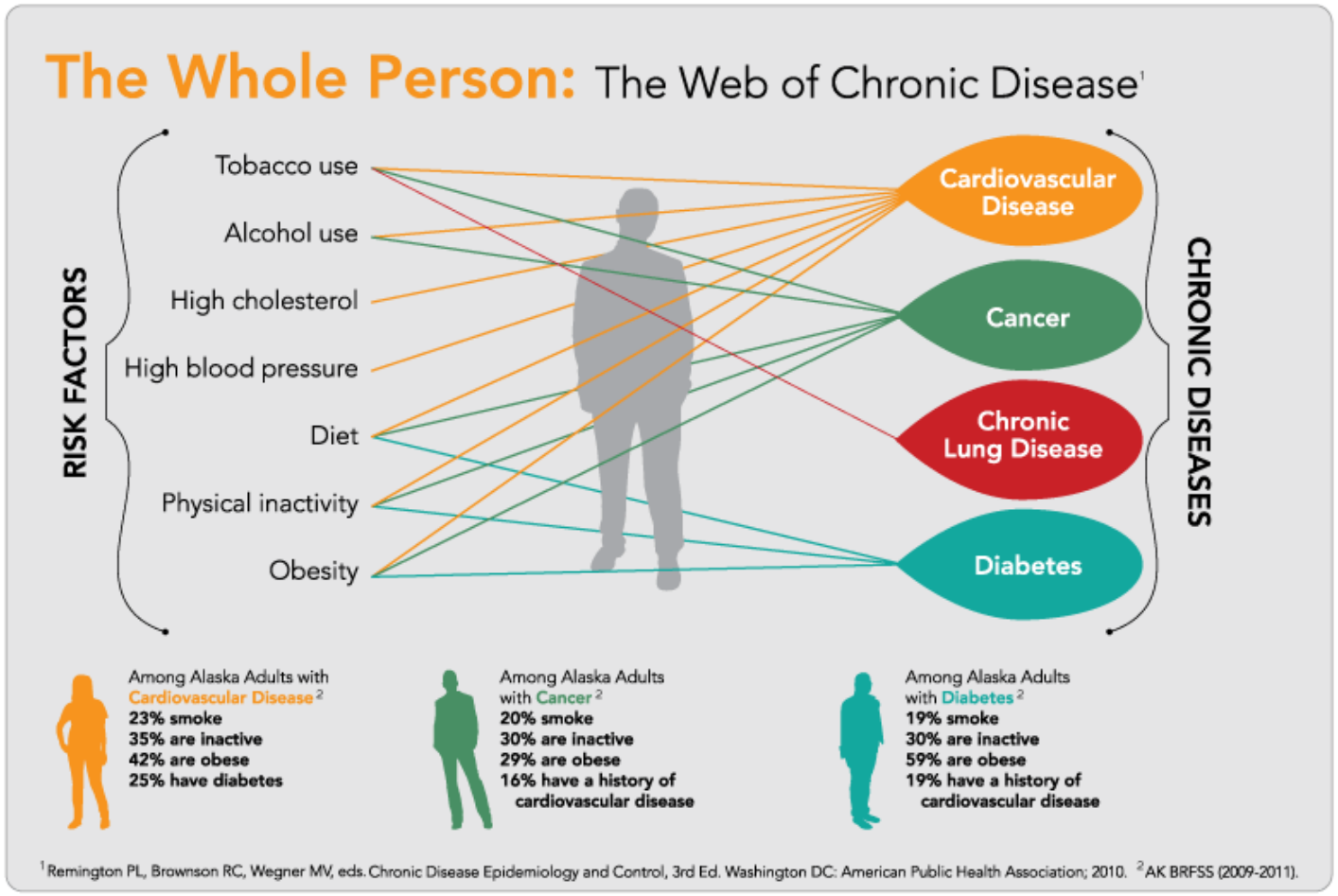
eHealth Summit 2014

Aggregating physiological sensors network data

Frederic Ehrler, PhD
Prof. Paul Albuquerque
Florent Gluck, PhD
Saurabh Raina, PhD
David Issom
Prof. Christian Lovis, MD MPH

