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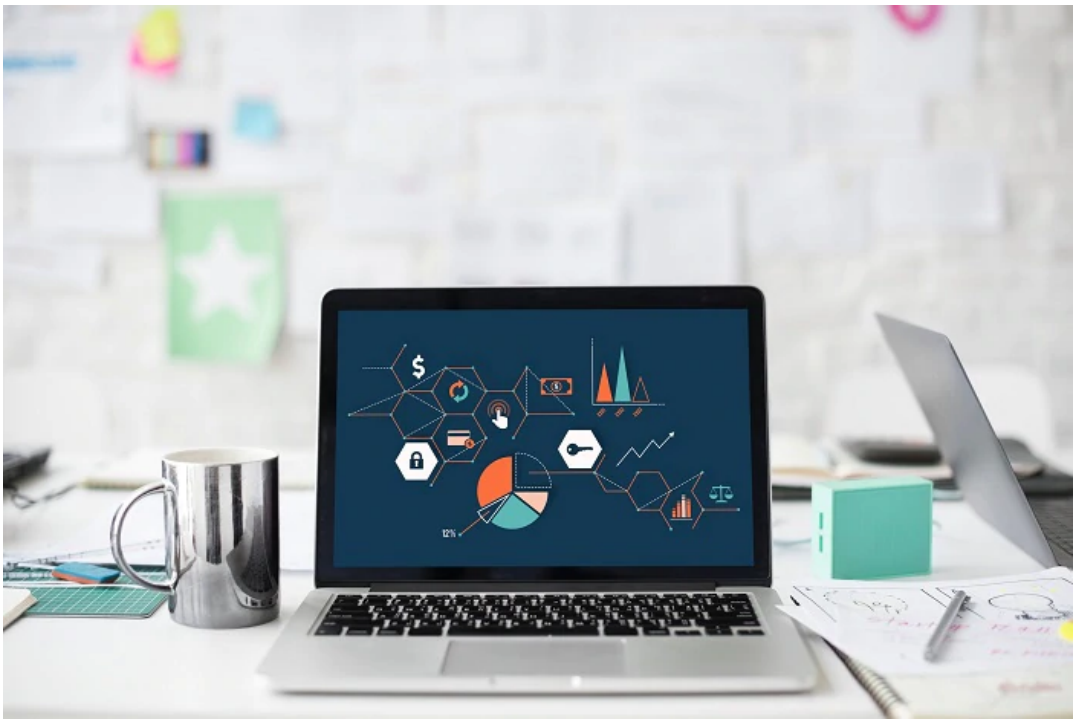
Office of the Chief Technology Officer

"TOP Health" Tech Sprint Unleashes the Power of Open Data and AI

January 17, 2019 | *By: Kristen Honey, Innovator in Residence, HHS Office of the Chief Technology Officer and Gil Alterovitz, Research Affiliate, U.S. Department of Veterans Affairs*

Summary: The 14-week "TOP Health" tech sprint concluded with 10 teams delivering digital tools — built with Federal data and emerging technologies like AI — to improve clinical trials, experimental therapies, and data-driven solutions for complex challenges from cancer to Lyme and tick-borne diseases.

This week, the HHS Office of the Chief Technology Officer (CTO) and Presidential Innovation Fellows (PIF) concluded their first-ever pilot of a 14-week tech sprint: The Opportunity Project (TOP) Health sprint. "At HHS, we recognize that Federal government alone cannot solve our most important and complex challenges," said Ed Simcox, HHS CTO, adding "the TOP Health sprint is a valuable step in leveraging skills from industry with public resources to promote better health outcomes."



The TOP Health sprint engaged the tech industry to create data-driven digital products that benefit the public. HHS and PIFs provided curated datasets from Healthdata.gov and Data.gov, as well as access to Federal data stewards. This effort strengthens collaborations between technologists, issue experts, and community leaders to address real-world challenges and improve everyday lives.

The 11 TOP Health teams developed and delivered digital tools to address one of two challenges — each challenge is designed as an open-ended question for addressing through emerging technologies and data:

TOP Health Challenge #1:

> **Artificial Intelligence (AI) for approaches for facilitating an experimental therapy ecosystem.**
> *How can we do better by leveraging standards and emerging technologies?*
> Team Mission: Create digital tools that help in finding experimental therapies for patients, and vice versa.

