data, which used approximately 10,000 internal and external data points

## Proposed health priorities

- Expand access to appropriate and timely clinical services
- Support health and wellness for community members
- Promote engaged and thriving community living
- Strengthen financial stability for community members

# 2024 Shepherd Center CHNA

**Implementation Strategy**

Through our most recent Community Health Needs Assessment (CHNA), our community voiced the challenges they face each day that impact their health and wellness. In consideration of those named needs, Shepherd Center identified four health priorities and subsequent strategies to support our community and lay ground to bridge the gap for these inequities. The implementation strategy below outlines the activities and programs the hospital will conduct to address those priorities. We will regularly evaluate our work and will publish an annual progress report detailing what we've accomplished over the next three years.

## Priorities and Implementation Strategy

### Expand access to appropriate and timely clinical services

Access to appropriate and timely clinical services can be essential to health, wellness, independence and quality of life for all of us. For someone with a complex neurological diagnosis, access to routine care and specialty services can have an even more critical impact on their well-being. Shepherd Center is committed to expand the access to support individuals with complex neurological diagnosis, specifically through the number of patients that we can serve along the continuum of care through inpatient and outpatient services, both in person and through telemedicine; through providing education for medical providers outside of our institution; and through building a network of education and resources for the community.

| Strategy | | Metric |
|---|---|---|
| **Growth of Center** | | Bed Expansion<br>Expansion of space<br>Patients Served<br>Outpatient Capacity<br>Telehealth visits per program |
| **Pro-Bono Services** | **GA RSVP Clinic** | Description of activities/number served<br>Pro-bono hours |
| | **Community Events** | Description of activities<br>Pro-bono hours |
| **NeuroRehabilitation Learning Institute (NRLI)** | | # Enrollments<br>Growth in participants<br># Continuing education credits awarded<br>Community map of participation |
| **SHARE Alumni Program** | | Launch<br>#Participants |
| **Support for Mental Health Providers** | | # Doctoral fellows and students<br># Psych/counselors/social workers participating<br># Continuing education credits awarded |
| **Contribution to Medical Community** | | # Publications<br># Presentations |

## Support health and wellness for community members

In support of lifelong health and wellness of the community, Shepherd Center will engage with community partners to provide opportunities for community participation through in-person and virtual events, along with expanding educational resources.

| Strategy | | Metric | |
|---|---|---|---|
| **Burnalong™** | | # Enrollments<br>Offerings<br>Utilization<br>Location/state map | Expansion of topics<br># Spanish classes<br>Value (cost savings) |
| **My Shepherd Connection (MSC)** | | Engagement efforts<br>Utilization<br>Expansion of topics | |
| **Community Events (Rec T, Promotion, Sport Teams)** | | # Events<br># Participants<br>Highlights | |
| **Peer Support** | | # Events<br># Participants<br>Demographics | |
| **Partnerships - Community Agencies** | | Description of partnerships | |
| | **Career Fair** | # Participants<br>Engagement with vendors/agencies | |
| | **Global Accessibility Awareness Day Resource Fair** | # Participants<br># Vendors<br>Community satisfaction score & comments | |
| **TBI Outreach** | | | |
| | **Side by Side Injury Clubhouse Board Member** | Description of outreach/benefit | |
| | **BIAG Board Member** | Description of outreach/benefit | |
| | **Commissioner for GA Traumatic Brain and Spinal Cord Injury Trust Fund Commission** | Description of outreach/benefit | |
| **Smart Phone Apps** | **PT Pal** | #Participants<br>Compliance | |
| | **SwapMyMood** | #Participants<br>Compliance | |
| **Injury Prevention** | **Occupant Protection** | Description of efforts | |
| | **Adult Seatbelt** | #Participants/events | |
| | **Child Car Seat** | #Participants/events | |
| | **Helmet Use** | #Participants/events | |
| | **Community Outreach** | Description of efforts<br>#Participants/events<br>#Tours | |
| | **Professional Outreach** | #Presentations including target audience | |

## Promote thriving and engaged community living

The community that Shepherd Center serves requires a multitude of resources and a strong support system to sustain and enrich their quality of life through community living. Shepherd Center will support the success of its community members by providing opportunities for education and building connections with community partners to promote opportunities for access and engagement in community living.

| Strategy | Metric |
|---|---|
| **My Shepherd Connection (MSC)** | Updated resource list (national/local)<br>Description of engagement efforts<br>Utilization<br>Integration as resource on MyChart |
| **Keeping Adolescent and Young Adults Connected (KAYAC)** | Launch<br># Participants enrolled<br># Trained mentors |
| **Patient/Family Expo** | Launch<br># Participants<br># Vendors<br>Engagement with vendors/agencies |
| **Durable Medical Equipment (DME) Vendor Fair** | # Participants<br># Vendors<br>Satisfaction |

### Strengthen financial stability for community members

A successful and engaged community requires financial stability of its members. Shepherd's community is impacted by both the need for a sustainable income and the cost of services for medical care. To support sustainable income, Shepherd Center will invest in efforts to promote adaptive workforce and vocational rehabilitation to support employment efforts to enhance an individual's income.

