



# THE STATE OF CNS CLINICIAN READINESS

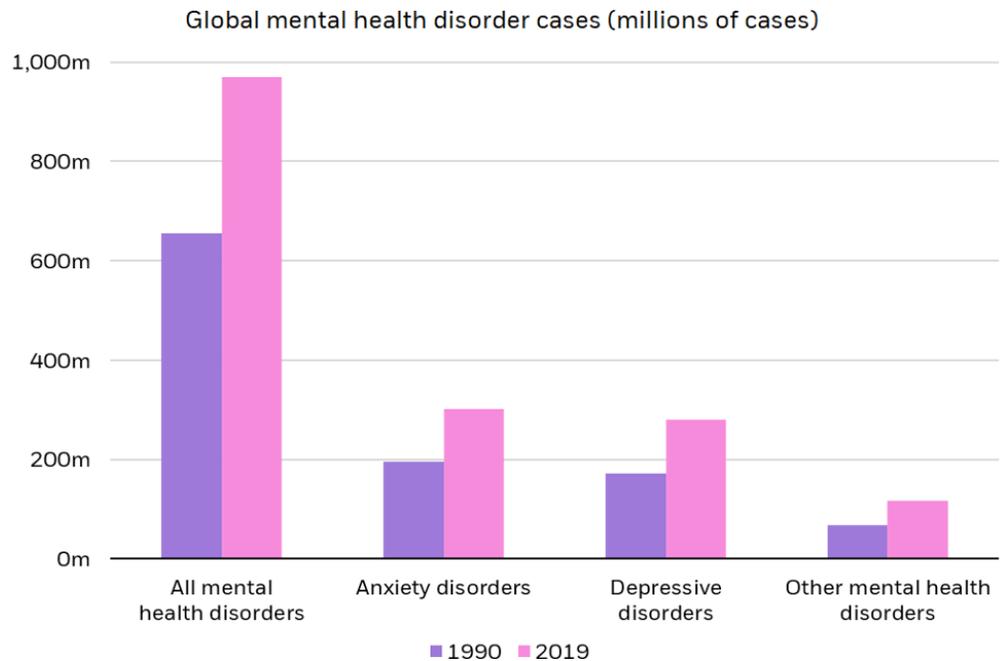
Understanding The Educational Needs &  
Challenging Reality of Modern CNS Trials

November 2022

## INTRODUCTION

Neurological disorders are currently the leading cause of disability and the second leading cause of death in the world.

According to the most recent Global Burden of Disease Study, one in three people in the world suffers from a neurological disorder. In the United States and Europe alone, the annual cost of neurological disorders amounts to **\$1.7 trillion**, which is almost two times the estimated global cost of cardiovascular disease.



