FOR IMMEDIATE RELEASE

New Clinical Study Tests Pharmacotherapy Selection System that Aims to Improve the Impact of Diabetes Treatment

System leverages artificial intelligence and shared decision-making to improve patient care at a low financial cost

Tokyo, February 27, 2019 --- University of Utah Health (U of U Health) and Hitachi, Ltd. (TSE: 6501, Hitachi) today announced that U of U Health has begun a prospective clinical study of a pharmacotherapy selection system(1) co-developed with Hitachi at 13 primary care clinic sites starting from February 2019. The system supports patients and providers in selecting Type 2 diabetes mellitus(2) (T2DM, the most common form of diabetes) treatment options by showing side-by-side comparisons of predicted treatment effect, risks and side effects, as well as costs for multiple medication regimens. By facilitating patient-provider communication and shared-decision making support, the aim is to keep patients fully engaged and committed to their treatment plan. U of U Health and Hitachi will evaluate the clinical and financial impact of the system.

Healthcare informatics research that leverages the vast amount of medical data accumulated at medical institutions for healthcare improvement and efficiency holds great promise. To leverage machine learning or artificial intelligence in healthcare, it is necessary to incorporate various data from the electronic health record (EHR) in real time. U of U Health and Hitachi developed the pharmacotherapy selection system, which consists of U of U Health's standards-based clinical decision support system (OpenCDS(3)), which employs the HL7® FHIR®(4) RESTful(5) API (Application Programming Interface), and Hitachi's machine learning-based pharmacotherapy outcome prediction technology. Since the announcement of the co-developed pharmacotherapy selection system in March 2018, U of U Health and Hitachi have continued to improve the system according to the concept of Hybrid Learning,(6) which combines machine learning with clinical knowledge with a goal of improving the system's usefulness in the clinic. Improvements that have been made to the system include the addition of functions to predict the effect of weight loss on hemoglobin A1c levels (HbA1c), as well as the incorporation of clinical guideline recommendations based on a patient's comorbidities.

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As the next step towards leveraging the system for improved patient care, a prospective study has been started at 13 primary care clinic sites. Primary care clinics are randomized to either an intervention arm where the tool is available or to a control arm where the tool is not yet available. The system's impact on outcomes such as patients' HbA1c value(7) and the cost of prescribed pharmacotherapies will be evaluated.

Through this clinical evaluation, U of U Health and Hitachi will continue their joint research efforts with a goal of improving the health and well-being of patients living with diabetes.

(1) 12 March 2018 News Release:
Pharmacotherapy selection system supports shared clinician-patient decision-making in diabetes treatment. https://www.hitachi.com/New/cnews/month/2018/03/180312h.html

(2) Type 2 diabetes mellitus: Unlike Type 1 diabetes, in which insulin is hardly secreted from the pancreas, type 2 diabetes is a clinical condition wherein insulin secretion and action decreases. Lifestyle is considered to have a major influence on the disease.

(3) Open Clinical Decision Support (OpenCDS) is a standard-based, open-source clinical decision support system developed by the University of Utah. http://www.opencds.org/

(4) HL7® FHIR®(5): Health Level Seven International Fast Healthcare Interoperability Resources: Next generation health IT standard specification. https://www.hl7.org/fhir/

(5) RESTful: A software design suitable for cooperation among multiple system in a distributed system.

(6) Hybrid Learning: Hitachi's technology concept that fuse conventional knowledge and AI.

(7) HbA1c (Hemoglobin A1c) value: Laboratory test value that reflects average blood sugar level for the past three months. It serves as the main indicator of disease control for diabetes, the target value for which is decided by the clinician and patient based on the patient's age and condition.

About University of Utah Health

University of Utah Health is the state's only academic health care system, providing leading-edge and compassionate medicine for a referral area that encompasses 10% of the U.S. A hub for health sciences research and education in the region, U of U Health has a $356 million research enterprise and trains the majority of Utah's health care professionals at its Schools of Medicine and Dentistry and Colleges of Nursing, Pharmacy and Health. Staffed by more than 20,000 employees, the system includes 12 community clinics and four hospitals. For nine straight years, U of U Health has ranked among the top 10 U.S. academic medical centers in the Vizient Quality and Accountability Study, including reaching No. 1 in 2010 and 2016.

About Hitachi, Ltd.

Hitachi, Ltd. (TSE: 6501), headquartered in Tokyo, Japan, delivers innovations that answer society's challenges, combining its operational technology, information technology, and products/systems. The company's consolidated revenues for fiscal 2017 (ended March 31, 2018) totaled 9,368.6 billion yen ($88.4 billion). The Hitachi Group is an innovation partner for the IoT era, and it has approximately 307,000 employees worldwide. Through collaborative creation with customers, Hitachi is deploying Social Innovation Business using digital technologies in a broad range of sectors, including Power/Energy, Industry/Distribution/Water, Urban Development, and Finance/Social Infrastructure/Healthcare. For more information on Hitachi, please visit the company's website at http://www.hitachi.com.

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