TOP Health Challenge #2:

> **Harness the power of collaboration, citizen science, and data for Lyme disease.**
> *How can we address Lyme and tick-borne disease through emerging technologies by coupling the power of the crowd and patient insights with data?*
> Team Mission: Create digital tools and data sharing capabilities for the prevention, education, and science that will support data-driven decisions and improve public health related to tick-borne disease.

Teams from around the globe unveiled their TOP Health results on January 16th. This 14-week tech sprint produced the following digital tools, which will be sustained long-term by industry and non-profit organizations listed below:

CHALLENGE #1: AI TEAMS:

- **Trial Explorer by Philips Research** in the Netherlands.
  Find the most suitable trials for each patient: We derive computable representations of trial criteria and match to harmonized patient data.

- **Microsoft Healthcare Bot by Microsoft Healthcare** in Israel.
  Microsoft Healthcare built technology that aims to democratize clinical trials matching by helping patients and doctors find suitable trials quickly and easily, through Conversational AI, advanced Machine Reading on clinical trials eligibility criteria, NLP and smart qualification.

- **ORNL SmartClinicalTrials by Oak Ridge National Laboratory (Department of Energy**) in Oak Ridge, TN.
  The ORNL SmartClinicalTrials team is building a large knowledge graph representation for cancer clinical trials to enable discovery of new concepts from unstructured text.

- **Oracle TOP Health Team by Oracle Public Sector and Oracle Healthcare** in Washington, DC.
  Oracle built a patient-centric solution for clinical trial matching. The solution matches patients battling cancer with clinical trial programs leveraging modern technologies like artificial intelligence to provide a more simplified and personalized experience for determining treatment.

- **iConnect by TrialX** in New York, NY.
  iConnect is a patient recruitment platform developed by TrialX that enables patients and clinical researchers to find and connect with each other. It includes advanced semantic and decision engine based AI techniques to match patient health record information to clinical trials eligibility criteria.

- **Flatiron Trials by Flatiron Health** in New York, NY.
  Integration of clinical research into everyday cancer care is core to Flatiron Health's mission. Participating in TOP Health helped us accelerate building a framework that improves patient trial matching and gives oncology practices and their patients' access to cutting-edge treatments.

- **A.CCESS.io by AheadIntoFun Inc. (spun out of Rush Medical)** in Chicago, IL.
  Access the medicine of tomorrow, today. If you can find a home or book a vacation online, you should be able to find and share clinical trials just as easily with A.CCESS.io.

- **Lyme Tracker App by TrialX and Global Lyme Alliance** in New York, NY.
  Tracking Lyme disease symptoms is critical for people living with Lyme disease; patients and physicians rely on this data to understand disease progression and manage individual symptoms. The Lyme Tracker App will enable patients to easily track symptoms/physical activity so as to provide on-going to data to further advance clinical research in this space.

CHALLENGE #2: LYME AND TICK-BORNE DISEASE TEAMS:

- **TickTracker by the LivLyme Foundation** in Denver, CO and Columbus, OH:TickTracker is a free global app created by a 14 year-old who started a non-profit, LivLyme Foundation, that lets you track and report ticks in real-time using geolocation so that people in the United States and around the world can stay safe.

- **TickTockBOOM! Game by the LivLyme Foundation** in Denver, CO and Columbus, OH:
  TickTockBOOM! is a free mobile app created by twin 11 year-olds that is an edutainment-based game targeted towards teaching our nation's youth about tick awareness and ultimately prevention.

- **Clyme Health by the California Center for Functional Medicine** in Kensington, CA:
  The Clyme Health app optimizes data gathering and visualization for patients with complex, chronic conditions so that care providers and researchers can better measure the efficacy of treatments and, together, identify data-driven solutions with personalized medicine.

Information on a future Washington, DC "Demo Day" showcasing the TOP Health Tech Sprint solutions will be announced pending the government shutdown.

Interested in learning more or joining a future TOP Health sprint? Please email HHS Office of the CTO for more information: cto@hhs.gov

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