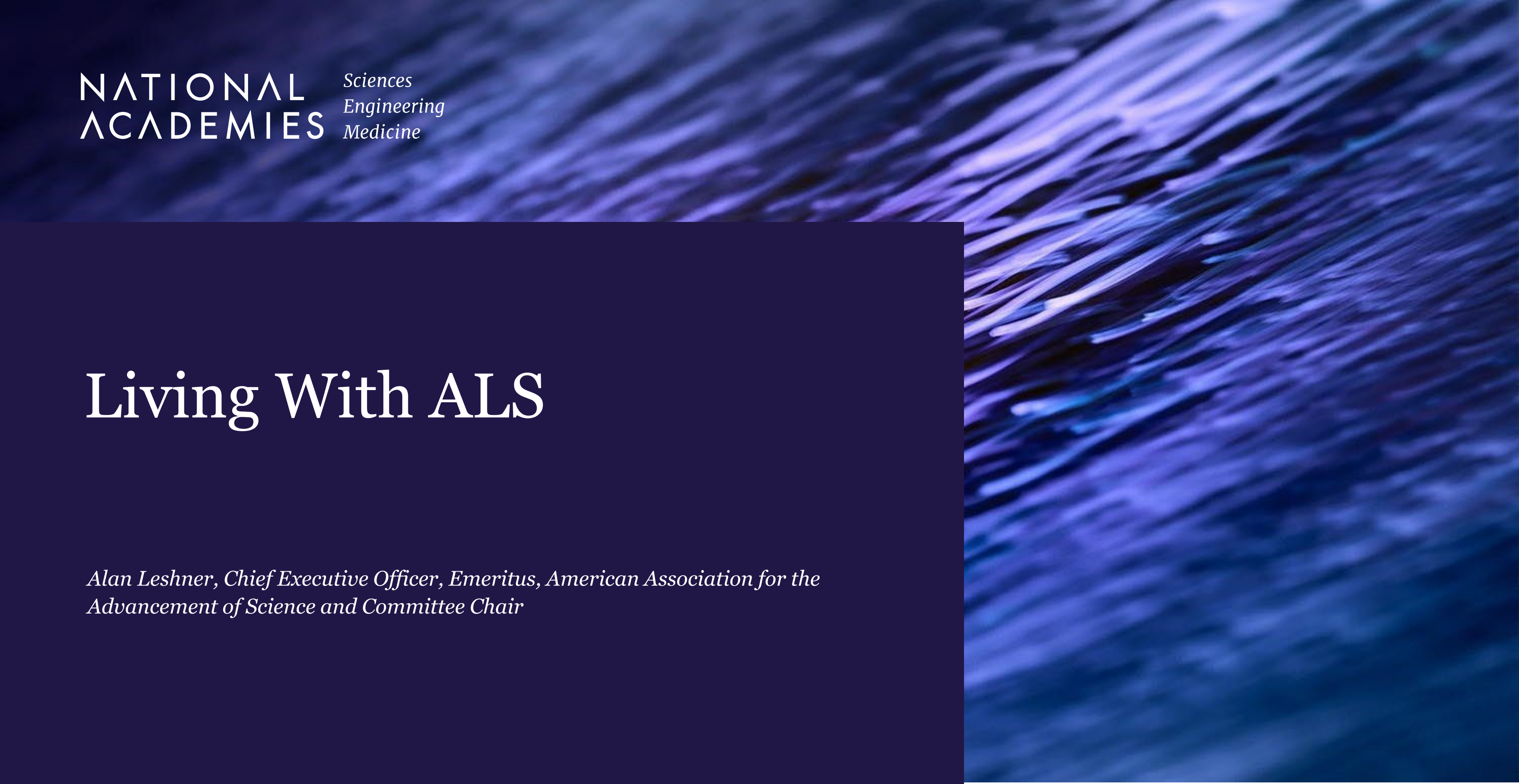

NATIONAL ACADEMIES
Sciences
Engineering
Medicine

Living With ALS

Alan Leshner, Chief Executive Officer, Emeritus, American Association for the Advancement of Science and Committee Chair

JUNE 14, 2024

Statement of Task

Conduct a study to identify and recommend key actions for the public, private, and nonprofit sectors to make amyotrophic lateral sclerosis (ALS) a livable disease within a decade.

