

## Amyotrophic Lateral Sclerosis (ALS) CDE Highlight Summary

### NIH Resources

The NINDS also strongly encourages researchers to use these NIH developed materials for NINDS-sponsored research, when appropriate. Utilization of these resources will enable greater consistency for NINDS-sponsored research studies. These tools are free of charge.

- National Institutes of Health (NIH) Toolbox
- Quality of Life in Neurological Disorders (Neuro-QOL)
- Patient-Reported Outcomes Measurement Information System (PROMIS)

### Suicidal Ideation

Investigators should review the FDA's "[Guidance for Industry: Suicidal Ideation and Behavior: Prospective Assessment of Occurrence in Clinical Trials](#)" for the most up-to-date information about suicidal ideation and behavior. One scale that FDA suggests is the Columbia Suicide Severity Rating Scale (C-SSRS) (available at [Columbia Suicide Severity Rating Scale Website](#)).

Disease; Domain	Recommendations and List of Forms
ALS	<p><b>These instruments and elements are recommended for use in all Amyotrophic Lateral Sclerosis Studies:</b></p> <p><b>Core:</b></p> <ol style="list-style-type: none"> <li>1. <a href="#">Amyotrophic Lateral Sclerosis Functional Rating Scale-Revised (ALSRFS-R)</a></li> <li>2. <a href="#">Manual Muscle Testing</a> or Quantitative Dynamometry (<a href="#">Hand Held Dynamometry</a> and <a href="#">Fixed Dynamometry</a> are available on the website)</li> </ol> <p><b>Supplemental – Highly Recommended instruments:</b></p> <ol style="list-style-type: none"> <li>3. *One of the following three Supplemental - Highly Recommended cognitive/behavioral screening tools should be used based on study requirements: <ul style="list-style-type: none"> <li>○ <a href="#">Abrahams Written Verbal Fluency</a></li> <li>○ <a href="#">ALS Cognitive Behavioral Screen (ALS-CBS)</a></li> <li>○ <a href="#">Edinburgh Cognitive and Behavioral Scale</a></li> </ul> </li> </ol> <p><b>CRF Modules Containing Core CDEs:</b></p> <p>Demographics; Social Status; Family History; Medical History; Genetics; Symptom, Sign, Diagnosis Criteria; Vital Signs; Physical Examination; Pulmonary Function; Myocardial Oxygen Consumption, Gas Exchange and Nocturnal Oximetry</p> <p><b>Core Elements:</b> See Start-Up Resource Listing document (<a href="#">ALS Start-Up Resource Listing</a>)</p>

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Disease; Domain	Recommendations and List of Forms
<b>Participant/Subject Characteristics; Demographics:</b>	<b>Core:</b> Demographics* <b>Supplemental:</b> Demographics*
<b>Participant/Subject Characteristics; Social Status:</b>	<b>Core:</b> Social Status* <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Social Status* <b>Exploratory:</b> N/A
<b>Participant/Subject History and Family History; General Health History:</b>	<b>Core:</b> Family History*, Medical History* <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Family History*, Medical History* <b>Exploratory:</b> N/A
<b>Disease/Injury Related Events; Classification</b>	<b>Core:</b> Genetics*, Symptom, Sign, Diagnosis Criteria* <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Genetics*, Symptom, Sign, Diagnosis Criteria* <b>Exploratory:</b> N/A
<b>Assessments and Examinations; Physical/Neurological Examination:</b>	<b>Core:</b> Physical Examination* <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Neuromuscular Examination, Physical Examination* <b>Exploratory:</b> N/A
<b>Assessments and Examinations; Vital Signs and Other Body Measures:</b>	<b>Core:</b> Vital Signs* <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Vital Signs* <b>Exploratory:</b> N/A
<b>Assessments and Examinations; Laboratory Tests and Biospecimens/ Biomarkers:</b>	<b>Core:</b> N/A <b>Supplemental – Highly Recommended:</b> N/A <b>Supplemental:</b> Biomarkers Other Collection Information Guidelines, Collection of Fluid: Blood Guidelines, Collection of Fluid: CSF Guidelines, Collection of Fluid: Plasma Guidelines, Collection of Fluid: Urine Guidelines, Fasting Information, Laboratory Tests, <b>Exploratory:</b> Fasting Information, Resting Energy Expenditure, Tissue Based Marker Collection, Tissue Based Marker Collection

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<b>Assessments and Examinations; Imaging Diagnostics:</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Brain Perfusion Magnetic Resonance Imaging, Diffusion Tensor Imaging (DTI), Functional Magnetic Resonance Imaging (fMRI), Magnetic Resonance Imaging (MRI), Magnetic Resonance Spectroscopy</p> <p><b>Exploratory:</b> Brain Perfusion Magnetic Resonance Imaging, Diffusion Tensor Imaging (DTI), Functional Magnetic Resonance Imaging (fMRI), Magnetic Resonance Imaging (MRI), Magnetic Resonance Spectroscopy</p>
<b>Assessments and Examinations; Non-Imaging Diagnostics:</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Electrophysiology</p> <p><b>Exploratory:</b> N/A</p>
<b>Treatment/Intervention Data; Drugs:</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Prior and Concomitant Medications</p> <p><b>Exploratory:</b> N/A</p>

