

F U T U R E
OF
Neurodegenerative
Care

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The neurodegenerative disorder landscape is on the precipice of immense change.

The prevalence of neurodegenerative disorder (NDD) is rising as the U.S. population ages, but the health care industry's growing understanding of these diseases is leading to digital and clinical innovations that will transform NDD diagnosis, treatment, and care management. The industry today is not where it will be in 10 years. To help you prepare for the NDD landscape of 2030, we present eight predictions you can use to guide your future strategy for this market.

For each prediction, we offer evidence and innovations that leads us to believe in such a future, key unknowns that could steer the industry to different end points, and ripple effects that could bring rise to wholly new challenges and priorities across and beyond the NDD landscape.



How to use this resource

Use these predictions, examples, unknowns, and ripple effects to initiate and inform conversations internally and with partners across the health care ecosystem about the future of NDD care.

As you explore these predictions, there are two things to keep top of mind:

- 1** Some predictions below are rosy, some less so. Consider the ripple effects that may create challenges and unintended consequences even from positive advancements.
- 2** Some predictions may seem speculative—that's by design. Consider the unknowns that will impact which trends and innovations develop or which barriers the industry is and isn't able to overcome.

Major themes

As we considered the potential ripple effects from innovations in NDD diagnosis, treatment, and care management, we identified four overarching themes. All segments of the NDD industry must keep these themes in mind as they design, plan for, and implement innovations in the coming years.

Click on each theme to see an expanded view.

EXPLORE PREDICTIONS FOR...

Diagnostics

Prediction 1

Digital evaluation tools using innovations such as virtual reality and passive monitoring will become the standard of care to enable more timely, standardized, and reliable diagnoses.



EXPLORE PREDICTIONS FOR...

Diagnostics

Prediction 2

Neuroimaging will frequently leverage AI and ML to identify patterns in, and advance our understanding of, NDDs.



EXPLORE PREDICTIONS FOR...

Diagnostics

Prediction 3

Patients and their providers will use genetic testing in many cases to understand their risk of developing neurodegenerative disorders.



EXPLORE PREDICTIONS FOR...

Diagnostics


Ripple effects (PAGE 1 OF 2)

Group impacted by effect


- Patients\caregivers
- ◆ Providers
- Payers
- ▲ Industry innovators

EFFECT

IMPACT

 Digital innovations will enable clinicians to diagnose patients earlier in their disease state. This will shift the NDD cohort toward a younger population.

- **Patients** will live with diagnosed NDDs for longer periods of time.
- **Patients** will increasingly face the difficult choice of electing to know if they have a debilitating, potentially untreatable disease.
- ◆ **Providers** will change the way they grow their memory/movement programs, appealing to the preferences of consumers in their 50s and 60s, as opposed to older individuals.
- **Commercial and public payers** will play a large role in determining patient eligibility for preventative NDD screening and diagnostics.

 As diagnostic tools measure patients' physical or cognitive capabilities in their real-world environments, clinicians and researchers will have access to better data on how NDDs progress and impact patients.

- ◆ **Providers** may be able to better understand their patients' conditions, allowing them to make more timely and accurate diagnoses.
- ▲ **Industry innovators** may have the ability to leverage real-world data to improve their understanding of the NDDs and related treatment development.



Ripple effects

OF INNOVATION
IN DIAGNOSTICS

EXPLORE PREDICTIONS FOR...

Diagnostics


Ripple effects (PAGE 2 OF 2)

Group impacted by effect

■ Patients\caregivers
 ◆ Providers
 ● Payers
 ▲ Industry innovators


EFFECT

IMPACT


 As AI and ML connect imaging to other biomarkers and patient data, NDD diagnoses will become more accurate and clinicians will be able to predict how a patient's disease will likely progress.

■ **Patients** could receive more targeted treatment plans given that providers will have a better understanding of how diseases are likely to progress.

◆ **Providers** that want to be known as a top destination for NDD care will need to make costly IT investments—both in AI and ML platforms and in supporting digital infrastructure. IT leaders and teams will therefore become significant stakeholders in this clinical area.


 As more individuals receive NDD genetic screening and diagnoses, pharmaceutical manufacturers and other research organizations will have access to large registries of patients and their associated genetic risk levels.

◆ **Providers** will be able to risk-stratify patients based on genetic, as well as non-genetic, factors and build care management plans accordingly.