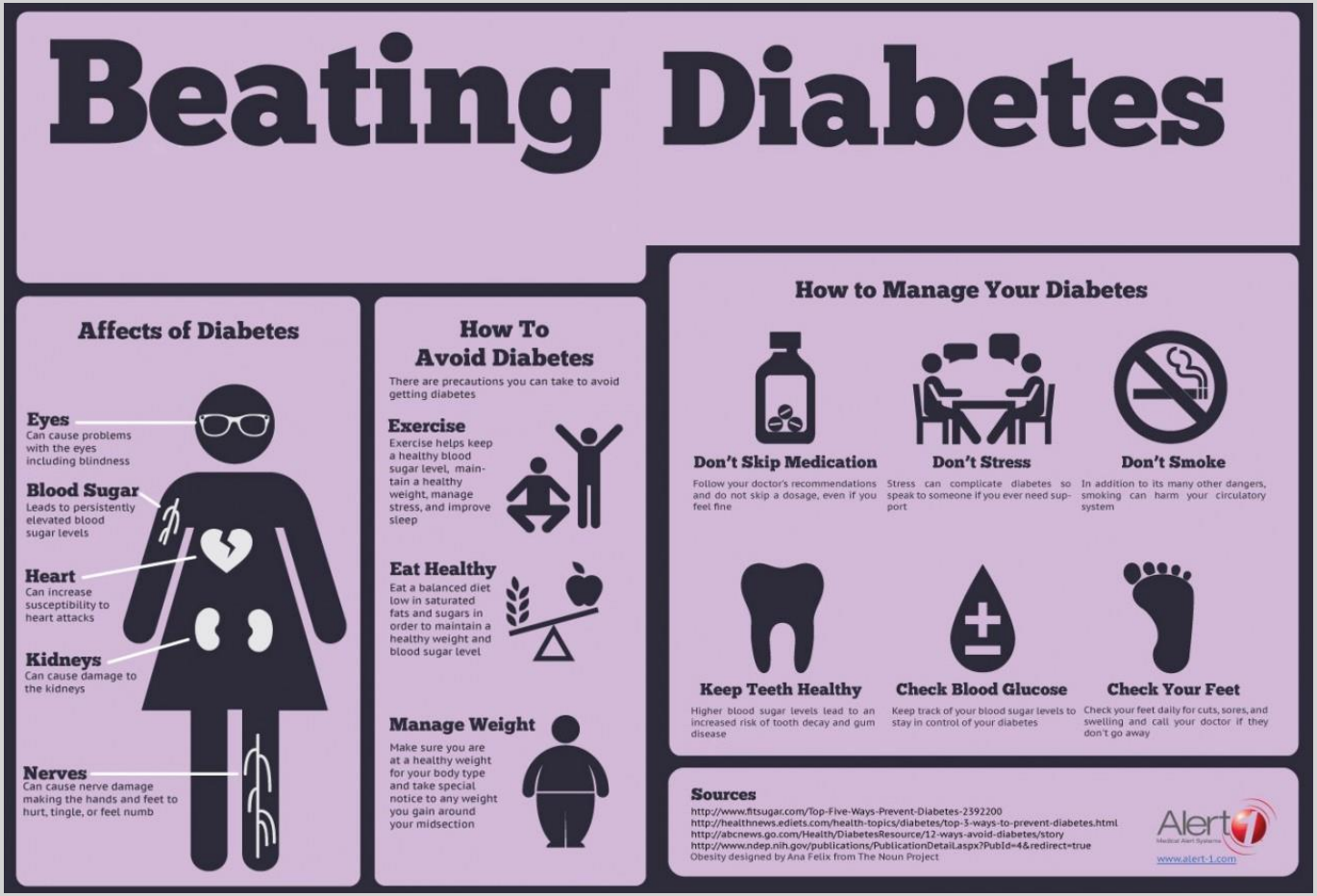
HUG
Hôpitaux Universitaires de Genève

Chronic diseases: multidimensional problems



http://dhss.alaska.gov/dph/Chronic/
Chronic Disease Prevention & Health Promotion