The greater community outside those that Shepherd serves are impacted by the cost of medical services. Shepherd Center is dedicated to closing Georgia's Medicaid coverage gap and reducing the uninsured rate. Shepherd Center will support policy efforts and closely follow the Comprehensive Health Coverage Commission, tasked with examining reimbursement shortfalls, expanding access, and improving quality of care to support closing this gap. To improve public access to disability and injury prevention services, Shepherd Center will advocate for enhanced state funding of the Independent Care Waiver Program (ICWP), the Brain and Spinal Injury Trust Fund Commission, the Georgia Trauma Commission, and federal funding to support agencies such as the CDC's Injury Center and the Agency for Healthcare Research and Quality.

| Strategy | Metric |
|---|---|
| **Partnerships - Community Agencies** | Description of efforts |
| **Genuine Parts** | # Patients/community members<br>Description of efforts (networking) |
| **Home Depot** | Description of efforts |
| **Georgia Vocational Rehabilitation Agency (GVRA)** | # Clients receiving coaching |
| **Vocational Rehabilitation** | # Referrals received<br># Return to work<br># Return to school<br># Volunteer placement |
| **Advocacy Efforts** | # of Testimonials |
| **Reimbursement** | Description of efforts and outcomes |
| **Provider Networks** | Description of efforts and outcomes |
| **GA Medicaid** | Description of efforts and outcomes |
| **Voter Registration** | Description of efforts and outcomes |
| **Transition of Coverage and Support Services** | # Assisted with SSDI and SSI |
| **Equipment (In-kind, donated, etc.)** | |
| **Kelly Brush Foundation (Exercise Bikes)** | # served |
| **AbleGamers** | # served |
| **Travis Roy "Get Back in the Game"** | # served |

## CHNA Implementation Strategy Approval

On November 25, 2024, the Shepherd Center Board of Directors reviewed and approved the proposed strategies. The board members who approved the priorities were:

- Shaler Alias
- Bryant Coats
- Bob Cunningham
- Chip Davidson
- Clark Dean
- John Dryman
- Larry Ellis
- Bill Fowler
- Susan Hawkins
- Justin Jones
- Molly Lanier
- Dr. Donald Leslie
- Doug Lindauer
- Sally Nunnally
- Juli Owens
- Vincenzo Piscopo
- John Rooker
- Jamie Shepherd
- Boynton Smith
- Jim Stephenson
- Jim Thompson
- Jarrad Turner
- Dr. Michael Yochelson
- Dr. David Apple
- Alana Shepherd

# Appendices

## A. Update on progress since the last CHNA

In its 2021 CHNA, Shepherd Center identified six priorities to support people with SCI, ABI, or MS. These were, in no specific order:

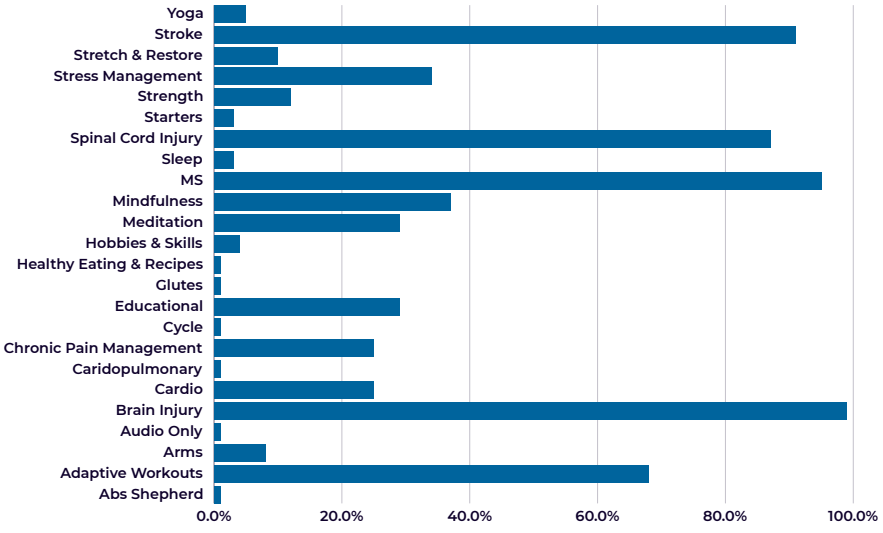
- Fitness and physical activities
- Expand access to Shepherd Center-level services
- Community-based access to specialized healthcare providers
- Financial stability and insurance coverage for individuals
- Expand access to mental health and emotional well-being services
- Expand wellness and nutritional programs

Between FY22 and FY24, Shepherd initiated the following activities to address the identified priorities. Shepherd's board-approved implementation strategy guided this work.