▲ **Industry innovators** will have larger pools of individuals who can participate in long-term clinical trials. But without dedicated attention to screening a diverse array of patients, innovations that leverage this data will only be useful for a segment of the NDD market.



Ripple effects

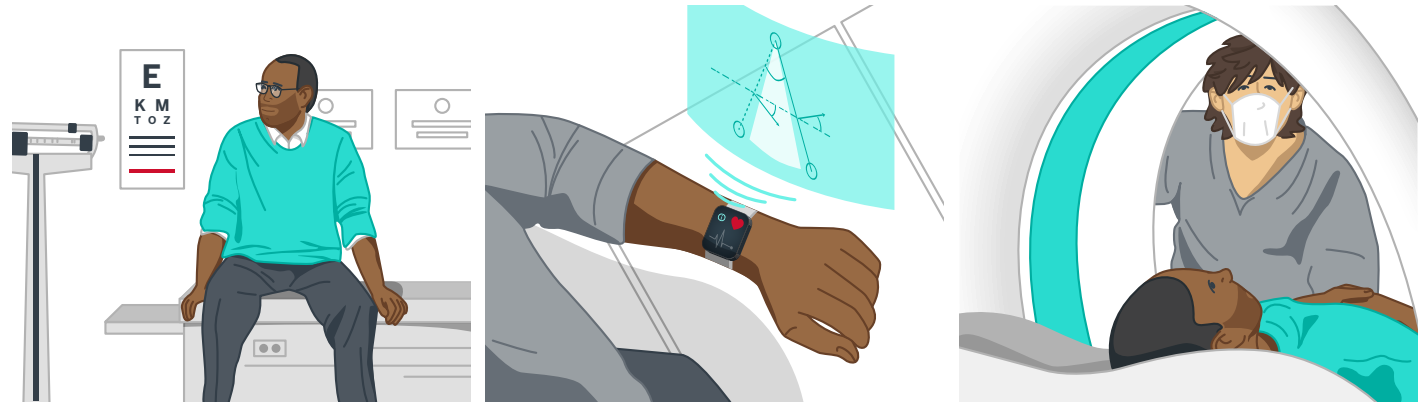
OF INNOVATION
IN DIAGNOSTICS

EXPLORE PREDICTIONS FOR...

Diagnostics

Meet Carl

Sample diagnostic journey for a patient in 2030



Carl (age 50) finds out that his mother is diagnosed with Parkinson's disease.

He talks with his primary care physician (PCP) and decides to order a genetic test. The test shows that Carl is at a high risk of developing Parkinson's disease later in life.

Carl starts using an app on his smart watch to measure and monitor changes in his movement, like degree of arm swing or tremors.

By the time Carl is 56, he isn't showing any obvious symptoms of Parkinson's. However, the smart watch shows that Carl's degree of arm swing has decreased steadily over time.

Carl's PCP refers him to a neurologist, who orders imaging exams that show signs of neurodegradation. Carl is diagnosed with Parkinson's disease at an early stage, before he shows major symptoms.

Leveraging AI, Carl's provider can predict when Carl will start seeing major symptoms and which symptoms he is likely to have, helping to inform future treatment and care management choices.



Meet Carl

A SAMPLE
DIAGNOSTIC JOURNEY

EXPLORE PREDICTIONS FOR...

Treatment

Prediction 4

While we still won't have a cure for common NDDs, there will be multiple disease-modifying therapies available to slow the progression of both Alzheimer's and Parkinson's diseases.



EXPLORE PREDICTIONS FOR...

Treatment

Prediction 5

Patients with NDDs will be sub-classified based on variants of their disease. These variants will be common factors in therapy choice, and will be the next frontier for R&D.



EXPLORE PREDICTIONS FOR...

Treatment

Prediction 6

Advancements in digital therapeutics will put non-pharmaceutical interventions on pace with other therapies that improve quality of life or modify disease.



EXPLORE PREDICTIONS FOR...

Treatment


Ripple effects (PAGE 1 OF 2)

Group impacted by effect


■ Patients\caregivers
 ◆ Providers
 ● Payers
 ▲ Industry innovators

EFFECT

IMPACT


 As NDD treatments become available, there will be intense interest from clinicians and patients alike to understand if they're eligible for treatment.

- ◆ **Providers** will see a spike in demand for screening and diagnostics. As a result of increased rates of diagnostics, demand for care management services will increase as well, even for patients who aren't eligible for treatment.
- **Payers** will face intense pressure from providers and patient advocacy groups to reimburse for NDD screening and diagnostics.


