CLOSER LOOK

MEMORANDUM

Helmsley Charitable Trust funds machine-learning predictive analytics project for T1D at Children's Mercy and Joslin; is this the future of T1D care? - June 23, 2017

The Helmsley Charitable Trust recently announced a very exciting new collaboration with Cyft Inc. focused on predictive analytics (via machine learning) to proactively identify and manage at-risk type 1 patients. Wow this is great - we have been hearing for so long about risk stratification and we love to see this. Healthcare providers at Children's Mercy Kansas City and Joslin Diabetes Center will receive decision support at the point of treatment, leveraging machine learning, natural language processing (i.e., free text notes in the EHR), and device signal processing. Nice! The project - dubbed a "learning health system" (we love that!) - will start in mid-2017 and last three years through a Trust grant (size not disclosed). We see enormous potential in this combination of continuous passive monitoring from multiple data sources, clinical decision support that scales providers' impact, and prioritized care delivery to those who need it most. In our view, the available technology to make sense of data, find hidden patterns, and make predictions has far outpaced the current model of face-to-face diabetes care, which often uses very little/no data to make decisions. Can projects like this change that, especially to help a growing number of patients experiencing far too many costly and preventable events? We look forward to seeing the data that comes out of this pilot - where were the biggest improvements in care? What was the economic impact? The team overseeing this ambitious project -Dr. Mark Clements (Medical Director for the Pediatric Clinical Research Unit at Children's Mercy), Dr. Sanjeev Mehta (Joslin's Chief Medical Information Officer and Director of Quality), Dr. Leonard D'Avolio (Cyft CEO and Assistant Professor at Harvard Medical School), and Dr. Susana Patton (Associate Professor of Pediatrics at the University of Kansas Medical Center) - is nothing short of extremely impressive. How will this scale to populations, fit into care delivery, and drive new reimbursement models? We salute the Trust for thinking so intelligently and ambitiously about the future of care and then funding projects to explore how the latest technology can transform outcomes in T1D.

- **One of our favorite quotes in the press release comes from Dr. Leonard D'Avolio: "We can no longer be a 'wait and see' industry.** Instead we're pulling real insights from disparate data sources and using these to inform clinical care. We're thrilled to partner with these leading institutions to serve such a critical patient population, and believe that the work this new learning health system will accomplish could fundamentally change how we treat T1D as an industry."
    - **Dr. D'Avolio's Cyft Inc. strives to enable health delivery systems to leverage data the way other industries have for 30+ years.** In a recent TED talk, he shared that 10 years ago, 95% of health data was on paper - today, 95% of hospitals have health records. And this data, he continued, should be leveraged to answer three fundamental questions: (i) What should we do? (ii) Are we doing it? And (iii) Can we do it better? (The TED talk is well-worth watching for 20 minutes!)
- **Some of our favorite examples in this area of remote-enabled care + analytics + decision support** are Glooko's Population Tracker (launched in 2014 - very early in this field), all the work happening in insulin dose titration from players big and small, a growing number of remote coaching platforms (Livongo, mySugr, One Drop, Glooko + Fit4D, etc.). Several players are also working on use of machine learning in diabetes data, including Medtronic/IBM Watson (Sugar.IQ, Turning Point), Lilly, and Bigfoot.
- **For those always wondering, "How many people actually have type 1 in the US?", the Trust is using ~1.5 million.** From the press release: "T1D affects roughly 1.5 million people in the U.S., and there was an incidence of approximately 18,436 new cases among youth in the U.S. in

2008-2009, per the American Diabetes Association (ADA). T1D is the second most prevalent chronic disease of childhood after asthma."

-- by Brian Levine, Adam Brown, and Kelly Close