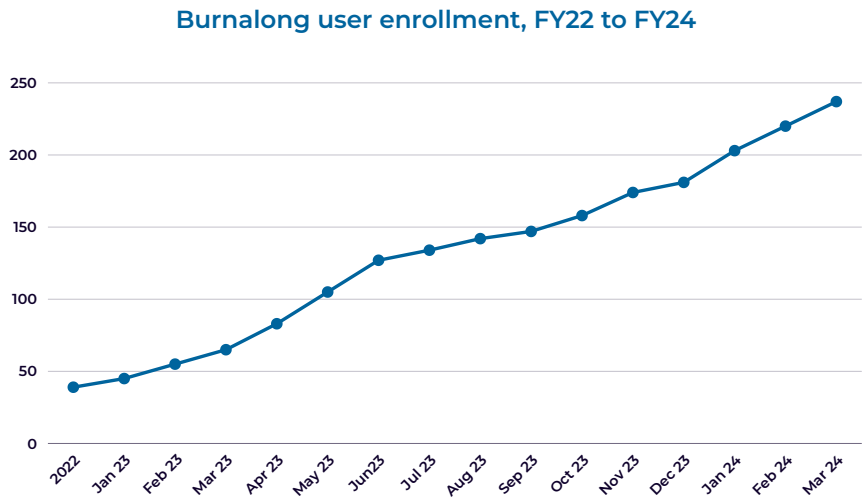
### Priority: Fitness and physical activities

Shepherd implemented several initiatives focused on fitness and physical activities to promote physical well-being. These efforts aimed to provide accessible options for individuals with varying abilities and locations. Shepherd worked with local and national partners to reach the community in diverse ways, including in-person, online, and virtual options that fit people's schedules and time zones. These partnerships included one with Burnalong. This application-based platform provides live and on-demand fitness and well-being programming. Working with Burnalong allowed Shepherd providers to offer more than 300 appropriate and safe fitness and well-being programming classes to their patients. Former patients and community members used Burnalong regularly, taking an average of 100 classes each month beginning in 2022.

**Burnalong platform utilization, by type of class, FY22 to FY24**




Source: Shepherd Center Internal Data




**Source: Shepherd Center Internal Data**

Additionally, Shepherd's Recreation Therapy Program hosted monthly virtual fitness classes. When state and public health officials lifted COVID-19 restrictions, Shepherd's adaptive sports programming returned to its average capacity, with 10 sports tracts for nearly 300 community-based athletes. Shepherd also partnered with the Atlanta Track Club, Blaze Sports, and the YMCA to create more opportunities for athletes and develop shared content.

Shepherd helped further develop two apps: SwapMyMood and Pt Pal. SwapMyMood is designed for people with TBI and uses evidence-based methods for emotion regulation and problem-solving through guided steps, video tutorials, and personalized solution storage. Shepherd also improved the Pt Pal app, which helps therapists assign home exercises, guide patients, and track progress using wearable sensors. About 70 Shepherd clinicians utilized the Pt Pal app each year.

## Priority: Expand access to Shepherd Center-level services

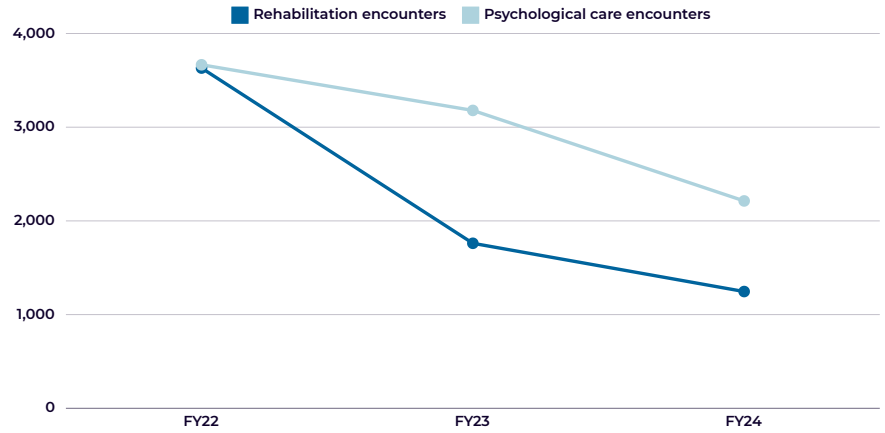
Shepherd used several approaches to increase access to its level of services. These included training healthcare professionals, volunteering in the community, and sharing knowledge with medical experts. Shepherd also translated resources into Spanish to serve the Hispanic and Latino communities better.