- Pathways for developing more effective and meaningful treatments and a cure;
- Interventions to reduce and prevent the progression and complications of ALS;
- Challenges and obstacles for public, private, and nonprofit sectors to overcome to make ALS a livable disease within a decade;
- The type and range of care and services people with ALS and their families need and how to ensure they receive comprehensive, quality care;
- What care, services, and preventive measures people at-risk of ALS need; and
- How to improve the quality of life, health, and well-being of affected individuals and families

Committee on Amyotrophic Lateral Sclerosis: Accelerating Treatments and Improving Quality of Life

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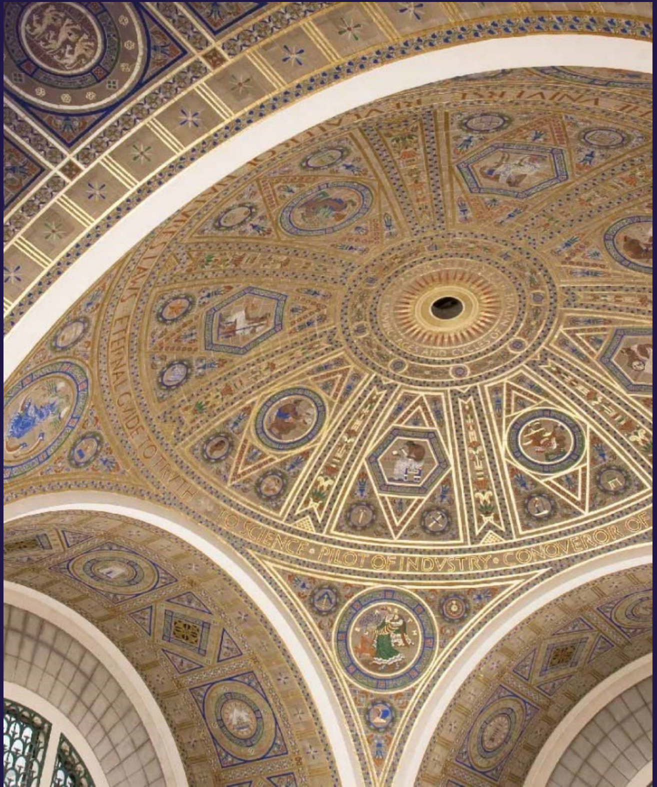
COMMITTEE ON AMYOTROPHIC LATERAL SCLEROSIS: ACCELERATING TREATMENTS AND IMPROVING QUALITY OF LIFE

Study Approach



Study Process

- 6 multi-day closed session committee meetings from March 2023 to February 2024
- 3 virtual workshops
  - Access
  - Lived experience
  - Research
- Several ad-hoc meetings and smaller working group meetings
- Lived experience consultants reviewed select report excerpts

Amyotrophic Lateral Sclerosis (ALS)

- Progressive, fatal neurodegenerative disease
- ~30k people with ALS in the United States
- Motor neuron death → muscle wasting
  - Loss of mobility and motor function
  - Difficulty breathing, eating, etc.
  - Secondary symptoms: pain, fatigue, insomnia, mental/behavioral conditions
- Most people with ALS die within 3-5 years due to respiratory failure
- Heterogeneity in clinical presentation
  - Starts/develops in different body parts
  - Progresses at different rates – can speed up, slow down, or plateau

Defining Livability

“ALS is livable when an individual diagnosed with ALS or at genetic risk of developing ALS can survive, thrive, and live a long, meaningful life while meeting the medical, psychosocial, and economic challenges of the disease.”