Managing chronic diseases

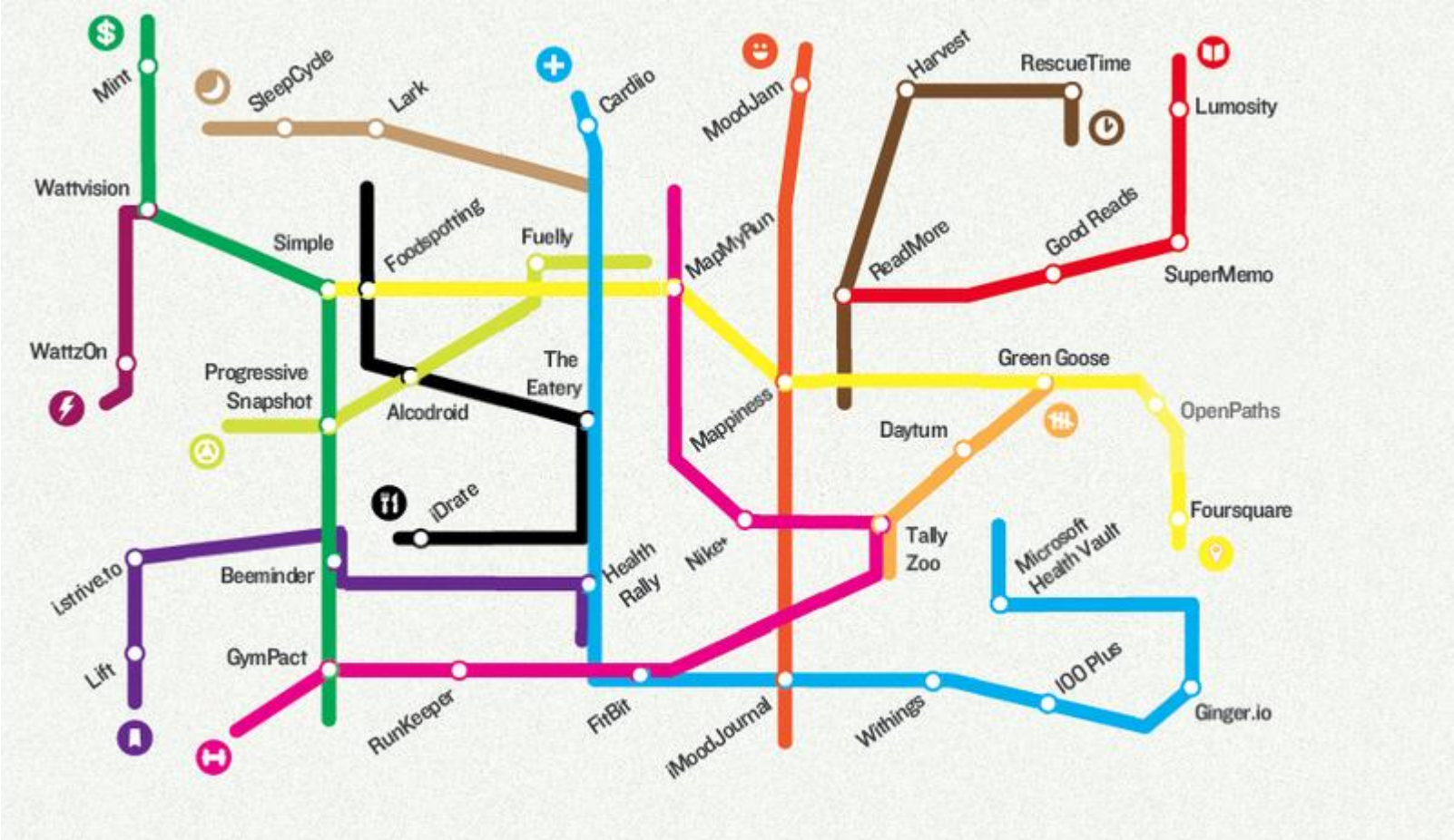


HUG Hôpitaux Universitaires de Genève

Explosion of health sensors

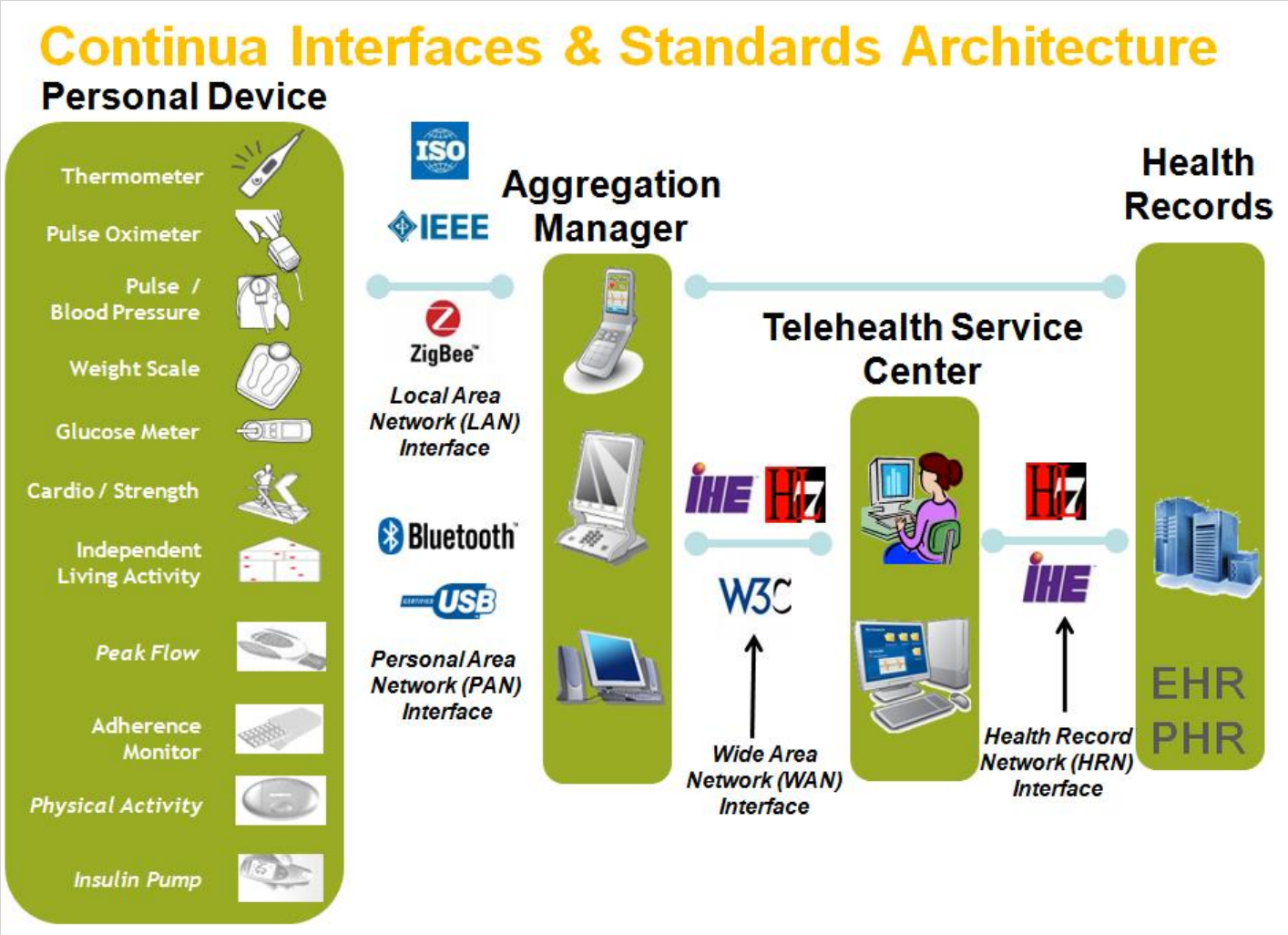
 Pedometers	 Peak Flow Meters
 Blood Pressure Cuffs	 Wireless Pill Bottles
 Pulse Oximeters	 Blood Glucose Meters
 Weight Scales	 Heart Rate Monitors
 Thermometers	 Maternal Monitors

