5.3 Velocity

To support real-time data utilization, CDM needs to understand, prioritize and synchronize data transactions into appropriate data storage at increased volume, speed and frequency. Wearables data, for instance, is being generated 24 hours a day, 7 days a week. Taking the example in figure 2, up to 375,000 pulse readings could be generated in a day assuming data transmitted every minute. This would grow up to 22.5 million pulses with data transmitted every second. In a world where real time data is expected, it is not surprising that connectivity has become a core component of software development.

Application Programming Interfaces (API), used for web-based systems, operating systems, database systems, computer hardware, m-Health and software libraries, are enabling automated connectivity in new ways. This is moving focus from "data transfer" to "data integration". Such wide-ranging integration is technically possible, but is it necessary? So, CDM should evaluate the pros and cons for every data integration. We also need to stretch our thinking and expectations, because APIs do not just connect researchers, they provide a platform for automation. Beyond API, attention needs to be given to device selection. Some devices still do not include technology that facilitates real-time data flow. Some may not be Bluetooth or WiFi enabled, requiring the device to be docked, brought back to the site, or even sent back to the device provider to extract data from it and then transfer it to the sponsor.