- Two primary dimensions:
  1. Increasing the effectiveness of treatment and symptom management, with the goal of ultimately finding a cure
  2. Increasing the quality of life experienced by people with ALS.

Challenges to Developing More Effective Treatments

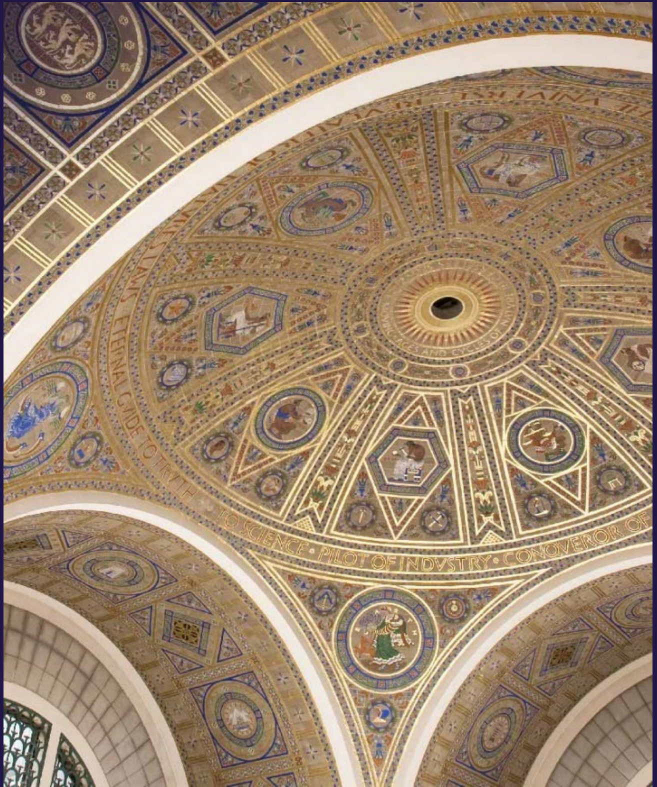
- Low enrollment in research
- Insufficient knowledge about key biological aspects of ALS
  - Heterogeneity
  - Natural history and development
  - Biomarkers
  - Risk and protective factors
- Siloed data and isolated research initiatives

Challenges to Improving Quality of Life

- Insufficient access to multidisciplinary care
- Diagnostic delay
- Overlooked and untreated symptoms
- Insurance barriers and high out-of-pocket costs
- Insufficient caregiver supports

COMMITTEE ON AMYOTROPHIC LATERAL SCLEROSIS: ACCELERATING TREATMENTS AND IMPROVING QUALITY OF LIFE

Making ALS Livable in the Near Term



Financial Challenges

- High out-of-pocket costs
  - ALS care can cost tens of thousands of dollars per year
  - Medications can cost $150k+ per year
  - DME, assistive tech, home modifications are also expensive
- Lost wages
- Travel to care and clinical trials
- Insurance barriers
  - Ineligibility for Medicare based on work history
  - Prior authorization
  - Coverage denials, especially based on “fail first” rules or functional improvement
  - Insufficient or wrongly-denied coverage for services, such as home health

Recommendation 3-1

Facilitate expedited access to and coverage of essential ALS medical and support services.

CMS and private insurers should act quickly to enable expedited access to the following essential ALS medical and support services:

- Home-based and outpatient support services, even when delivered concomitantly
- Responses to prior authorization requests within 72 hours
- Services for people with ALS without requiring functional improvement

Recommendation 3-2

Enable all persons with ALS to access and make full use of ALS care.

Congress should act quickly to enable all persons with ALS to access timely, specialty ALS care by doing the following:

- Allow eligibility for Medicare for people with ALS, regardless of age, employment history, or other Medicare/SSDI criteria
- Require reimbursement of multidisciplinary care using a bundled payment model

Recommendation 3-3

Provide centralized resources for people with ALS to receive support for needs not otherwise accessible or covered by insurance.

