July 9, 2021

Dr. Francis Collins
National Institutes of Health
9000 Rockville Pike

-visited website for information on the health of children and teens, KidsHealth.org. In our effort to create the healthiest generations of children, Nemours

nership (OMOP) standard data model, and in sharing data as part of multiple networks. of the OMOP model allows our research EHR data to contribute to national networks such as PEDSnet, PCORnet and the newly developed N3C for COVID

Nemour the opportunity to

Background

Nemours strongly encourages NIH center its efforts to reduce disparities through an approach that begins children and their families As you know, e

Beyond merely lacking adequate quantities of pediatric EHR data in aggregated or federated research datasets, use of multigenerational datasets will require careful stratification by age of patient and necessitate modifications to our common data models to ensure use of measurement units (e.g., time, anthropometric units) that do not implicitly bias results by lacking the necessary granularity for pediatric patients.

Nemours already has established expertise in AI/ML techniques, managing research-deidentified EHR data, and linking geocoded SDoH data to support research on health disparities. Nemours is also covering nearly two decades of EHR data on over three million pediatric patients to discover patterns of care that lead to outcomes. AI/ML can evaluate population level data to find factors that contribute to outcomes such as biomarkers or sociomarkers, as well as protective factors. They can also develop predictive tools, risk stratification models, and geographic targeting approaches, which are critical as the nation continues to move to value-based and population-level healthcare. Nemours believes it is critically important for this NIH initiative to build on and scale efforts across the United States to truly impact population health.

Another area of great promise for AI/ML is its application to precision medicine. Our mission has focused largely on the incorporation of EHR and SDoH data to analyses that will ultimately allow us to create ever more precise patient phenotypes. This greater precision in characterizing patient phenotypes should open the door to AI/ML studies able to untangle the complex relationships between genotype and health. The massive quantity of data needed to explore this genotype-phenotype complexity demands computer resources with extremely large memory capacity and massively parallel computational capability. Nemours supports a Biomedical Research Informatics Center (BRIC) that provides AI/ML and related computational resources for a variety of efforts, including basic and clinical research, predictive analytics, and quality improvement. Our experiences in developing and maintaining the storage and computational power for BRIC underscore the significant material as well as human resources needed for AI/ML application in healthcare. Nemours strongly encourages NIH to allocate instrumentation grant support for AI/ML-focused special-purpose computer and storage hardware, and training programs.

Finally, Nemours believes that providing support for academic programs focused on equity, social determinants, disparities and related areas, combined with scholarship and internship opportunities within healthcare organizations is a way to promote both greater interest and diversity in the workforce that will use and develop even more advanced AI/ML tools in the future.

Conclusion

Nemours is committed to developing tools like AI/ML that show promise to improve patient care and long-term health outcomes.

Citations