



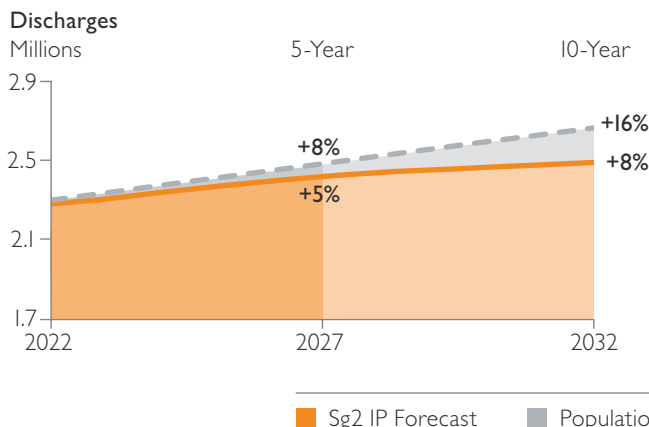
Snapshot 2022

NEUROSCIENCES

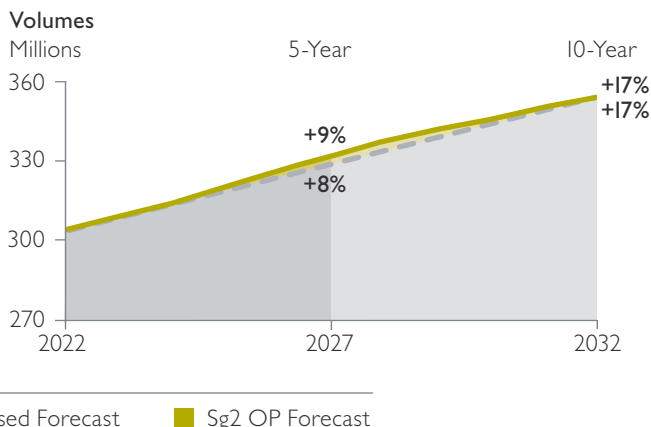
LANDSCAPE

Today's neurosciences programs face a tough balancing act: return to the growth mindset required to meet demand while navigating considerable market pressures and increased complexity fueled by COVID-19. Efforts to improve operational efficiency and manage patients in lower-acuity settings are sustaining inpatient declines for some conditions, and while some procedures continue to grow, a portion are shifting to less invasive approaches and/or at risk of shifting to outpatient as the decade goes on. High-volume post-acute and rehab services strongly influence outpatient demand, with epidemiologic trends bolstering pain- and trauma-related growth. Facing these shifts, programs that effectively balance performance and adaptability in the short term, while also making strategic bets that lay the groundwork to meet long-term demand, will be best positioned to succeed.

Inpatient Neurosciences Forecast, US Market, 2022–2032



Outpatient Neurosciences Forecast, US Market, 2022–2032



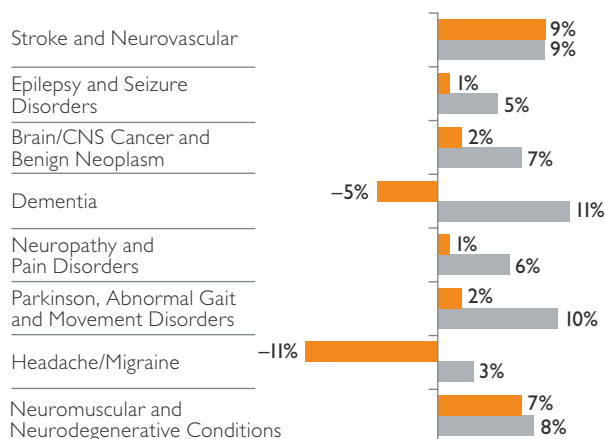
TOP TRENDS

- Acuity is rising across sites as patients' conditions become increasingly complex and advances enable more treatment to occur in lower-acuity or nontraditional settings (eg, ambulatory/home-based EEG, virtual visits).
- Workforce challenges and burnout, exacerbated by the pandemic, are further complicated by rising costs.
- Payment updates, such as CMS's additions (eg, spinal cord stimulation) to the list of HOPD procedures requiring prior authorization, are elevating the case for a comprehensive, continuum-wide approach to neurosciences care.
- Use of artificial intelligence-enabled technology has soared, with applications expanding across conditions (eg, brain tumor, aneurysm) and uses (eg, clinical trial enrollment, outcome/complication prediction).
- Diagnostic advances, such as computational and portable imaging and rapid EEG, are extending access and supporting efficient resource use across sites.
- New pharmacologic options have created opportunities in some cases and threatened traditional volumes (eg, MS infusion vs self-administered injection) in others. In neurosurgery, treatment is increasingly individualized. Interest in focused ultrasound accelerates, from expanding approved uses (eg, essential tremor and tremor-dominant Parkinson disease) to emerging investigational applications (eg, disrupting the blood-brain barrier using low-intensity focused ultrasound).
- Urgency around AD/dementia care has reached new heights with the aging population; increasingly accessible diagnostics; and the conditional approval of a high-profile, albeit controversial, therapeutic. Medicare finalized its NCD for drugs of this kind, which will limit coverage for monoclonal antibodies directed against amyloid for AD to patients enrolled in a clinical trial.

