Even though we are living in a super-connected society as a part of fourth industrial revolution, the healthcare industry is still showing discrete nature in much of their operations. In this research, we are proposing a healthcare framework that attempts to connect all the building blocks of healthcare utilizing IoT and cloud-based systems so individuals can take control of their health at all times. The framework includes cloud-based personal health data storage with meta data, standard-based personal health record system (PHRS), decision support system (DSS), customized patient education system, and all-in-one clinical sensors (11 sensors) device connected to PHRS. Through our framework, patients can monitor and control their health and associated healthcare data so that caregivers can access the complete medical history, which enables continuity of care. The all-in-one clinical sensors can store measurements data along with patient’s observed symptom(s) directly to the PHRS so DSS can analyze the data for potential diseases. The results can be used to provide customized e-learning that offers personalized digital learning contents to the patient. We are planning to deploy this framework to the local community as well as to overseas countries.