ALS nonprofits should collaborate to centralize resources guiding people with ALS to financial support for:

- Mental health services
- Home modification
- Durable medical equipment
- Assistive technologies
- Transportation

Caregiver Challenges

- *Caregivers* support people living with ALS in navigating the ALS care system and in day-to-day life
- Challenges include:
  - Long hours
  - Psychological distress, burnout, depression, etc.
  - Lack of resources for navigating insurance, care plans, DME
  - No respite care

Recommendation 3-4

Address the needs of unpaid caregivers.

Congress, CMS, private insurers, and ALS organizations should address the needs of unpaid caregivers:

- Financial support for caregivers
    - Tax credits
    - HSA/FSA funds
- Home health aides
- New payment/delivery models
    - Caregiver stipends
    - Mental health counseling via telehealth
    - Respite care coverage

Respiratory Care

- Most deaths from ALS result from respiratory failure
- Non-invasive ventilation:
  - Prolongs survival
  - Improves quality of life
  - Is the standard of care for ALS
- Current Medicare requirement: 50% lung function reduction for home ventilation
- Private plans often deny coverage for respiratory devices

Recommendation 3-5

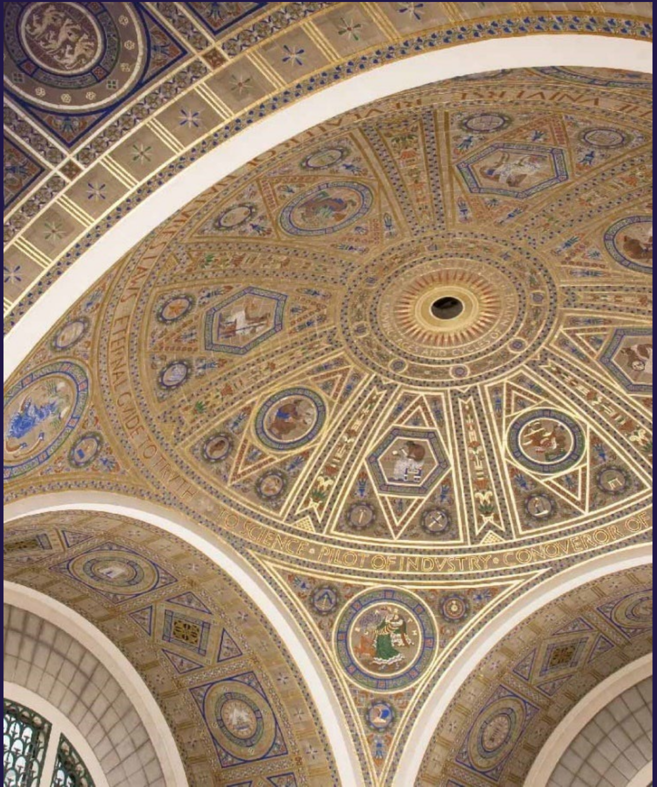
Enable access to respiratory devices and services for people with ALS.

CMS and private insurers should immediately align coverage of respiratory devices and services for persons with ALS with the current standard of care.

- Early initiation of non-invasive ventilation without “fail first” or a requirement to show clinical improvement
- Coverage for respiratory therapists to provide in-home care

COMMITTEE ON AMYOTROPHIC
LATERAL SCLEROSIS: ACCELERATING
TREATMENTS AND IMPROVING
QUALITY OF LIFE

Creating a Sustainable and Accessible ALS Clinical Care and Research System



Multidisciplinary Care

- MDC: “One stop shop” enabling people living with ALS to meet with multiple specialists
  - Confirms diagnoses
  - Initiates and monitors therapies, medications, and devices
  - Manages symptoms
- MDC increases survival, improves quality of life, and reduces costs
- ALSA estimate: only 40% of people with ALS visit an ALSA-certified MDC center
  - Insufficient geographic coverage + long travel distance
  - Cost
  - Health inequities
- Research is poorly integrated into care
  - Many clinics do not offer access to trials or expanded access
- Less than 50% of MDC costs are covered for most clinics

Recommendation 4-1

Build an inclusive and integrated ALS multidisciplinary care and research system.