 The high cost of NDD treatments will cause all stakeholders to reconsider their financial approach to NDD care.

- **Uninsured patients** may not have access to many treatment options. In addition, patients may have to navigate complex and strict payer formularies to be able to access drugs.
- ◆ **Providers** will have to invest in even more rigorous prior authorization processes to ensure they receive reimbursement for high-cost drugs. Providers who don't make these investments may not be able to offer patients such interventions.
- ◆ **Providers** will use these high-cost treatments as a source of revenue for memory and movement clinics that struggle to break even.
- **Payers** could seek to create and implement value-based care contracts to control high cost of care.
- ▲ **Pharmaceutical manufacturers** will have to appeal to payers in order to ensure patients have access to their drugs.



Ripple effects

OF INNOVATION
IN TREATMENT

EXPLORE PREDICTIONS FOR...

Treatment


Ripple effects (PAGE 2 OF 2)

Group impacted by effect

■ Patients\caregivers
 ◆ Providers
 ● Payers
 ▲ Industry innovators


EFFECT

IMPACT


 A “haves and have-nots” environment will emerge in which certain NDD variants will have targeted therapies while others will not.

■ Variants common among white **patients** will have more targeted treatments than variants common among other demographics, as many trials are primarily composed of white individuals.

◆ **Providers** whose patient panel is primarily people of color may not trust diagnostics or treatments that weren’t tested on patient populations they serve.


 A rise in digital therapeutic viability and availability will accelerate the shift of more traditional treatment options to nontraditional care sites.

■ **Patients** will have more options for home-based NDD treatment, changing their expectations for their treatment experience.

◆ **Providers** will develop home-infusion and other non-clinic-based treatment encounter capabilities.

▲ **Industry innovators** will either invest in, or partner with, digital therapeutics companies to improve outcomes or quality of life for patients who use their products.



Ripple effects

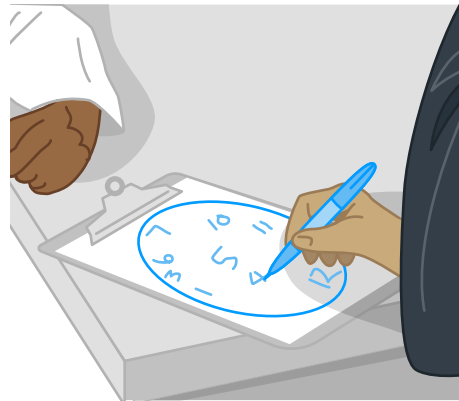
OF INNOVATION
IN TREATMENT

EXPLORE PREDICTIONS FOR...

Treatment

Meet Sonia

Sample treatment journey for a patient in 2030



Sonia (age 67) is diagnosed with Alzheimer's disease. She exhibits only minor symptoms.

Sonia's doctors run a number of tests and determine that she has a particular, highly treatable variant of Alzheimer's early in its disease progression.

Sonia begins monthly infusions, at an infusion center in the nearest city, that aim to slow the progression of her disease.

While this course of action works for Sonia's friend who lives in the city, Sonia lives a 3-hour drive from the nearest infusion center. This makes receiving treatment a major disruption to Sonia's life.

Sonia chooses to stop the infusion treatment because of the long drive to the nearest infusion center.

Instead, Sonia and her neurologist opt for a visual-auditory treatment that she uses once a day for 15 minutes at home to slow her disease progression.



Meet Sonia

A SAMPLE TREATMENT JOURNEY

EXPLORE PREDICTIONS FOR...

Care management

Prediction 7

Aided by a proliferation of digital tools and home-based services, more patient care will occur in the home longer into a patient's disease progression.



EXPLORE PREDICTIONS FOR...

Care management

Prediction 8

Family members will continue to provide most NDD care, though they will have more tools and support to help them to manage their loved one's condition effectively.



EXPLORE PREDICTIONS FOR...

Care management


Ripple effects (PAGE 1 OF 2)

Group impacted by effect


■ Patients\caregivers
 ◆ Providers
 ● Payers
 ▲ Industry innovators

EFFECT

IMPACT


 The role of the hospital or clinic in providing NDD care will diminish significantly. Patients will go to these sites only for some diagnostics and surgical procedures.

