



Digital Transformation of Cardiology: From Devices to Clinical Workflows

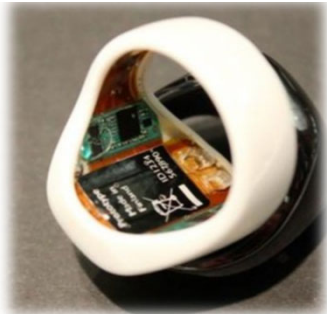
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Division of Cardiology – Healthcare Innovation Laboratory

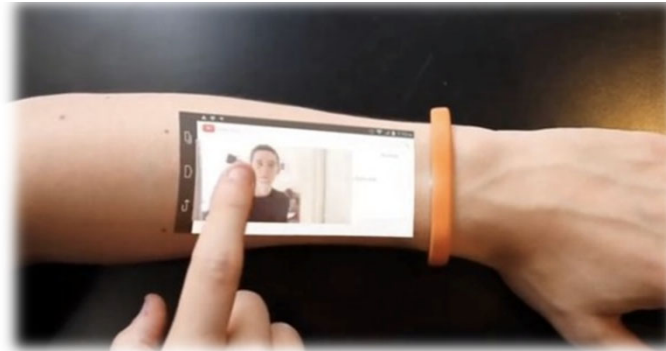
Scripps Clinic & Research Foundation

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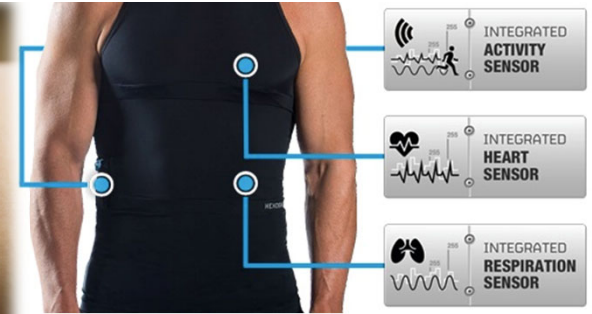
Smart Ring



Smart Computer



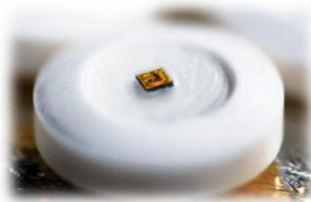
Smart Skin



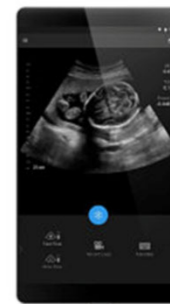
Smart Clothing



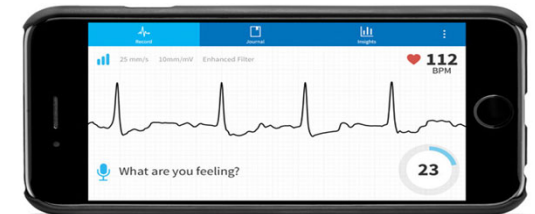
Smartphone Exam



Smart Pills



**Smartphone
Ultrasound**



Smartphone ECG



Smart Necklace

**Smartphone
Lab Testing**



Smart Genome Sequencing



Blood Pressure



Glucose

SmartWatch



Digital Doctors

- ✓ Clinical workflows
- ✓ EMR Integration
- ✓ Actionable Data
- ✓ Precision Medicine
- ✓ Population Medicine
- ✓ Big Data & Informatics
- ✓ Regulation
- ✓ Reimbursement