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<p><b>Outcomes and End Points; Cognitive:</b></p>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> Abrahams Written Verbal Fluency*, Edinburgh Cognitive and Behavioral Scale*, ALS Cognitive Behavioral Screen (ALS-CBS)*.</p> <p>*One of the following three Supplemental – Highly Recommended cognitive/behavioral screening tools should be used based on study requirements.</p> <p><b>Supplemental:</b> ALS Depression Inventory (ADI-12), ALS-Frontotemporal Dementia Questionnaire (ALS-FTD-Q), Beck Depression Inventory II, Cambridge Behavioral Inventory- Revised, Center for Neurologic Study-Lability Scale for pseudobulbar affect (PBA), Emotional Lability Questionnaire: Persons with MND (ELQ-MND), Emotional Lability Questionnaire: Relatives and Carers (ELQ-R and C), Frontal Behavior Inventory (FBI), Frontal Behavioral Inventory-ALS Version (FBI-ALS), Frontal Behavioral Inventory-Modified by Heidler Gray, Frontal Systems Behavior Scale, Hospital Anxiety and Depression Scale, Motor Neuron Disease Behavioral Instrument (MiND-B), Neuropsychiatric Inventory – Questionnaire (NPI-Q), Penn State Screen of Frontal and Temporal Dysfunction Syndromes, and UCSF Screening Exam.</p> <p><b>Exploratory:</b> Geriatric Depression Scale (GDS), Hamilton Depression Rating Scale (HDRS), and Neuropsychiatric Inventory – Clinician Version</p>
<p><b>Outcomes and End Points; Functional Status:</b></p>	<p><b>Core:</b> ALS Functional Rating Scale – Revised (ALSFRS-R)</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> 6 Minute Walk Test, ALS Swallowing Severity Score – (ALSSS), Barthel Index, Center for Neurologic Study-Bulbar Function Scale (CNS-BFS), Clinical Milestones/Events, Death Report, Dynamic Gait Index, Edmonton Symptom Assessment System (ESAS), EuroQoL-5 Dimension Questionnaire, Modified Fatigue Impact Scale (MFIS), Performance-Oriented Mobility Assessment (POMA), Schwab and England Activities of Daily Living Scale (ADL-Scale), Sensory Organization Test (SOT), Timed 25-Foot Walk (T25FW), Timed Up and Go</p> <p><b>Exploratory:</b> Checklist for Individual Strength – Fatigue (CIS), Clinical Milestones/Events, Fatigue Severity Scale (FSS), Madrid Quantitative Neuromuscular Assessment (MAQUINA), and Modified Fatigue Impact Scale (MFIS)</p>

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Disease; Domain	Recommendations and List of Forms
<b>Outcomes and End Points; Summary of Outcome Recommendations</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> ALS CDE Instrument Recommendations by Outcome Domain and Classification, ALS Outcomes Recommendations Guidelines for Use</p> <p><b>Exploratory:</b> N/A</p>
<b>Outcomes and End Points; Muscle Strength Testing:</b>	<p><b>Core:</b> Manual Muscle Testing – Using the Medical Research Council Muscle Grading Scale</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Pinch Strength, Fixed Dynamometry, Grip Strength Fatigue, Hand Held Dynamometry</p> <p><b>Exploratory:</b> Grip Strength</p>
<b>Outcomes and End Points; Pulmonary Function Testing / Respiratory Status:</b>	<p><b>Core:</b> Myocardial Oxygen Consumption, Gas Exchange and Nocturnal Oximetry*, Pulmonary Function*</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Borg Dyspnea Scale, Myocardial Oxygen Consumption, Gas Exchange and Nocturnal Oximetry*, Pulmonary Function*</p> <p><b>Exploratory:</b> Baseline Dyspnea, Myocardial Oxygen Consumption, Gas Exchange and Nocturnal Oximetry*, and Transition Dyspnea Index</p>
<b>Outcomes and End Points; Quality of Life:</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental,</b> Amyotrophic Lateral Sclerosis Assessment Questionnaire (ALS-AQ40), EuroQoL-VAS, McGill Quality of Life Questionnaire (MQOL), Quality of Life in Neurological Disorders (Neuro-QOL, Quality of Life in Swallowing Disorders (SWAL-QOL), Short Form 36-Item Health Survey (SF-36)</p> <p><b>Exploratory:</b> Schedule for the Evaluation of Individual Quality of Life – Direct Weighting (SEIQoL-DW) and Sickness Impact Profile)</p>
<b>Outcomes and End Points; Subjective Assessments / Patient and Caregiver Reported Outcomes</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Zarit Caregiver Burden Scale</p> <p><b>Exploratory:</b> Caregiver Burden Scale (CGBS), Clinical Global Impression Scale,</p>

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<b>Outcomes and End Points; Upper Motor Neuron Signs / Neuromuscular Excitability</b>	<p><b>Core:</b> N/A</p> <p><b>Supplemental – Highly Recommended:</b> N/A</p> <p><b>Supplemental:</b> Modified Ashworth Scale for Grading Spasticity, NINDS Myotatic Reflex Scale, Tardieu Scale</p> <p><b>Exploratory:</b> N/A</p>

\*Include one or more data elements that are Core or Supplemental – Highly Recommended