The NeuroRehabilitation Learning Institute (NRLI) helped medical providers improve their skills through in-person courses, webinars, and online education. Shepherd is an approved provider of continuing education through the American Nurses Credentialing Center (ANCC), the American Occupational Therapy Association (AOTA), the American Speech-Language-Hearing Association (ASHA), and the American Psychology Association (APA). Since April 2021, more than 4,500 medical providers from all 50 states and 25 countries have taken part in these learning opportunities, completing 13,000 hours of continuing education.

Shepherd staff also shared their expertise by hosting conferences on vestibular disorders and treatments for upper extremity impairments for people with tetraplegia. Shepherd's clinical staff provided more than 250 presentations at national conferences and wrote approximately 170 articles for peer-reviewed medical journals. Shepherd supported its medical staff to offer about 570 hours of pro-bono services through the Georgia RSVP Clinic and other community programs.

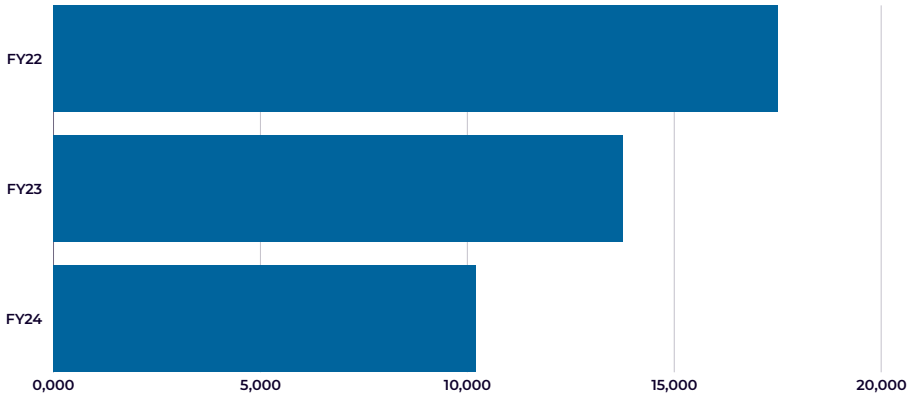
Telehealth services, including online rehabilitation and psychology sessions, decreased from FY22 to FY24, likely due to Shepherd fully reopening all outpatient services after COVID-19 restrictions were lifted. These services are still available for people with transportation or other barriers to in-person care.

### Use of Shepherd Center telehealth services, rehabilitation and psychological care services, FY22 to FY24




Source: Shepherd Center Internal Data

### Use of Shepherd Center telehealth services, all services and encounters, FY22 to FY24




Source: Shepherd Center Internal Data

### Hispanic outreach

To help Hispanic and Latino communities better access healthcare, Shepherd Center provides translation services and offers many resources in Spanish. Examples include:

- Admission packets, room signage, and consent forms for research-related programs
- A caregiver comfort rating scale
- Printed patient education on topics such as seizures, pain, fall prevention, and emergency preparedness for individuals with cognitive challenges
- 37 health and wellness videos available on the Burnalong platform

### Priority: Community-based access to specialized healthcare providers

Shepherd engaged in partnerships and educational programs to improve community access to specialized care. These initiatives aimed to extend specialized services beyond Shepherd immediate reach.

Shepherd continued working with Can Do MS, offering online programs in FY21 and FY22. Shepherd maintains its partnership with Can Do MS due to their shared mission of support for patients with MS.

In FY21, FY22, and FY23, Shepherd formed partnerships with organizations that have similar goals, including:

- Making environments more accessible for people with vision, physical, or cognitive difficulties
- Supporting research, education, and new ideas
- Training staff on adaptive gaming equipment
- Developing new medical devices
- Using wearable devices to monitor patients
- Analyzing data to improve patient care
- Using innovative technologies to help patients live better lives

To support these goals, during those three years, Shepherd established the following partnerships:

- Aetos, a leader in environmental scanning and needs assessments: Collaborated to define local environment requirements, including vision, physical, and cognitive needs to make the transition back into the community easier for people with disabilities.
- Georgia Institute of Technology, a top public research university: Implemented a formal partnership to explore collaboration in rehabilitation science and medicine to promote research, education, and innovation development.
- AbleGamers, a nonprofit organization that uses video games to improve the quality of life for people with disabilities: Partnered to help provide hands-on adaptive gaming training for staff and comprehensive evaluation, setup, and therapeutic training on adaptive gaming equipment for patients.
- MYOLYN, a leading medical technology company specializing in functional electrical stimulation (FES) therapy: Partnered to research and develop medical devices, with input from Shepherd personnel and patients, and conducted clinical investigations to assess feasibility and efficacy for diagnoses treated by Shepherd.