Platforms are flourishing



HUG
Hôpitaux Universitaires de Genève

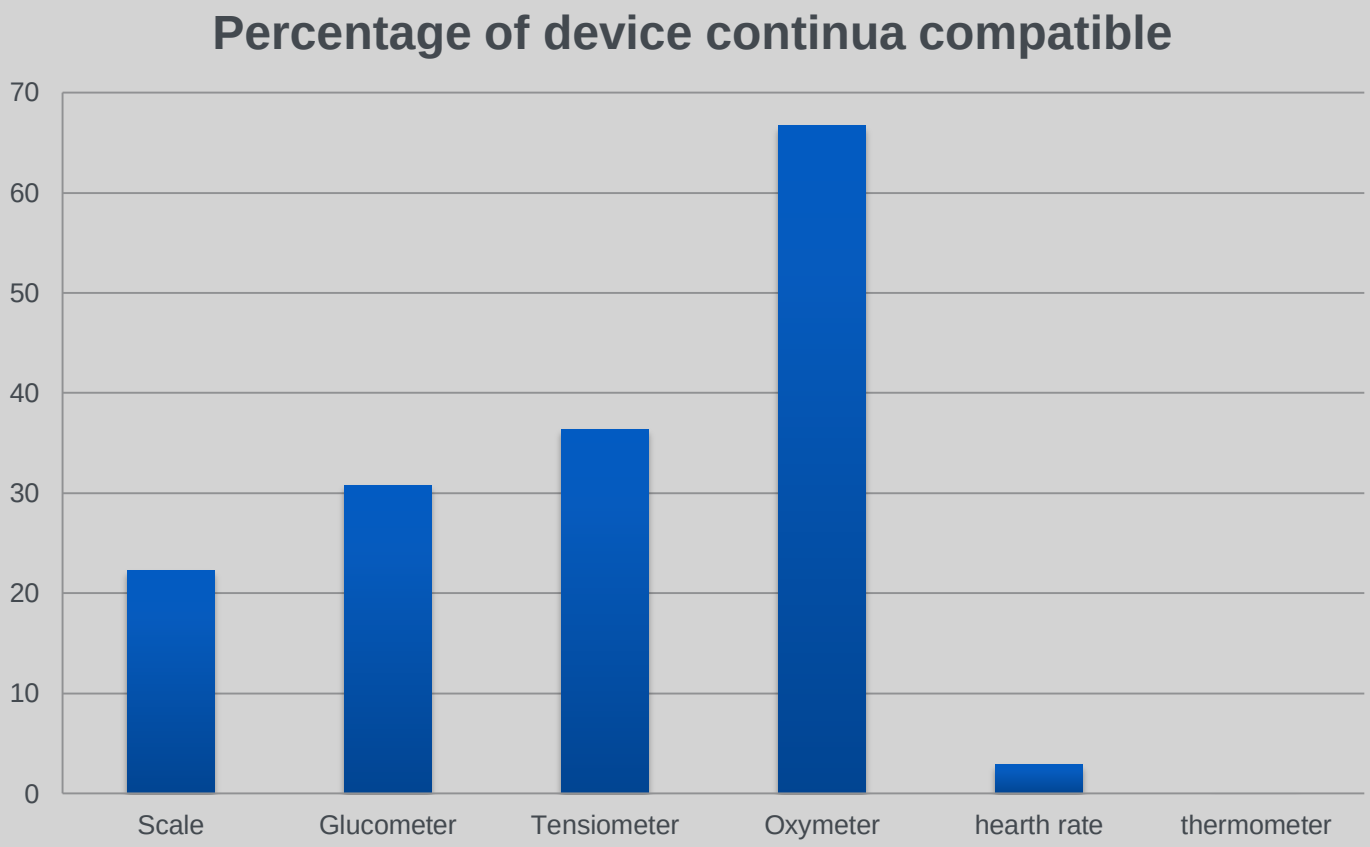
Managing interoperability at the sensors / communication level