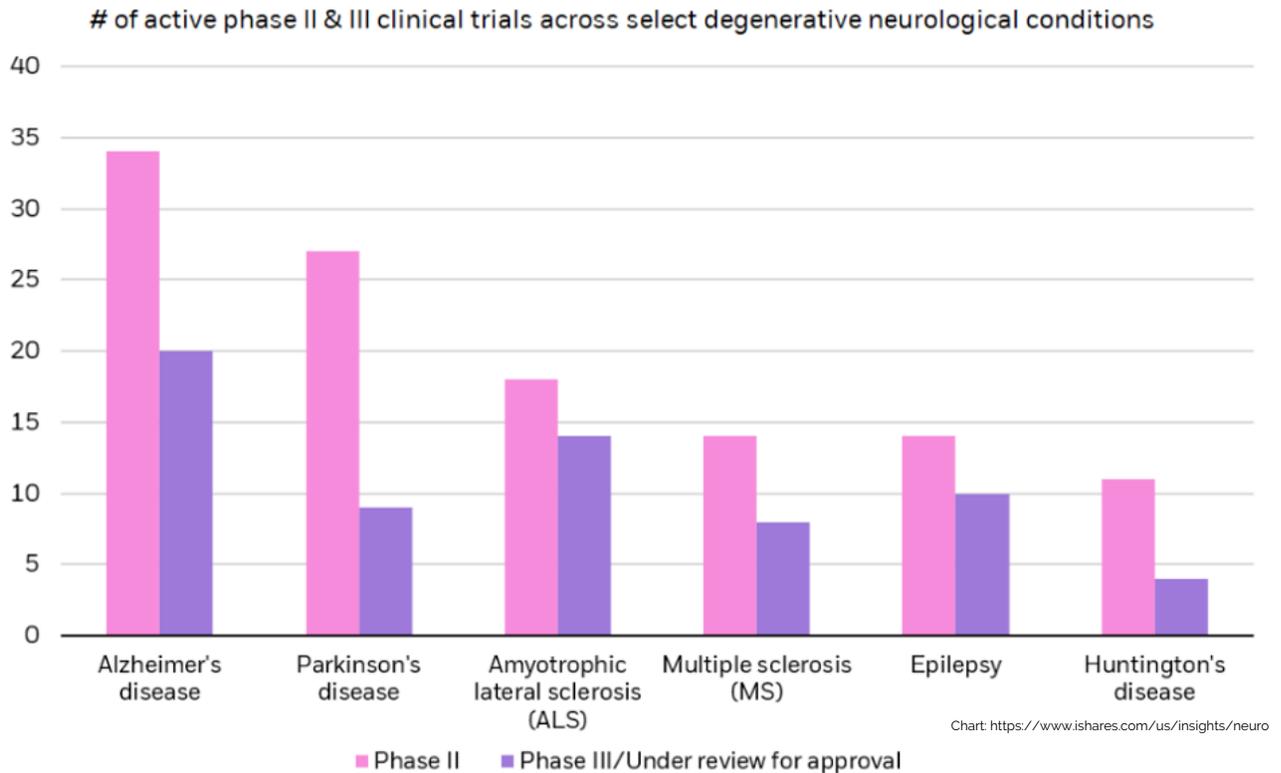
Source: <https://www.ishares.com/us/insights/neuro>

The massive burden caused by neurological disorders, primarily in the central nervous system (CNS), is likely to increase significantly due to the aging and growth of the global population.

Thankfully, a new wave of innovative treatments and therapies are closer to enabling our ability to treat, and possibly cure, many neurological and CNS-related disorders. Recent developments in genomics and immunology, coupled with new diagnostics and surgeries, are unlocking profound advances in neuroscience. Global sales of CNS therapeutics totaled over **\$116 billion in 2020** and are on pace to reach **\$205.7 billion by 2028**.

According to Evaluate Pharma, the annual R&D spend in CNS will top **\$32 billion in 2026**, generating more than **4,000 clinical trials** across conditions, including ADHD, Alzheimer's, Epilepsy, Major Depressive Disorder, Migraine, Multiple Sclerosis, Parkinson's, PTSD, and Schizophrenia among others.

## Later stage pipelines offer hope for millions



While the increased investment is welcome news, the discovery and development of drugs for a variety of CNS indications has yielded **one of the lowest success rates of any therapeutic area.**

According to the analysis by Tufts Center for the Study of Drug Development in 2018, CNS drug development is **20% more time-consuming** and takes **38% longer** to get approved than non-CNS drugs.

Many of the challenges involved in screening and enrolling patients and conducting more complex CNS studies cannot be solved solely by technological advancements, rather they are rooted in underlying process inefficiencies, performance challenges, and training gaps. These issues are magnified as the clinical research industry confronts the compounding issues of staffing shortages and increasing trial complexity.