CMS, NINDS, multidisciplinary care clinic system leaders (VA, ALSA, MDA), and community-based providers should build an inclusive and integrated multidisciplinary care and research system for people living with ALS.

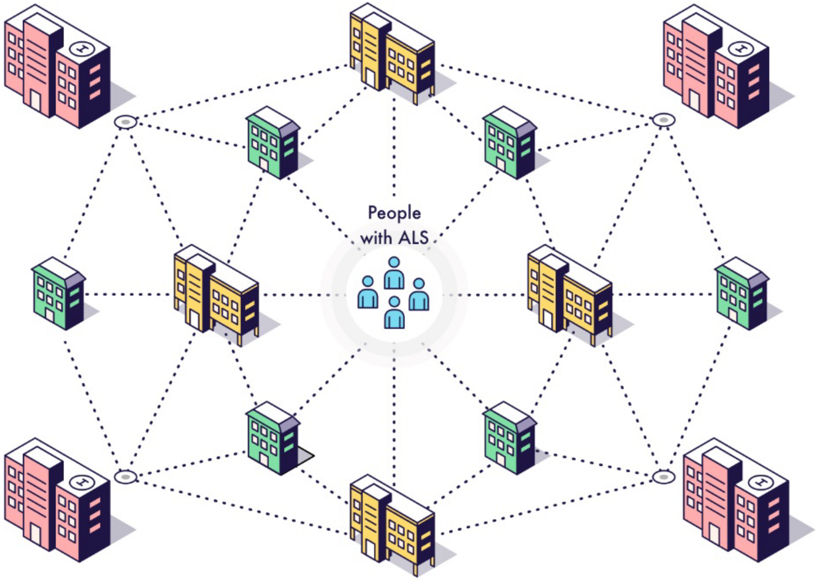
BUILDING THE IDEAL ALS CARE AND RESEARCH SYSTEM

An integrated and coordinated system of care and research that reaches all people with ALS

● **Community-Based ALS Centers**
Manage routine care and provide access to research.

● **Regional ALS Centers**
Provide comprehensive specialty care, offer diagnostic support services, manage routine care, and provide access to research.

● **Comprehensive ALS Care and Research Centers**
Provide complex specialty care and diagnosis, offer telehealth consults, train clinicians, lead community outreach, manage routine care, and provide access to research.



Recommendation 4-2

To improve racial and ethnic equity in the ALS care and research system, ALS multidisciplinary clinics should partner with community members and community-serving organizations to pursue targeted approaches to understanding and improving racial and ethnic equity in ALS care and outcomes in their geographic area.

These efforts should include:

- Community-focused steering or advisory committees
- Collecting data on equity
- Antiracism/implicit bias training

Recommendation 4-3

Align reimbursement to achieve the goals of the ALS clinical care and research system.

CMS, private insurers, NIH, and the NINDS should align reimbursement policies with the goals of the new, inclusive and integrated ALS clinical care and research system.

- ALS-specific reimbursement mechanisms, such as those for end-stage renal disease and cancer
- Incentivize new clinics to enter the system
    - Multidisciplinary centers for other neurological disorders
    - Integrated care networks – multi-provider "pods"
    - Private practices and community neurologists
- Value-based payment?