- Sensoria, a company that focuses on developing wearable devices and smart garments for health and fitness: Worked together to create and implement a Remote Patient Monitoring (RPM) platform, testing, validating, refining, and establishing its clinical and scientific validity and utility for remotely capturing clinical outcome measures.
- Georgia State University's Institute for Insight, a program of the Robinson College of Business that utilizes data to address complicated problems: Completed "Insight Sprints" using de-identified data sets to explore, analyze, and understand clinical business problems related to patient outcomes.
- Ekso Bionics, a pioneer in exoskeleton technology for medical and industrial applications: Partnered to document and show how exoskeleton technology could improve clinical outcomes and quality of life, aiming to contribute to people's independence, dignity, mental health, and advocacy for their inclusion in all aspects of community life.

The NRLI helped train healthcare professionals through partnerships with programs including:

- Avalon Action Alliance, a comprehensive TBI and post-traumatic stress network focused on the military members and veterans
- Georgia RSVP Clinic, a charitable clinic that provides rehabilitation and equipment for uninsured and underinsured people with brain, stroke, and spinal cord injuries.

The NRLI also supported advanced training programs for physical and occupational therapists at four university systems across 10 clinical sites, including Boston VA and Mercer University.

From FY22 through FY24, Shepherd annually helped educate approximately 115 students and recent graduates specializing in treating patients with complex neurological injuries and illnesses. These students and graduates gained experience through clinical work, fellowships, and residencies. Shepherd also hosted a full day of lectures and observations for 220 physical therapy and occupational therapy students from seven universities.

### Priority: Financial stability and insurance coverage for individuals

To address the financial challenges faced by individuals with disabilities, Shepherd supported state efforts to strengthen and expand Medicaid coverage in Georgia, which would reduce the number of people without insurance. In 2022, according to the U.S. Census, nearly 12 percent of all Georgians – about 1.24 million adults and children – had no health insurance. Half lived at or below 200% of the Federal Poverty Level (FPL). For context, in 2022, a family of four at this FPL threshold lived on a household income of $55,000 or below.

Dedicated staff members helped uninsured patients get – and keep – insurance coverage when leaving the hospital. Shepherd support also included the provision of 30-day supplies of necessary medications, a detailed care plan, and, as needed, an application for coverage reciprocity (the recognition of insurance coverage across state lines) for discharged patients living in another state. Shepherd staff also assisted patients in applying for Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI). In FY22 and FY23, about 250 patients received this aid each year, increasing to more than 300 in FY24.

Shepherd supported increased state funding for programs, including:

- The Independent Care Waiver Program (ICWP) provides in-home support services for adult Medicaid recipients in Georgia with severe physical disabilities and/or TBI.
- The Georgia Brain and Spinal Injury Trust Fund Commission, which offers grants to Georgians with a TBI or SCI to help cover the cost of their post-acute care and rehabilitation services.
- The Georgia Trauma Commission, which works to improve the health of injured community members by ensuring access to quality trauma care, coordinating key trauma system components, and educating trauma care providers.

To support patients receiving care, Shepherd staff:

- Provided financial aid to qualifying patients
- Worked with all major commercial and worker's compensation insurance companies
- Provided services to Medicare, Medicaid, and self-pay patients at discounted rates
- Regularly talked with insurance companies to improve coverage for patients with catastrophic injuries or illnesses
- Accepted special agreements for out-of-state patients while adhering to charity care requirements
- Advocated for a new federal category for catastrophic injury care to improve reimbursement levels
- Worked with insurance companies to cover new MS drugs approved by the FDA and other high-cost treatments

Knowing that severe injuries affect the whole family physically, emotionally, and financially, Shepherd worked to ensure family members could stay near the hospital to not only be a part of their loved one's treatment but also to learn how to care for their family member when it was time to go home. As a result, well-prepared family caregivers helped Shepherd achieve high rates of patients returning home and to work and a rehospitalization rate of about 10 percent, well below the average of 14 percent for all hospitals during a similar time.

Shepherd has 84 on-site housing units in the Irene and George Woodruff Family Residence Center and 35 more housing units in nearby apartments. Shepherd currently provides up to 30 days of housing to families of newly injured rehabilitation patients if both the family and patient live more than 60 miles from the hospital. The housing program also provides housing for day program patients and SHARE clients. However, as Shepherd's inpatient average length of stay stretches to more than 50 days and it is expanding clinical capacity, Shepherd recognized a pressing need for additional housing. To this end, Shepherd began construction on 165 new housing units, which was completed in fall 2024. With this expansion, housing is no longer limited to 30 days and covers the length of the patient's stay.