ISO/IEEE 11073

출처에서 편집 : Continua Health Alliance

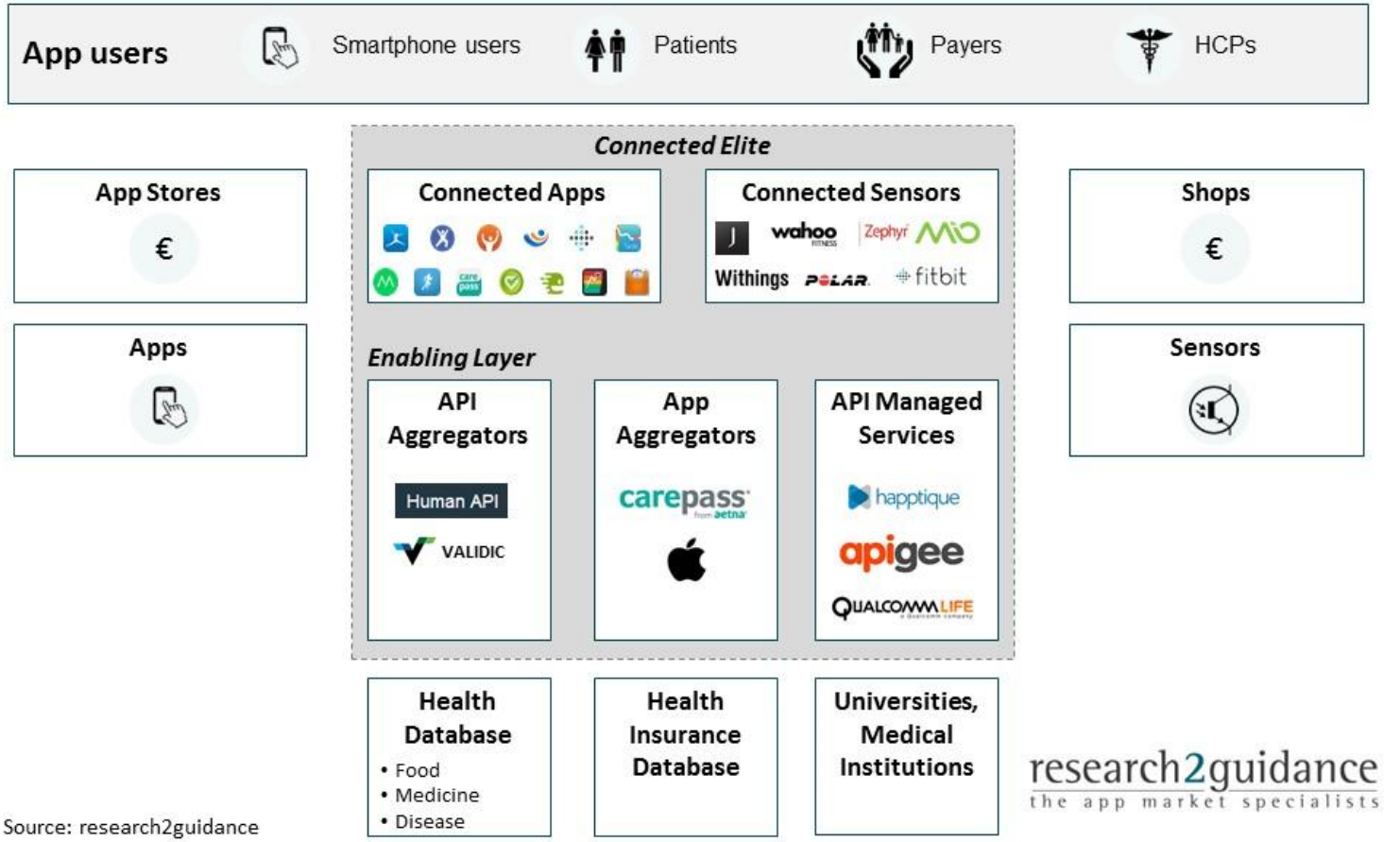
Why not Continua



Hôpitaux Universitaires de Genève

Managing interoperability at the software level

The inner circle of the new mHealth app eco-system



Source: research2guidance

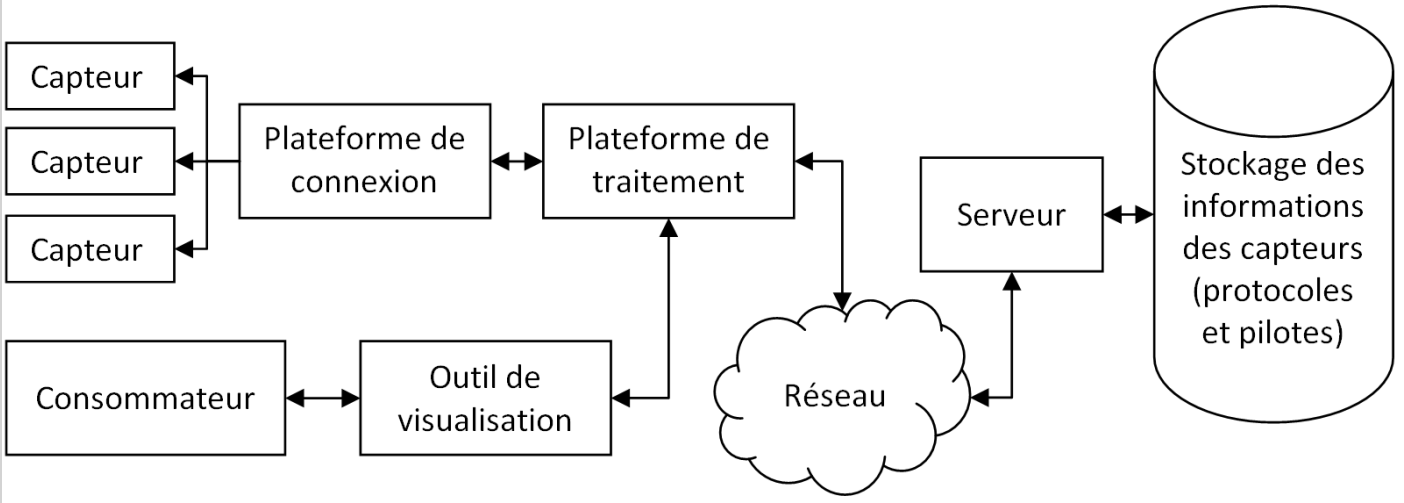
What about a integrated transversal solution ?