Recommendation 4-4

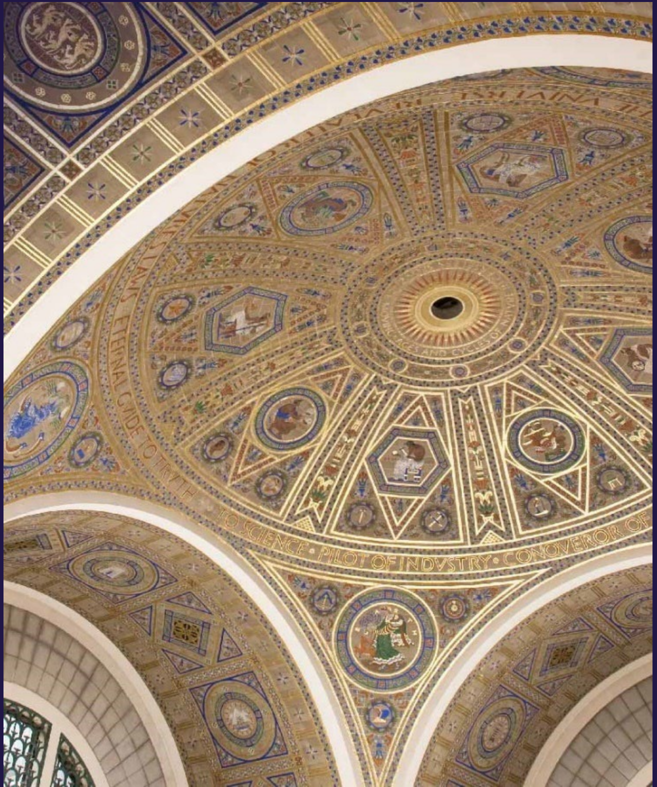
Enhance access to ALS clinical care and research and education opportunities within the Department of Veterans Affairs (VA).

Congress should allocate specific funding to create a VA network for ALS clinical care, research, education, and innovation to align with the new system of care outlined in this report.

- Expand VA ALS workforce
- Improve access to VA ALS care
- Allow access to research, such as clinical trials
- Provide resources to integrate data with the National ALS Registry

COMMITTEE ON AMYOTROPHIC LATERAL SCLEROSIS: ACCELERATING TREATMENTS AND IMPROVING QUALITY OF LIFE

Advancing ALS Research and Accelerating Therapeutic Development



The State of ALS Therapeutic Development

- Too few successful drugs
- Many collaborative research efforts (NEALS, NeuroNext, ACT for ALS efforts, etc.)
  - But fragmentation and data siloing slow progress
- Low enrollment in research
  - Too few accessible care centers administering clinical trials
  - Strict eligibility criteria
  - Diagnostic delay
- Insufficient knowledge about key biological aspects of ALS
  - Heterogeneity
  - Natural history and development
  - Biomarkers
  - Risk and protective factors
- Study goal: Accelerate current efforts and recommend new directions

Recommendation 5-1

Create an ALS clinical trials network.

The National Institute of Neurological Disorders and Stroke should ensure the existence of a dedicated ALS clinical trials network distributed across diverse geographic regions in the United States, coordinated and funded by NIH.

- Build on and integrate already-existing models with NINDS oversight, training, and data sharing
- Expand access beyond large academic medical centers
- Integrate with the hub-and-spoke care and research network in Rec. 4-1

Recommendation 5-2

Expand ALS translational research.

The ALS-focused public–private partnerships created under the Accelerating Access for Critical Therapies for ALS Act should consider additional translational research priorities that would accelerate therapeutic developments in ALS.

- Disease staging
- A comprehensive, ongoing natural history study across diverse patient populations
- Biomarker development
- New therapeutic targets from a better understanding of sporadic ALS
- Plateaus in ALS progression
- Novel drug delivery methods and ALS patient-friendly formulations
- Trade-offs between earlier access and safer, more effective drug development
- Improvement in the expanded access pathway

Recommendation 5-4

Fund neglected areas of research that would yield near-term gains in quality of life for people with ALS.

NIH, NINDS, AHRQ, and other research funders should prioritize research to learn what works best in ALS care and what improves quality of life for people with ALS.

