



American Healthcare Professionals and Friends for Medicine in Israel

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Dr. Naomi Nevler is trying to arrest degenerative brain diseases like Alzheimer's before symptoms become obvious, allowing for earlier intervention, better quality of life and someday, maybe a cure.

"What we'd like to do is to catch the pathological process before degenerative changes have caused too much damage," says the 36-year-old neurologist and 2015-2016 APF Research Fellow at the University of Pennsylvania's world-renowned Frontotemporal Degeneration (FTD) Center in Philadelphia. "People won't even be aware of the changes at this point, although they have already been going on for a long time.

"Then we can more successfully use medical interventions such as medications. And we are now also experimenting with the use of non-invasive brain stimulation (NIBS) for Alzheimer's and other cognitive impairments."

According to the Association for Frontotemporal Degeneration (AFTD) FTD is a disease process that results in progressive damage to the temporal and/or frontal lobes of the brain. The group says the hallmark of FTD is a gradual, progressive decline in behavior and/or language, with memory usually relatively preserved. FTD onset often occurs in a person's 50s and 60s, but has been seen as early as 21 and as late as 80. Roughly 60 percent of cases occur in people 45-64 years old, affecting work and family in a way dementia in older patients does not, says the AFTD.

The Ganey Tikva native, from Sourasky Medical Center in Tel Aviv, is studying changes in speech such as rate, pauses, intonation and the ability to pick up on non-verbal cues (to intuit). "These work in concert with linguistic content to express specific emotional messages," she says. Her sub-specialty is cognitive behavioral neurology. Behavioral

neurology studies the neurological basis of behavior, memory and cognition. The field also includes the impact of neurological damage and disease upon these functions as well as the treatment thereof.

Nevler works with many forms of cognitive impairment, not just FTD. "The work I do offers a new approach with the potential to benefit anyone with any neurodegenerative condition including: Alzheimer's, Parkinson's, ALS (Lou Gehrig's disease), Lewy Body disease and vascular dementia. (Compared to Alzheimer's, which happens when the brain's nerve cells break down, vascular dementia happens when part of the brain doesn't get enough blood carrying the oxygen and nutrients it needs.)

"My passion is fueled by seeing just what these disorders do to people, young people included. It's devastating. Anyone who is exposed to it as an observer or caregiver is shocked.

"Have you ever heard intelligent, adult, fully functioning individuals gradually lose their ability to communicate verbally within two years? I have by listening to recordings of their speech. It's made me cry."

In addition to her sub-specialty work, Nevler practices general neurology working with patients suffering from conditions including: strokes, comas, headache syndromes, brain infections, multiple sclerosis and some traumatic brain injuries. "It's really quite diverse," she says.

Nevler graduated from Sackler Faculty of Medicine, Tel Aviv University. She completed her internship at Wolfson Medical Center in Holon, in the Southern District of Tel Aviv, and residencies in neurology at Assaf Harofeh Medical Center near Tel Aviv and at Sackler. During her training Nevler taught medical

students and neurology residents and continues to do so.

After her internship and part-way into her residency she served in the IDF Medical Corps, as Chief Medical Officer at an infantry basic training camp,

The Nevler family comes from Modi'in – Mom; Dad, Dr. Avinoam Nevler, a surgical resident doing research in pancreatic cancer at nearby Thomas Jefferson University; daughter Daphna, 7 ½ and son Nimrod, 4.

Naomi Nevler didn't always know she wanted to become a doctor. She had no relatives in medicine nor early mentors or life experiences that influenced her choice. "But in high school I was very interested in studying the human body, especially the brain. And I wanted a profession that would be challenging and would include a lot of human interaction. So I thought I would give medicine a try."

Come medical school, she got hooked on neurology. During her fourth year, when students have clinical rotations, Nevler elected extra ones in neurology. "Neurology was just always one of the places where I felt 'natural,' I felt like I belonged there.

"I like the intellectual challenge as well as the challenge of managing younger patients with severely debilitating conditions. Treating these people properly has an immediate impact on their everyday lives."

During internship, Nevler also elected extra rotations in neurology and spent special time in neurology at Rabin Medical Center in Petah Tikva, near Tel Aviv.

When did she choose to formally enter the neurological community? She decided during residency. But in medical school she actually made a ground-breaking neurological discovery finding a new genetic location for a disease called Charcot-Marie-Tooth type 2 (the most common inherited neuro-muscular disorder) in a specific family.

Why choose Penn for her Fellowship?

"This is one of the leading facilities in the world for neurodegenerative disorders, with an elite specialty in diagnosing and treating people whose cognitive impairment is primarily in language and behavior," Nevler says. "My mentor, Dr. Murray Grossman the head of the FTD Center, is one of the few experts in the world in this specific field."

At Penn, a tertiary referral center, she has vast resources including one of the biggest cohort (purposely collected group for study and or treatment) of patients suffering from cognitive impairment, including FTD.

Was it necessary to leave Israel for this training? "Unfortunately, we do not currently have a patient cohort for these disorders, although they are not uncommon in Israel."

What is a workday like?

Nevler works from 9 a.m. until about 5 p.m., five days a week.

She usually spends one day a week with Grossman in his clinic. During the rest of the week she works with computers and data bases of more than 800 recordings of speech samples of people in various stages of cognitive disease, as well as those of relatives who are carriers of known genetic mutations causing various cognitive disorders. "Then we correlate the speech patterns of different conditions with other clinical measures, such as cognitive tests, brain MRI's, blood samples and more."

Nevler has published four journal articles, has two in progress and has presented research abroad.

A research schedule is easier on family members than the clinical schedule they've become accustomed to. "I think the kids are enjoying it, Nevler says. "They enjoy having Mom and Dad around more. We don't have to work nights, and can spend most weekends and holidays with them. We work 'normal' hours."

The family has traveled in Pennsylvania, upstate New York and Vermont. "We like to ski."

Nevler has big plans for her return to Israel. She wants to establish her country's first tertiary referral FTD center, one with a specialty in speech and language disorders. "It takes specific training, skill and experience to work with patients with FTD. These patients need special attention during diagnostic evaluation and clinical management. By learning more about the disease process of FTD we

can establish a better understanding of other degenerative processes in the brain."

Studying speech patterns of people with dementia is a novel approach, says Nevler. It's one that she hopes will promote greater awareness of the disease and contribute to the ongoing fight against dementia.

American Physicians Fellowship for Medicine in Israel

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