One of the most effective ways to reduce the costs associated with a catastrophic injury is to prevent it. To this end, Shepherd employed a full-time prevention specialist who:

- Served on the Georgia Child Passenger Safety Board
- Led the Transportation Task Team at the Injury Prevention Research Center at Emory University
- Taught the community about different types of injuries
- Taught the virtual American Trauma Society Prevention Course
- Published research
- Spoke at national and international conferences

### Priority: Expand access to mental health and emotional well-being services

To support mental health as a critical part of overall well-being, Shepherd expanded its mental health and emotional support services through efforts in both professional education and patient-focused programs. In 2021, Shepherd was approved to offer continuing education for psychologists, allowing for more training for counselors, psychologists, and neuropsychologists. From FY21 to FY24, the number of mental health providers taking online classes and webinars grew by 214 percent. During those years, Shepherd:

- Offered more than 20 courses for mental health providers
- Provided 2,500 hours of continuing education
- Provided 40 presentations at national conferences by Shepherd psychology staff
- Published 15 papers in medical journals

Through the Burnalong platform, Shepherd created live and on-demand classes to support the mental health of patients and community members with ABI, SCI, MS, and other complex neurological conditions. Nearly 58 percent of the classes people took each month were related to emotional support, including classes for meditation, stress management, and life coaching.

Shepherd also received a grant from Andee's Army, an Atlanta-based nonprofit organization that funds the recovery and rehabilitation of children who have sustained brain and spinal cord injuries. The three-year grant helped Shepherd develop adolescent and young adult peer mentoring and mental health assessment and intervention. It also supported Shepherd working with local universities and counseling centers to provide training, peer support, and the development of an outreach app.

### Priority: Expand access to wellness and nutritional programs

To help more people access wellness and nutrition programs, Shepherd added more than 300 wellness videos, including two on nutrition, for patients, families, and community members in September 2022. On average, about 100 classes were taken each month by patients and community members since those videos were available.

The Recreation Therapy Program also offered monthly online health and wellness classes to improve emotional well-being and quality of life. These courses included horticulture, arts, educational topics, e-birding, and yoga. Shepherd also started more education on nutrition to engage patients and family members during this time.

## B. About the consulting group

Public Goods Group (PGG) is a mission-driven consulting company that creates sustainable solutions that enable health systems and companies to work better with their communities. We provide services related to community assessments, health equity, and returns in advancement through programs for underserved populations. Our clients include hospitals, health systems, think tanks, governments, and private corporations. We work primarily in North America, with a focus on the South.

PGG has extensive experience in community benefits and the federal regulations that govern them, especially community health needs assessments, financial assistance policies, and programs designed to address health inequities. PGG has authored more than 50 CHNAs in various markets and has worked on numerous related projects, including creating a nationally recognized model for best practices in conducting a CHNA through a health equity lens in partnership with the national consumer advocacy group Community Catalyst.

## C. Key definitions

**Acquired brain injury (ABI):** Brain damage caused by events after birth rather than as part of a genetic or congenital disorder. It can result from traumatic injury or non-traumatic causes such as stroke, tumors, or infections.

**Case mix index (CMI):** A measure of the relative cost or complexity of the average patient treated in a hospital. A higher CMI indicates a more complex and resource-intensive patient population.

**Catastrophic care:** Intensive, often long-term, medical care required for severe injuries or illnesses that are life-threatening or cause significant, long-lasting effects on the patient's life.

**Disorders of consciousness (DoC):** A range of altered states of consciousness that can occur after severe brain injury, including coma, vegetative state, and minimally conscious state.

**Inpatient rehabilitation facility (IRF):** A hospital-level care setting that provides intensive, coordinated rehabilitation services to patients requiring high-level medical supervision and therapy, typically involving at least 3 hours of daily treatment and 24-hour nursing care.

**Long-term acute care hospital (LTACH):** A facility that specializes in treating patients with severe medical conditions requiring extended hospitalization.

**Multiple sclerosis (MS):** A potentially disabling disease of the central nervous system in which the immune system attacks the protective sheath (myelin) that covers nerve fibers.

**Non-traumatic brain injury (nTBI):** Brain damage caused by internal factors such as lack of oxygen, exposure to toxins, pressure from a tumor, or other medical conditions affecting the brain. Unlike traumatic brain injuries, these do not result from external physical force.

**Severity of illness (SOI):** A measure that quantifies the extent of a patient's medical condition, indicating the seriousness and complexity of their illness.

**Spinal cord injury (SCI):** Damage to any part of the spinal cord or nerves at the end of the spinal canal, often resulting in permanent changes in strength, sensation, and other body functions below the injury site.

**Stroke:** A medical condition in which poor blood flow to the brain results in cell death. There are two main types: ischemic (due to lack of blood flow) and hemorrhagic (due to bleeding).

**Traumatic brain injury (TBI):** A disruption in the normal function of the brain that can be caused by a bump, blow, or jolt to the head or penetrating head injury.

**Traumatic spinal cord injury:** A SCI caused by a sudden, traumatic blow to the spine that fractures, dislocates, crushes, or compresses one or more vertebrae.