- **Patients** may receive most of their care at home, potentially making it easier for some populations to access care.
- ◆ **Providers** will lose revenue from facility fees and replacing in-person visits with virtual interactions. To retain profits, providers must improve throughput to increase volumes or focus instead on high-revenue visits that remain in the clinic.


 Digital barriers will replace physical barriers as major access challenges. This includes if a patient has access to reliable internet access, if they can afford smart technology, or if they can use technology given their physical or cognitive capabilities.

- **Patients** and their family members who lack access to, or can't use, digital technologies will not be able to leverage cutting-edge care management models.
- ▲ **Industry innovators** will concentrate on digital usability and access as they develop therapies and technologies.



Ripple effects

OF INNOVATION
IN CARE MANAGEMENT

EXPLORE PREDICTIONS FOR...

Care management


Ripple effects (PAGE 2 OF 2)

Group impacted by effect

■ Patients\caregivers
 ◆ Providers
 ● Payers
 ▲ Industry innovators

EFFECT

IMPACT


 Family members in the “sandwich generation” (those that support both their aging parent as well as children) will have the knowledge needed to properly care for their loved ones, but they’ll still struggle to balance managing care with other responsibilities.

- **Caregivers** in the “sandwich generation” will increasingly be unable to support loved ones who live for a long time with the intense demands of an NDD.
- ◆ Despite **providers** investing in training patients and family members on how to manage NDDs, the high demands of care will still result in unnecessary ED visits.



Ripple effects

OF INNOVATION
IN CARE MANAGEMENT

EXPLORE PREDICTIONS FOR...

Care management

Meet Vera

Sample treatment journey for a patient in 2030



Vera (age 79) is diagnosed with Alzheimer's disease, having moderate cognitive impairment.

Vera's provider connects her with a case manager who educates her and her son, Brian (age 50) on how to manage the condition.

Despite her cognitive impairment, Vera is able to remain at home because Brian can manage most issues that arise himself.

Vera continues to check in every few months with her PCP via virtual visits.

As Vera's cognitive function declines, Brian must play a more hands-on role in his mother's care. However, he finds this difficult as he also has a teenage son and must take time off work to care for both.



Meet Vera

A SAMPLE CARE MANAGEMENT JOURNEY



Parting thoughts

It's clear that the 2020s will be a decade of immense change for the NDD market. But while digital and clinical innovations hold the potential to transform millions of lives for the better, the industry can't lose sight of the potential ripple effects—both positive and negative. On the following pages are the overarching themes we identified in the beginning of this report. With the statements and predictions in mind, consider how each theme impacts your strategy and the role you play in supporting patients with NDDs.

Questions

For **supplier/service** innovators

1 The NDD patient population will become younger.

- How are we planning to appeal to the new demands of a younger NDD cohort?
- How will the idea of patients living with their NDD for longer periods of time impact how they interact with our innovations?

2 Without targeted solutions, barriers to care will exacerbate health inequities.

- How can we ensure individuals in traditionally underserved populations will be able to benefit from our innovations?
- How can we ensure individuals with cognitive or physical impairments will be able to leverage our innovations independently?

3 Accessible innovation in diagnostics, treatment, and care management are necessary to overcome patient hesitancy to seek care.

- How can we encourage consumers to interact with their disease despite their potential fears and hesitancies?
- How can we ensure that patients can and want to use or access our innovations?

4 Payers will play a more prominent role in decision-making.

- How are we planning to prove the value of our innovations to both public and private payers?
- How will an increase in the amount of care that private payers must cover impact who has access to our innovations?

Questions

For provider innovators

1 The NDD patient population will become younger.

- How are we planning to appeal to the new demands of a younger NDD cohort?
- How may a potential change in payer mix impact the financial viability of our memory or movement center?

2 Without targeted solutions, barriers to care will exacerbate health inequities.

- How can we improve our outreach and extend care to traditionally underserved individuals in our community?
- Are our innovative care models and processes accessible to patients across different racial, cultural, and income segments?

3 Accessible innovation in diagnostics, treatment, and care management are necessary to overcome patient hesitancy to seek care.

- How can we encourage our patient population to interact with their diseases despite their potential fears and hesitations?
- How can we make our primary care physicians more comfortable with proactively talking to patients about their neurological health?

4 Payers will play a more prominent role in decision-making.

- Do we have the IT capabilities to gather, analyze, and report data on the cost and quality benefits of our program to payers?

ENDNOTES

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