- Connecting heterogeneous sensors
- Communicating the signals
- Synchronizing and aggregating signals
- Enhancing decision support

Use case: The Arduino platform

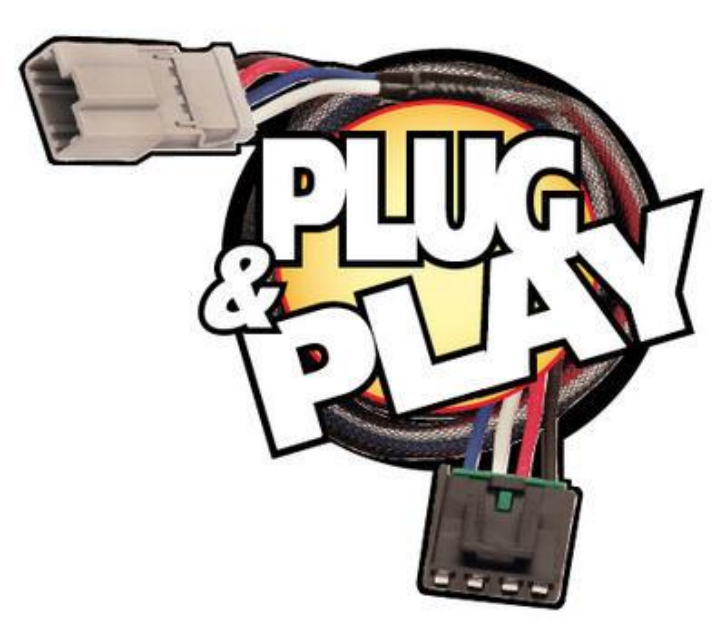
HUG Hôpitaux Universitaires de Genève

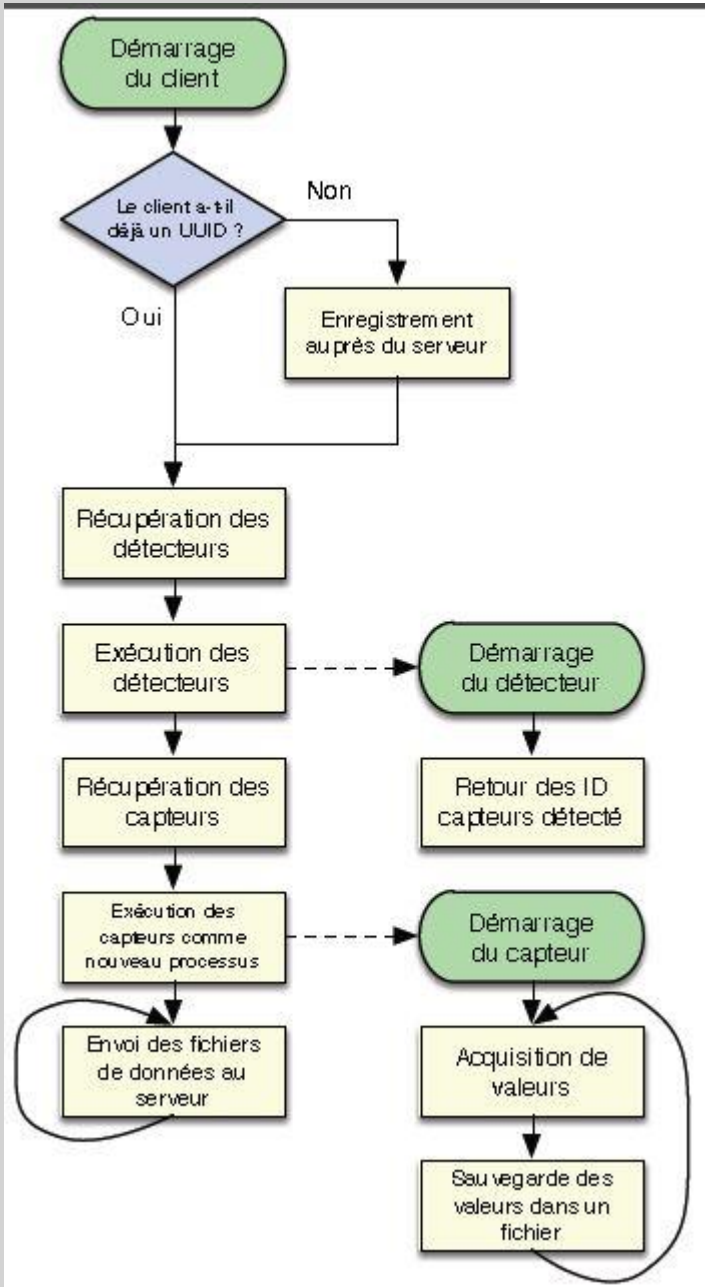
Architecture overview



Connectivity