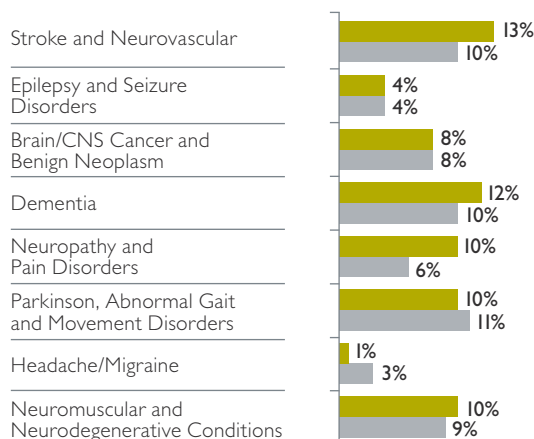
Note: Analysis excludes 0–17 age group and includes the neurosciences service line and the Brain/CNS Cancer CARE Family.
AD = Alzheimer disease; CNS = central nervous system; EEG = electroencephalogram; HOPD = hospital outpatient department; MS = multiple sclerosis; NCD = national coverage determination. **Sources:** Impact of Change®, 2022; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2019. Agency for Healthcare Research and Quality, Rockville, MD; Proprietary Sg2 All-Payer Claims Data Set, 2019; The following 2019 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2022; Sg2 Analysis, 2022.

NEUROSCIENCES SNAPSHOT 2022

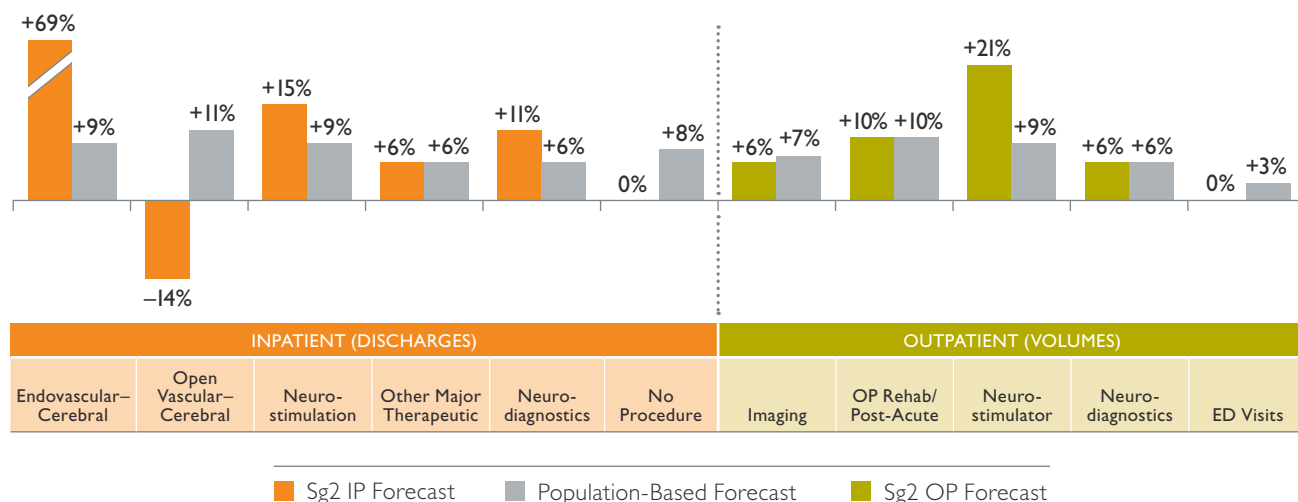
Inpatient Neurosciences Forecast for Select CARE Families US Market, 2022–2027



Outpatient Neurosciences Forecast for Select CARE Families US Market, 2022–2027



Neurosciences Forecast for Select Procedures, US Market, 2022–2027



ACTION STEPS TO DRIVE VALUE

- ▶ Evaluate market dynamics and engage clinicians to prepare for potential OP/ambulatory shifts (surgical and nonsurgical).
- ▶ Build community partnerships (eg, with wellness/fitness centers) to broaden the program funnel, better meet complex patient and caregiver needs, and address care gaps (eg, social determinants of health, risk factor modification and education for stroke prevention).
- ▶ Encourage physician-led multidisciplinary teams to develop clinical care paths, support new technology adoption and implement effective resource deployment.
- ▶ Engage staff and other stakeholders in care delivery pathways (eg, Enhanced Recovery After Surgery, interdisciplinary case review for treatment selection) to improve decision making and care continuity. Implement navigation and triage protocols to expedite evaluation and treatment and improve efficiency.
- ▶ Offer in-house technician training programs or selectively outsource to build skills in EEG, sleep and intraoperative monitoring.
- ▶ Establish mechanisms to support connectivity across post-acute sites, including patients' homes (eg, via stroke navigators, remote monitoring).

Note: Analysis excludes 0–17 age group and includes the neurosciences service line and the Brain/CNS Cancer CARE Family. Brain/CNS cancer and benign neoplasm includes Brain/CNS cancer and benign neoplasm—neuro. Stroke and neurovascular includes the Ischemic Stroke, Hemorrhagic Stroke, Transient Ischemic Attack and Neurovascular Disease CARE Families. Imaging includes all advanced and standard imaging. OP neurodiagnostics includes ambulatory EEG, neurodiagnostics and neurodiagnostics EEG. ED visits includes both urgent and emergent visits. **Sources:** Impact of Change®, 2022; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2019. Agency for Healthcare Research and Quality, Rockville, MD; Proprietary Sg2 All-Payer Claims Data Set, 2019; The following 2019 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts®, 2022; Sg2 Analysis, 2022.