## TRIAL COMPLEXITY

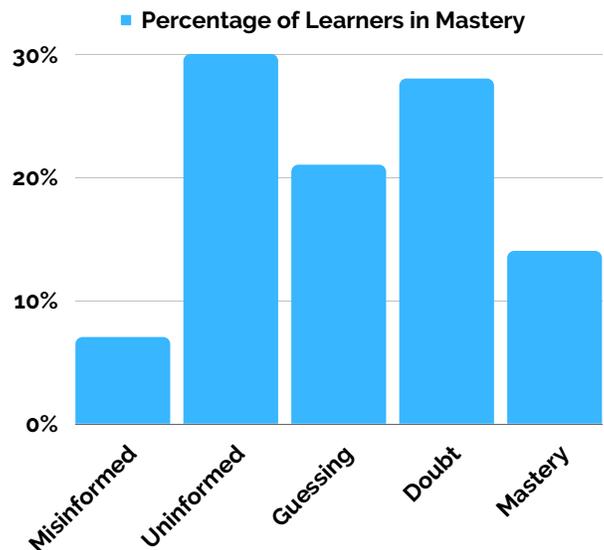
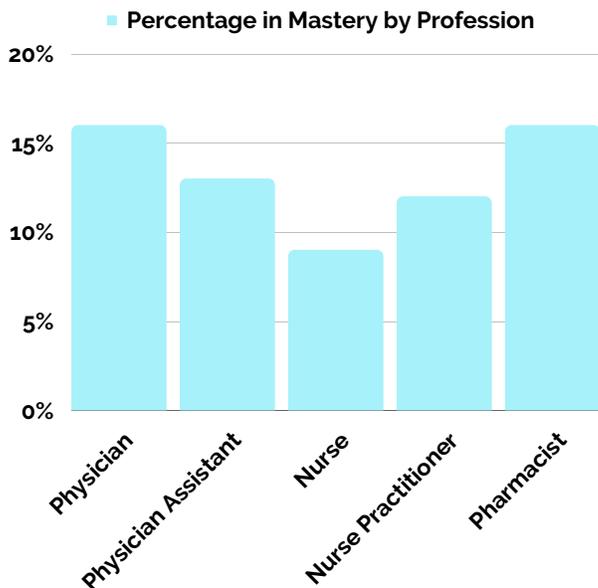
According to the Tufts Center for the Study of Drug Development, the greater the trial complexity, the worse the performance - across all measures. And with protocol procedures up 44% since 2009 and study endpoints expanding to 86% from 2005-2015, **trial complexity is already at an all time high and growing.**

The more complex the study or treatment, the better prepared each individual engaged in conducting the study must be. This is especially true when most study sites and research teams are understaffed and overworked today.

Identifying and understanding how well prepared each clinician and clinical trial team member is to conduct clinical research is a critical step in planning for study startup, delivering effective study training, and achieving trial milestones and endpoints.

## ASSESSING THE READINESS OF CNS CLINICIANS

To understand the level of readiness in clinicians conducting clinical trials across neurological disorders, ArcheMedX analyzed learner mastery data generated by **42,656 clinicians** across **69 CNS-related educational activities** and over **270 questions** powered by Ready, the industry's leading behavioral training and predictive analytics platform. The resulting **analyses revealed significant variations in mastery** among clinicians.



## DEFICIENCIES IN CLINICIAN MASTERY

In addition to the variations in mastery identified across professions, the data demonstrated that more than **80% of clinicians** in clinical areas such as Alzheimer's, Migraine, MDD, MS, and Bipolar/Schizophrenia lack the clinical mastery to formulate a differential diagnosis, develop individualized treatment plans, or navigate the complexity of CNS care teams to provide appropriate treatment.

CLINICAL AREA	MASTERY
Alzheimer's	6%
Migraine	10%
MDD	12%
MS	13%
Bipolar/Schizophrenia	6%

Representative insights from the resulting analyses found:

In **Alzheimer's/Dementia**, more than **3 in 4 clinicians** demonstrate deficiencies in accurately diagnosing, more than **4 in 5 clinicians** demonstrate deficiencies in implementing new and emerging treatments, and fewer than **1 in 4 clinicians** can confidently navigate collaborative care of patients.

In **MS**, more than **9 in 10 clinicians** demonstrate deficiencies in accurately developing individualized treatment plans and more than **8 in 10** clinicians demonstrate deficiencies in early screening of cognitive dysfunction in patients with MS.

In **Bipolar/Schizophrenia**, more than **9 in 10 clinicians** demonstrate deficiencies in effectively diagnosing patients with either condition.

In **Migraine**, more than **8 in 10** clinicians demonstrate deficiencies in effectively diagnosing patients with Migraine.