- Plug and Play architecture
- Detectors identify sensors

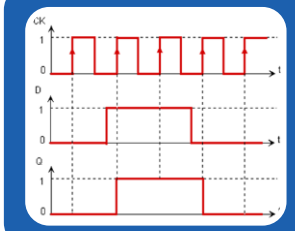




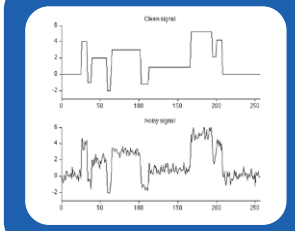
Communication

- Need to understand each other

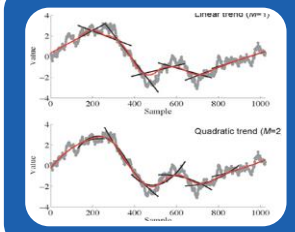
Signal analysis



Synchronization



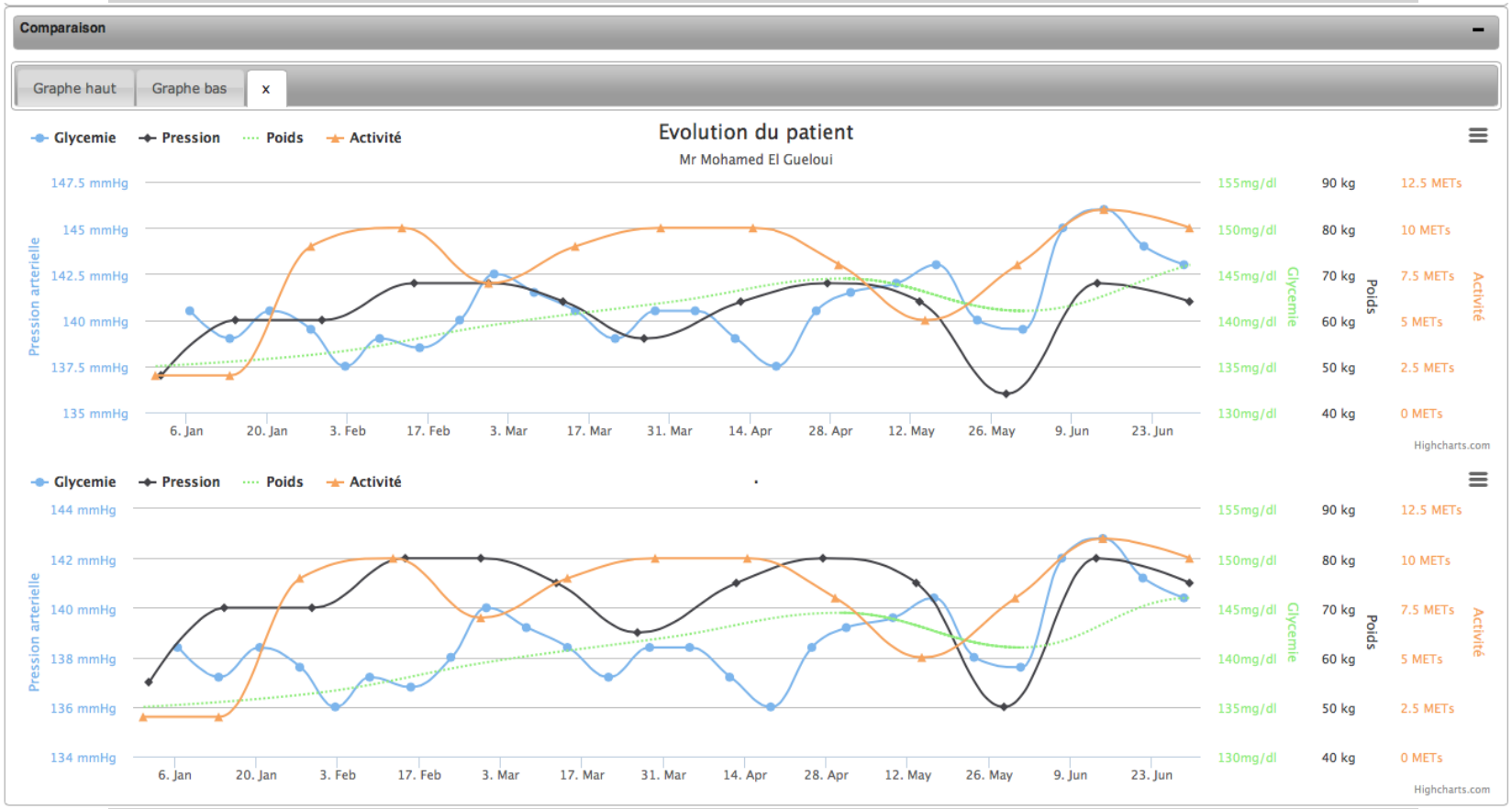
Noise cleaning



