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## HEALTHCARE

### Big Data Targets Alzheimer's Disease



**John Edwards**, Technology Journalist & Author  
8/16/2013  
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Big data is being recruited for the war against Alzheimer's disease.

The [Alzheimer's Association](#) recently joined forces with the Brin Wojcicki Foundation, a charitable organization founded by Google co-founder Sergey Brin and Anne Wojcicki, co-founder of the personal genetics testing company [23andMe](#). The partnership aims to provide funds to scientists working on a project dedicated to gathering whole genome sequences on the largest group of individuals ever assembled to study a single disease.

#### Analyzing 165TB of genetic data

More than 800 volunteers have been enrolled in the [Alzheimer's Disease Neuroimaging Initiative](#) (ADNI). According to the Alzheimer's Association, the ADNI is expected to generate at least 165TB of new genetic data, providing an unprecedented tool for studying the disease's roots and potential treatment paths. Though not particularly massive in terms of big data, the highly complex data pool is expected to keep Alzheimer's researchers busy for many years.

The ANDI is being led by the US [National Institutes of Health](#). The public-private funding consortium includes pharmaceutical companies, science-related businesses, and nonprofit organizations, including the Alzheimer's Association and the [Northern California Institute for Research and Education](#).

People with Alzheimer's disease, mild cognitive impairment, or normal cognition agree to be studied in significant detail over time. The initiative's goal is to identify and understand various Alzheimer's markers in bodily fluids, brain structural changes, and memory processes. The hope is to improve the rate of early diagnoses and speed up the discovery of new treatments.

Whole genome sequencing determines all 6 billion letters in an individual's DNA in one comprehensive analysis. Once the sequences are completed -- approximately 16 weeks after the sequencing project starts -- the raw data is made available to qualified scientists around the globe to mine for novel targets for risk assessment, new therapies, and insight into the causes of the devastating brain disease.

#### Free medical data

The ADNI's research data -- including brain scans, blood and cerebrospinal fluid samples, and cognitive profiles -- is made available to scientists at no cost. Project results are expected to supply researchers with a better understanding of Alzheimer's progression in its earliest stages, when treatments may be the most effective. The study is taking place at 55 major North American academic medical centers and clinics. The model is also being adopted for use in other countries.

In the US alone, an estimated 5.4 million people are living with Alzheimer's disease. Also, 15.2 million friends and family members of individuals with Alzheimer's and other dementias provide [17.4 billion hours](#) of unpaid care valued at more than \$210 billion a year, according to the Alzheimer's Association. Alzheimer's is the sixth-leading cause of death in the US and the only one in the top 10 that currently cannot be prevented, cured, or even slowed.

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Pradeepta Mishra, User Rank: Bit Player  
8/31/2013 | 2:48:06 PM

### Prevention is better than cure

Prevention is better than cure, big data analytics can be used in predicting the disease presence by using algorithms and matching the DNA's and pattern of behavior changes over time. The predicted number of diseases helps the insurance companies, government and healthcare sector to be prepared for the future needs. So the prediction helps in prevention of the disease.

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Qasim Bajwa, User Rank: Petabyte Pathfinder  
8/23/2013 | 7:13:42 AM

### Re: Perhaps the missing link.

legalcio, that's true - Big data can be a key turning point in early diagnosis of Alzheimer. It's good that this idea occurred in the minds of the scientist involved to initiate the research in collaboration, while looking at other aspects previously not considered. There's a reason for that too, mainly because Big Data Analytics & prediction techniques have proven to be extremely rewarding in medical sciences especially in genetics.

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Qasim Bajwa, User Rank: Petabyte Pathfinder  
8/23/2013 | 6:36:04 AM

### Re: Perhaps the missing link.

Sharco, According to wiki, Alzheimer's is predicted to affect 1 in 85 people globally by 2050. Maybe they made this statement after reviewing the current projects underway, like the ones mentioned in this blog. With an aim to find a cure and diagnose the disease at an early age. It's beautiful to see diagnosed patients willingly sharing their tests in hope of discovering a cure and with good faith to help their fellow human beings :)

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technetronic, User Rank: Blogger  
8/20/2013 | 2:44:03 PM

### Re: Perhaps the missing link.

This is another case for EMR (electronic medical records) - data cleanliness should be a thing of the past in the US trillion dollar healthcare industry!

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there's a lot of data fear among today's decisionmakers...that will definitely change

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dcawrey, User Rank: Bit Player  
8/18/2013 | 9:47:57 PM

### Re: Perhaps the missing link.

Yes, it doesn't sound like a lot of data in terms of size. But that number could be misleading. There may be data quality issues and a lot of information there that is simply not usable. I'm imagining even that level of data, stored in something like a lightweight db or text file would still contain tons of information.

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netcrawl, User Rank: Petabyte Pathfinder  
8/18/2013 | 10:26:25 AM

### Re: Perhaps the missing link.

@Technetronic its a game-changing works, a huge alzheimer's database full of useful information that can bring something big in today's research works, it can transform how neuroscience data is shared, studied and accessed by scientist throughout the medical industry.

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The best things about this development is its enhance data research, research data is available free-of-charge to anyone doing research in neuroscience, it makes the medical industry a small world by providing a cloud-based information system accessible anywhere and anytime.

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SharCo, User Rank: Petabyte Pathfinder  
8/17/2013 | 7:34:58 AM

### Re: Perhaps the missing link.

Agreed, @legalcio. So much good can come from this move, and I'm really glad they are going for it. Alzheimer's affects so many people all over the world and hopefully discoveries and improvements can be learned/found out through this.

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technetronic, User Rank: Blogger  
8/16/2013 | 11:43:10 AM

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### Tracking the Malaria Cure Conversation

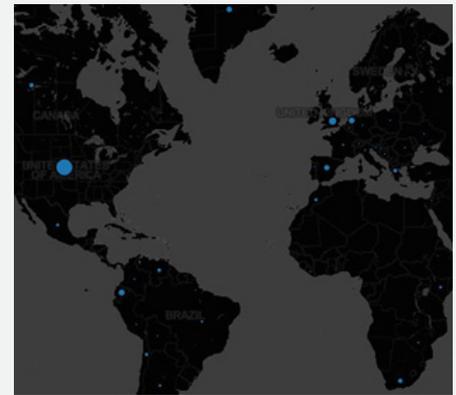


Tableau visualizes global tweets focusing on a cure for Malaria. Explore this data [here](#).

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**Re: Perhaps the missing link.**

what's most stunning and exciting for me is that they're opening up this alzheimer's database for the long-haul – truly open research results (http://www.alz.org/aaic/\_releases\_2013/fri\_400pm\_ggain.asp)

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so what can start to happen is global collaboration that's independent of government organizations

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legalcio, User Rank: Exabyte Executive  
8/16/2013 | 11:06:47 AM

**Perhaps the missing link.**

Alzheimer's has proved to be one of the most frustrating diseases for researchers and patient families alike. About all that is known on a substantive basis is what happens, but not how, or how to prevent or treat. Perhaps somewhere buried in the mountain of unstructured patient and research data is the missing link, and Big Data finally enables researchers to look at the disease (and others) in a different way.

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