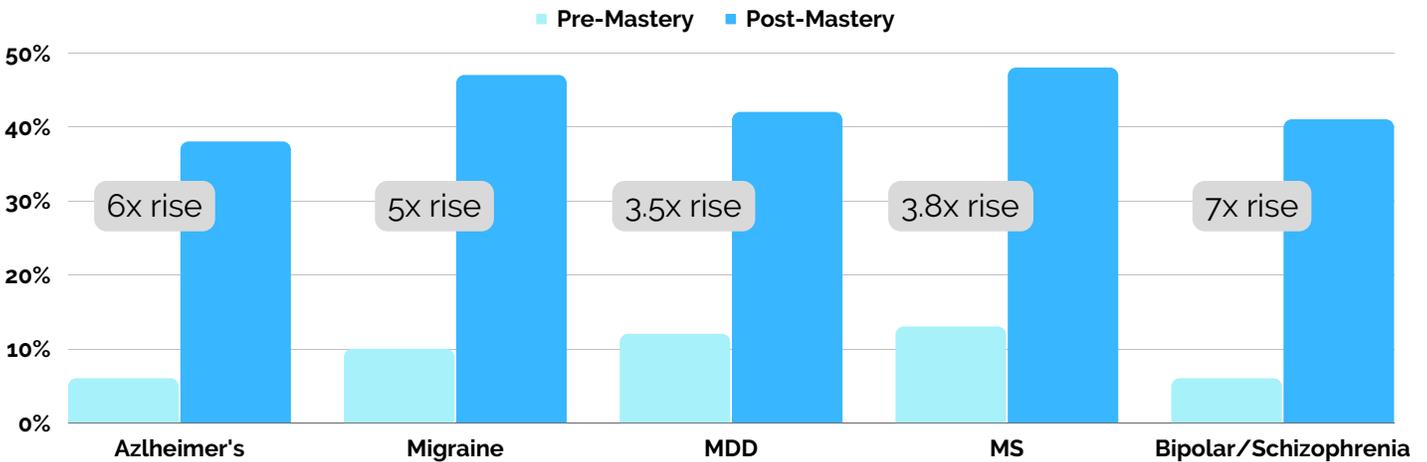


**of clinicians  
lack baseline  
mastery**

## IMPROVING CLINICIAN MASTERY

Putting these results in context, the variations in clinician mastery and deficiency in readiness create material risk and can **delay patient enrollment, increase clinical trial costs, and worsen healthcare outcomes** in clinical trials conducted across neurological disorders.

Delivering more tailored and effective training can mitigate these risks by improving readiness across key research and treatment objectives. In analyzing the changes in knowledge and confidence across **42,656 clinician learners**, the data demonstrated significant increases in mastery after completing training powered by the Ready platform.



ArcheMedX has continued to demonstrate with major players researching and treating neurological conditions, including **Takeda, Biogen, Lilly, Otsuka**, and others that there is a better way to educate clinicians on their therapies and prepare them to conduct more complex clinical research.

As these data demonstrate, utilizing the Ready platform to deliver education and training significantly improves clinician capabilities regardless of clinical area.

By engaging in more effective on-demand training powered by the Ready platform, these clinicians increased their mastery **3.5x - 7x**. Data demonstrated they were now **more capable and confident** in accurately diagnosing complex conditions, implementing new and emerging treatments, and navigating the complexities in collaborative care of their patients.



**increase in mastery**

# CONCLUSION

More than 80% of clinicians lack the clinical mastery to conduct clinical research in CNS-related conditions.

Ready significantly improves training outcomes and increases study team performance by enabling life science and healthcare organizations to:

- Transform content (i.e., protocols, study documents, training materials) into interactive and tailored learning experiences.
- Automate training assignments and personalize learning paths.
- Nudge individuals to focus and reflect on key information.
- Deliver targeted remediation on-demand and over time.
- Assess clinician readiness to predict and improve clinical performance.

**21 of the top 25 pharmaceutical firms, emerging biotechs, and global CROs rely on Ready to improve clinical performance.**

Ready's unique training capabilities and predictive insights enable trial leaders to accelerate enrollment and avoid costly delays. Learn how Ready reveals study risks sooner and delivers more tailored, role specific training at [www.archemedx.com/ready](http://www.archemedx.com/ready).

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82%  
Ready

68%  
At Ri

## BY THE NUMBERS

58%  
At Risk

82%  
Ready

80%  
Ready

85%

85% of clinical trials are delayed

"The greater the trial complexity, the worse the performance - across all measures"

80% of clinicians are not prepared to conduct clinical research in CNS

80%

"Trial risks are magnified as clinicians struggle to effectively diagnose, screen, and treat patients with neurological disorders."

7X

Completing training powered by the Ready platform can increase mastery 7x.