Trend computation

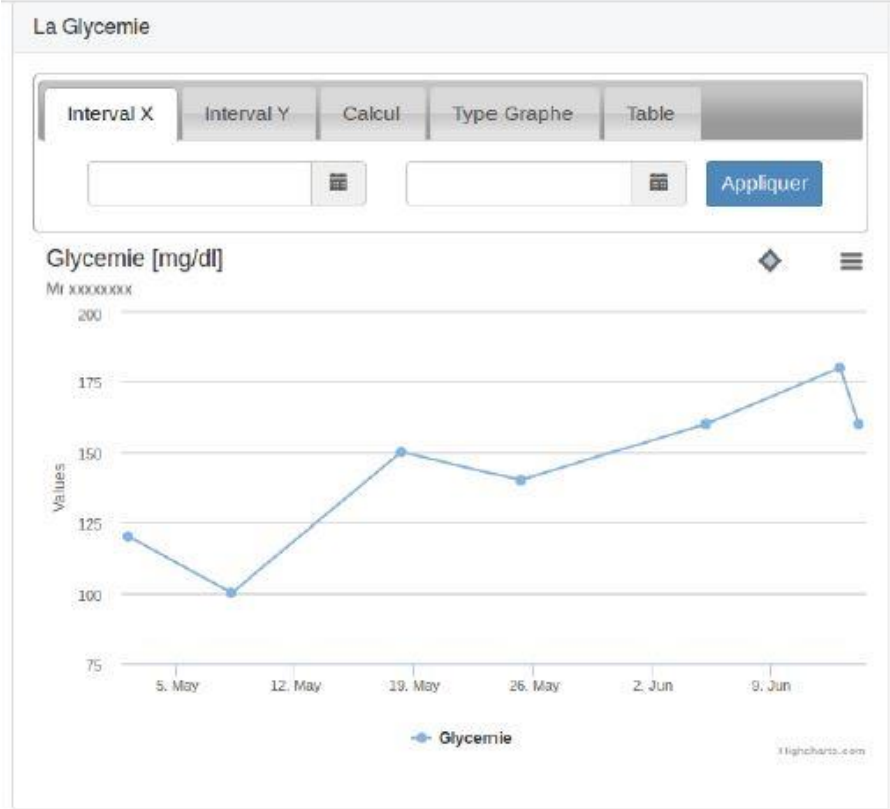
Hôpitaux Universitaires de Genève

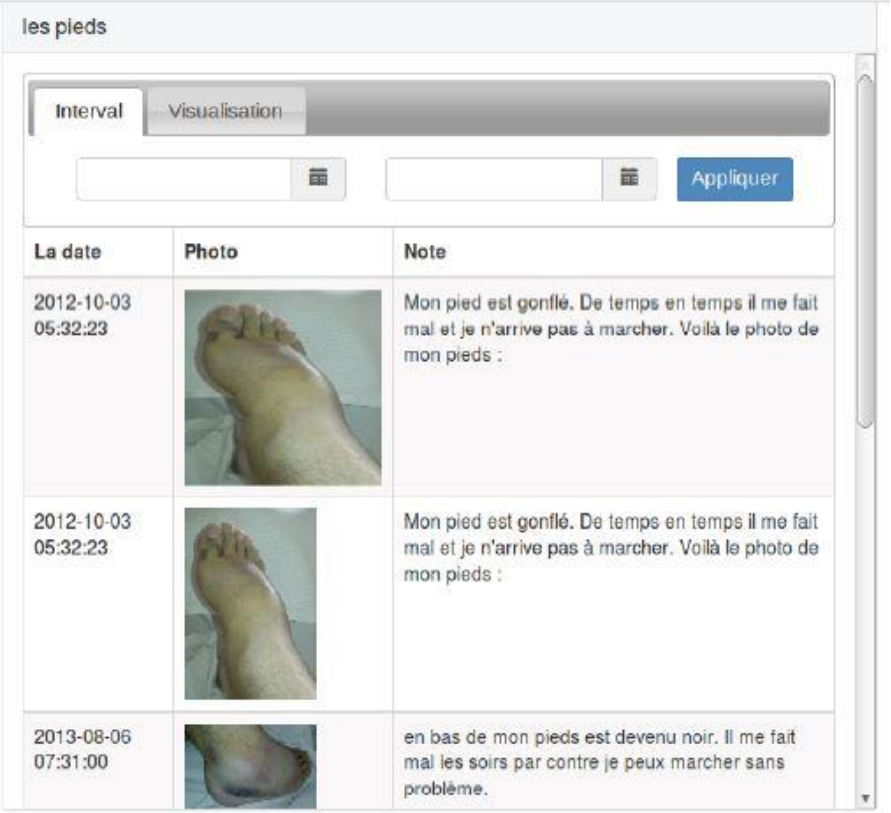
Visualization



HUG
Hôpitaux Universitaires de Genève

Mixing any types of information





HUG
Hôpitaux Universitaires de Genève

Questions & Answers

Hôpitaux Universitaires de Genève