## D. Shepherd leadership

### Steering committee members

Below is a list of all 2024 CHNA Steering Committee members, each serving Shepherd Center through employment or on the board of directors.

- **Laurie Baker, Ph.D.,** Director, Department of Psychology
- **Deborah Backus, Ph.D.,** Vice President, Research and Innovation, Shepherd Center
- **Marsha Hanson,** Director, Outpatient Services
- **Mariellen Jacobs,** Peer Support Liaison
- **Diane Johnston,** Director, Professional Education
- **Atul Kanvinde,** Vice President and Chief Information Officer
- **Tiffany LeCroy,** Chief Nursing Officer, Director, Comprehensive Rehabilitation Unit and Intensive Care Unit
- **Shari McDowell,** Program Director, Spinal Cord Injury Rehabilitation Program
- **Katie Metzger,** Director, Brain Injury Services
- **Vincenzo Piscopo,** President and Chief Executive Officer, United Spinal Association, and Board of Directors, Shepherd Center
- **Jamie Shepherd,** President and Chief Operations Officer
- **Jo Tapper,** Vice President, Marketing and Communications
- **Michael Yochelson, M.D.,** Chief Medical Officer

### Board members

**Officers**

- **Alana Shepherd,** Chair, Shepherd Center Founding Member
- **James D. Thompson,** Chair-Elect, Retired President, ING Life of Georgia
- **Clark H. Dean,** Chair-Elect, Executive Managing Director and Partner, Transwestern
- **Sara S. Chapman,** Corporate Secretary, Teacher, The Westminster Schools
- **Juli Owens,** Recording Secretary, Realtor, Atlanta Fine Homes Sotheby's International Realty

**Ex-Officio**

- **Jamie Shepherd,** President and Chief Executive Officer, Shepherd Center
- **Beth Boatwright,** Treasurer, Chief Financial Officer, Shepherd Center
- **Michael R. Yochelson,** MD, Chief Medical Officer, Shepherd Center

### Membership

- **Andrew Alias,** Chairman, Board of Trustees, REPAY
- **Fred V. Alias,** Chief Executive Officer, Sandcastle Resorts, Inc.
- **Shaler Alias,** President and Co-Founder, REPAY
- **David F. Apple, Jr., M.D.,** Medical Director Emeritus, Shepherd Center Founding
- **Cyndae Arrendale,** Civic Volunteer
- **Bryant G. Coats,** Chief Executive Officer and Director, Resource Housing Group, Inc.
- **Robert Cunningham,** Retired Owner, Cunningham Associates
- **Charles L. Davidson III,** Chairman and Chief Executive Officer, The Brookdale Group
- **John S. Dryman,** President, The Dryman Team
- **General Larry R. Ellis,** USA (Ret.), Chief Executive Officer, ESSE, LLC
- **William C. Fowler,** Private Investor
- **Susan Hawkins,** Civic Volunteer
- **Justin Jones,** Vice President, International at Heritage Plastics
- **Donald P. Leslie, M.D.,** Medical Director Emeritus, Shepherd Center
- **Douglas Lindauer,** Vice President, Sales and Marketing, Ted Turner Expeditions
- **Kelly Loeffler,** Community Volunteer
- **Sally D. Nunnally,** Civic Volunteer
- **Talbot Nunnally,** Shareholder, Chamberlain, Hrdlicka, White, Williams and Aughtry
- **Vincenzo Piscopo,** President and Chief Executive Officer, United Spinal Association
- **John Rooker,** Chief Executive Officer, Rooker Company
- **W. Clyde Shepherd III,** Vice President, Shepherd Construction Co.
- **K. Boynton Smith,** Senior Vice President, McGriff, Seibels and Williams
- **James E. Stephenson,** Retired Chairman, Yancey Bros. Co.
- **Jarrad Turner,** Chief Executive Officer and Co-Founder, 9P Solutions

### Emeriti Members

- **Bernie Marcus,** Chairman, The Marcus Foundation, Inc.

### Senior Executive Team at Shepherd Center

- **Sarah Batts,** Senior Vice President, Development and Volunteer Services, Executive Director, Shepherd Foundation
- **Deborah Backus,** Vice President, Research and Innovation, Director, Crawford Research Institute
- **Wilma Bunch,** Vice President, Patient Experience
- **Katherine Creek,** Chief Human Resources Officer
- **Atul Kanvinde,** Chief Information Officer
- **Stephen K. Marsh,** General Counsel/Chief Compliance Officer
- **Shari McDowell,** Chief Operations Officer
- **Joe Nowicki,** Vice President, Facilities Services

## E. One-on-one interviews

In March and April 2024, PGG conducted 36 one-on-one interviews with key stakeholders and those with unique community knowledge. These individuals were:

- **Greg Ayotte,** Director, Consumer Services, Brain Injury Association of America
- **Laurie Baker, Ph.D.,** Director, Department of Psychology, Shepherd Center
- **Deborah Backus, Ph.D.,** Vice President, Research and Innovation, Shepherd Center
- **Jacqueline Baron-Lee, Ph.D.,** Director, Quality and Outcomes Management, Shepherd Center
- **Jackie Breitenstein,** Program Manager, SHARE Military Initiative, Shepherd Center
- **Wilma Bunch,** Vice President, Patient Experience, Shepherd Center
- **Chad Caldwell,** Outpatient Clinical Manager, Shepherd Center
- **Sara Chapman,** Teacher, Westminister Schools, Board Member and Corporate Secretary, Shepherd Center
- **Jennifer Douglas,** Inpatient Manager, Spinal Cord Injury Program, Dual Diagnoses, Shepherd Center
- **Rebecca Duguid,** Program Manager, Multiple Sclerosis, Shepherd Center
- **Kelly Edens,** Manager, Recreation Therapy, Shepherd Center
- **Marsha Hanson,** Director, Outpatient Services, Shepherd Center
- **Emma Harrington,** Director, Injury Prevention and Education, Shepherd Center
- **Elizabeth Head,** Deputy Director, Injury Prevention, Georgia Department of Public Health
- **Mariellen Jacobs,** Peer Support Liaison, Shepherd Center
- **Susan Johnson,** Executive Director, Georgia RSVP Clinic
- **Diane Johnston,** Director, Professional Education, Shepherd Center
- **Jacqueline Jones,** Director, Admissions and Case Management, Shepherd Center
- **Atul Kanvinde,** Vice President and Chief Information Officer, Shepherd Center
- **Tiffany LeCroy,** Chief Nursing Officer, Director, Comprehensive Rehabilitation Unit and Intensive Care Unit, Shepherd Center
- **Ginger Martin,** Inpatient Manager, Acquired Brain Injury Program, Dual Diagnoses, Disorders of Consciousness and Stroke, Shepherd Center
- **Leslie Marshburn,** Executive Director, Strategy and Population Health, Grady Health System
- **Shari McDowell,** Program Director, Spinal Cord Injury Rehabilitation Program, Shepherd Center
- **Katie Metzger,** Director, Brain Injury Services, Shepherd Center
- **Sarah Morrison,** Chief Executive Officer, Shepherd Center
- **Michelle Myers,** Director, Clinical Operations, Shepherd Center
- **Liv Nyankori,** Program Manager, Pathways Administration, Shepherd Center
- **Laura O'Pry,** Director, Transition Support Program, Shepherd Center
- **Vicenzo Piscopo,** President and Chief Executive Officer, United Spinal Association, Board Member, Shepherd Center
- **Shannon Sale,** Chief Strategy Officer, Grady Health System
- **Jamie Shepherd,** President and Chief Operations Officer, Shepherd Center
- **Jo Tapper, Vice President,** Marketing and Communications, Shepherd Center
- **Mary Ukuku, Ph.D.,** Community Benefit Manager, Grady Health System

- **Kristine Werner,** Board Member, Multiple Sclerosis Society Georgia Chapter
- **Michael Yochelson, M.D.,** Chief Medical Officer, Shepherd Center

A list of guiding questions for the stakeholder interviews can be found here. https://shepherd.org/wp-content/uploads/2024-chna-surveys-and-focus-group-guides.pdf

## F. Focus groups

In April 2024, Shepherd and PGG hosted eight focus groups with various patient and employee groups.

- Shepherd Center Consumer Advisory Group, April 15, 2024
- Shepherd Center access case managers, April 16, 2024
- Patients living with multiple sclerosis, April 16, 2024
- Caregiverss of Shepherd Center patients with disorders of consciousness, April 17, 2024
- Shepherd Center case managers, April 18, 2024
- People receiving treatment at the Dean Stroud Spine and Pain Institute, April 22, 2024
- Shepherd Center adolescent patients and their families, April 24, 2024
- Shepherd Center Patient and Family Support group members, April 25, 2024

A list of guiding questions for the focus group interviews can be found here. https://shepherd.org/wp-content/uploads/2024-chna-surveys-and-focus-group-guides.pdf

## G. Community resources

A comprehensive list of community resources can be found here. https://shepherd.org/about/community/resources/

## H. Data sources

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## I. Surveys

In April 2024, Shepherd Center launched two surveys to gain input from its community:

- A patient and community served aimed at the community Shepherd serves
- An employee survey for Shepherd staff

The full list of questions for both surveys can be found here. https://shepherd.org/wp-content/uploads/2024-chna-surveys-and-focus-group-guides.pdf

Shepherd Center

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2024 CHNA SURVEYS AND FOCUS GROUP GUIDES