- Health services research
- Nonpharmacologic interventions (physical therapy, speech and language therapy, etc)
- Social and behavioral research
- Risk and protective factors
- Development of ALS following trauma
- Clinical outcome measures for function, survival, and quality of life
- Emerging technologies focused on at-home needs
- Diagnostic AI

Building on the National ALS Registry

- CDC currently counts people with ALS in the US
  - CDC also distributes optional surveys reporting clinical characteristics and risk factor exposure
- Inadequate data
  - Incomplete/undercounted
  - Low completion of surveys for key population health metrics
  - Non-representative
  - Not reported in a timely manner
- Strong patient registries can report on population-level statistics
  - Helps answer: Are we making ALS a more livable disease?
- Other data sources can be integrated

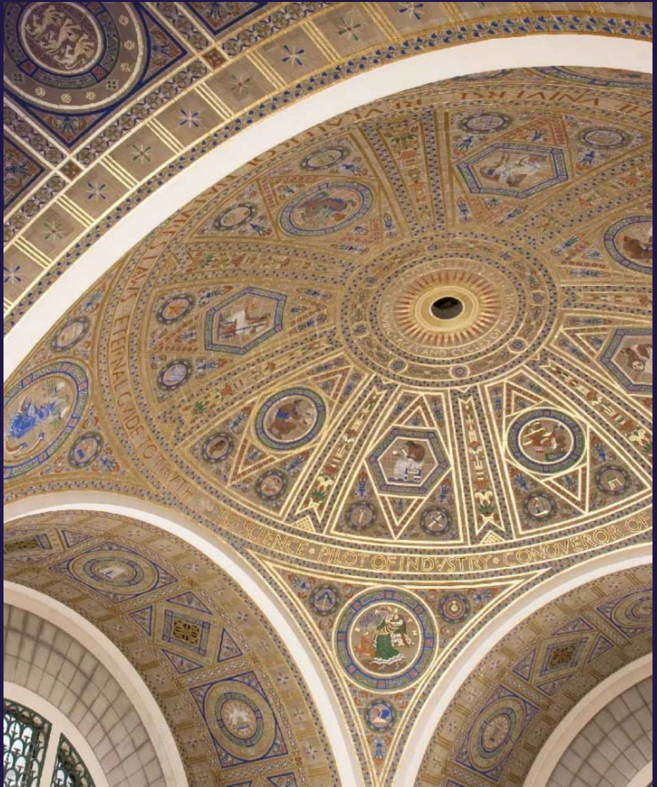
Recommendation 5-3

Build a comprehensive ALS registry as part of a larger ALS data platform.

CDC and NINDS should integrate new and current data sources with the CDC's National ALS Registry to create a comprehensive, interoperable data platform.

- Cases of ALS should be reported at the national and state level
- Enrollment in registry should be routine part of ALS care
- Common data standards:
- Interoperability:
    - State ALS registries
    - Biorepositories
    - Other ALS research initiatives

Preventing ALS



ALS Risk Factors

- Genetic factors
  - Several known gene mutations (C9orf72, SOD1, etc.)
  - But genetic testing/counseling are rare and expensive
- Non-genetic factors
  - Environmental exposures: Metals, pesticides, air pollution, etc.
  - Occupational exposures: Military, agriculture, mechanics, etc.
  - Need more research

Recommendation 6-1

Increase access to genetic testing and counseling for people with ALS and their families.

CMS and private insurers should pay for genetic testing and counseling for all people living with ALS and their families.

- Genetic discrimination concerns
  - Life insurance
  - Long-term care insurance
  - Disability insurance
  - Can all be prohibited by state legislatures
- Expert guidelines call for universal genetic testing/counseling for people with ALS
  - Similar guidelines have been recommended by federal advisory boards for other diseases

Recommendation 6-2

Increase research focused on populations at risk of developing ALS.

Research funders should partner with drug developers and the ALS community to advance research focused on populations at risk of developing ALS, including at-risk genetic carriers.

- Large-scale, prospective natural history studies
- Interventions for preventing ALS

Next Steps

- Report PDF and additional resources publicly available now:

https://www.nationalacademies.org/Living-with-ALS

  - 4 one-pagers: caregivers; genetic carriers; people with ALS; veterans
  - 1 action guide for researchers and research funders
  - 3 policy briefs: Congress, CMS, NIH
  - Report “Highlights”

- Committee presentation to ALSA’s ALS Nexus conference (July 17)