Digital Devices

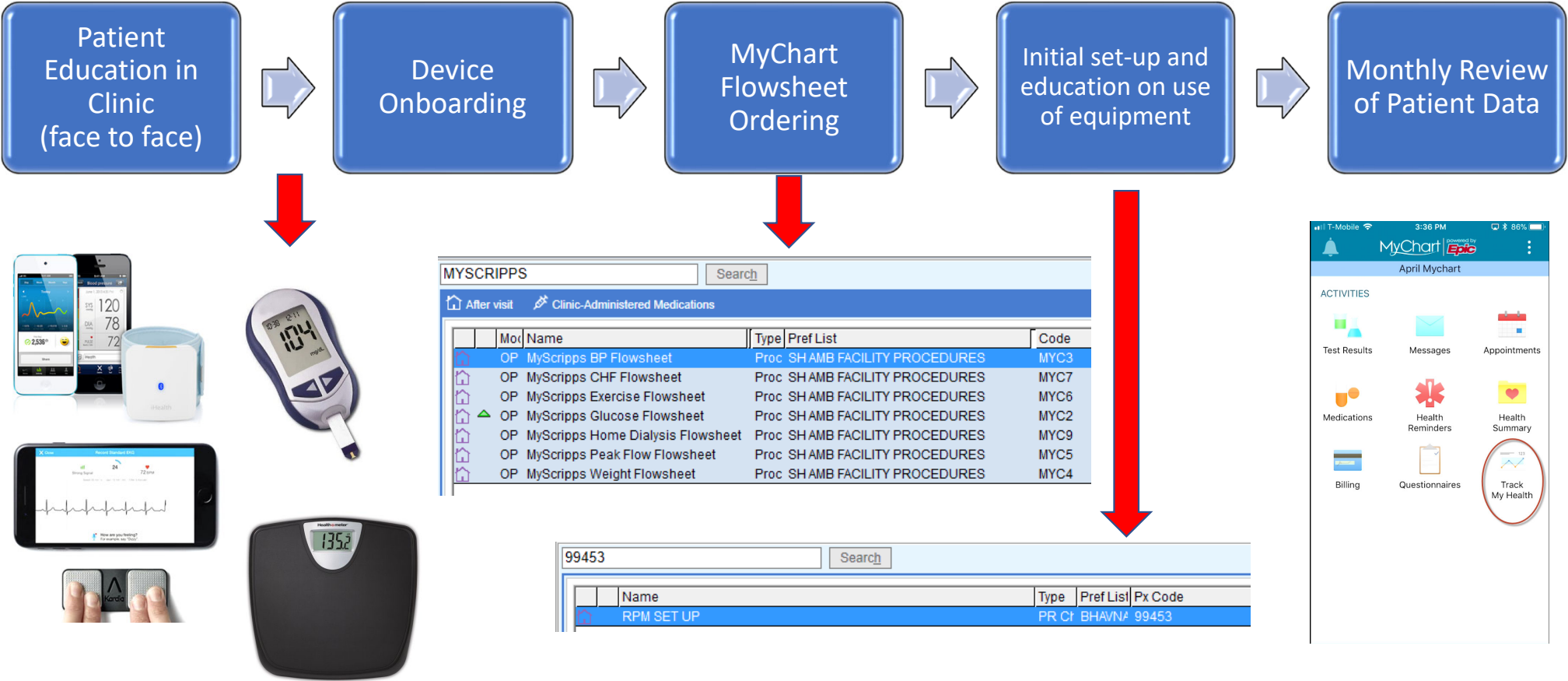
- ✓ Device Designs
- ✓ Apps
- ✓ Wearables
- ✓ Wireless Devices
- ✓ Sensors
- ✓ Robotics
- ✓ Implantables
- ✓ Handheld Imaging
- ✓ Interoperability



Digital Patients

- ✓ Patient Generated Health Data
- ✓ Digital Literacy
- ✓ Digital Engagement
- ✓ Digital Retention
- ✓ Patient Reported Outcomes
- ✓ Senior Care

Remote Monitoring in Practice – Patient & Clinic Onboarding



Hypertension

- Various BP technologies
- Treat to target
- Adjust pharmacotherapy

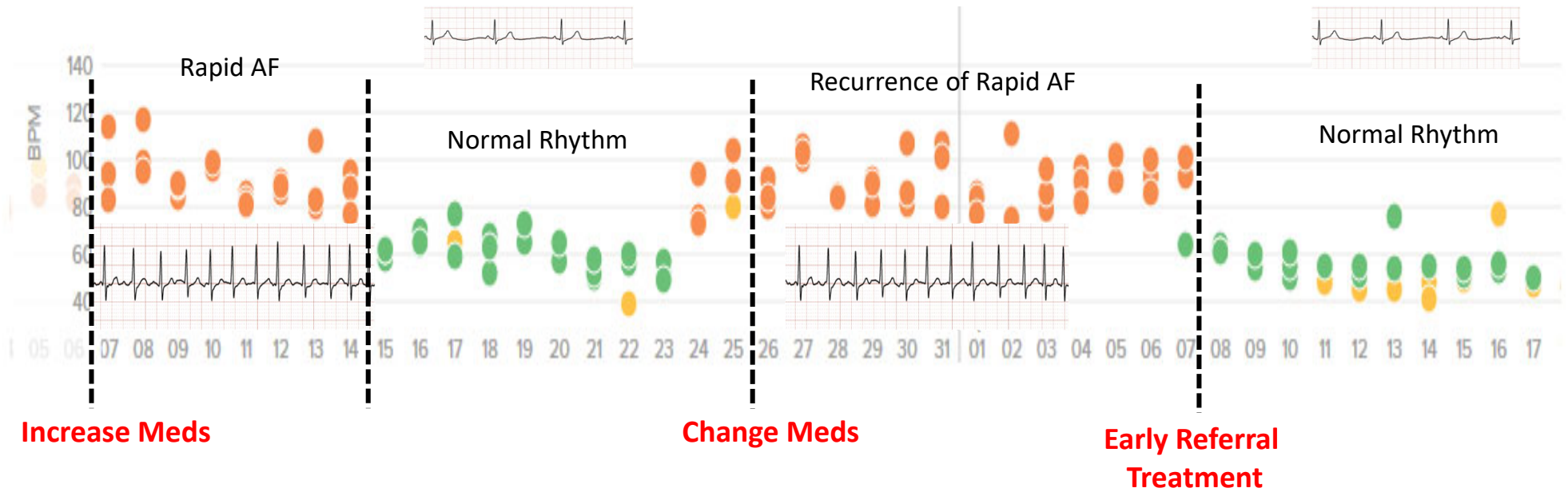
Diabetes

- Continuous glucose monitoring technologies
- Lifestyle and pharmacotherapy

Atrial Fibrillation

- Patient triggered smartphone ECG
- Near real time arrhythmia monitoring





78 YEAR OLD MAN

Atrial Fibrillation

ECG Remote Monitoring

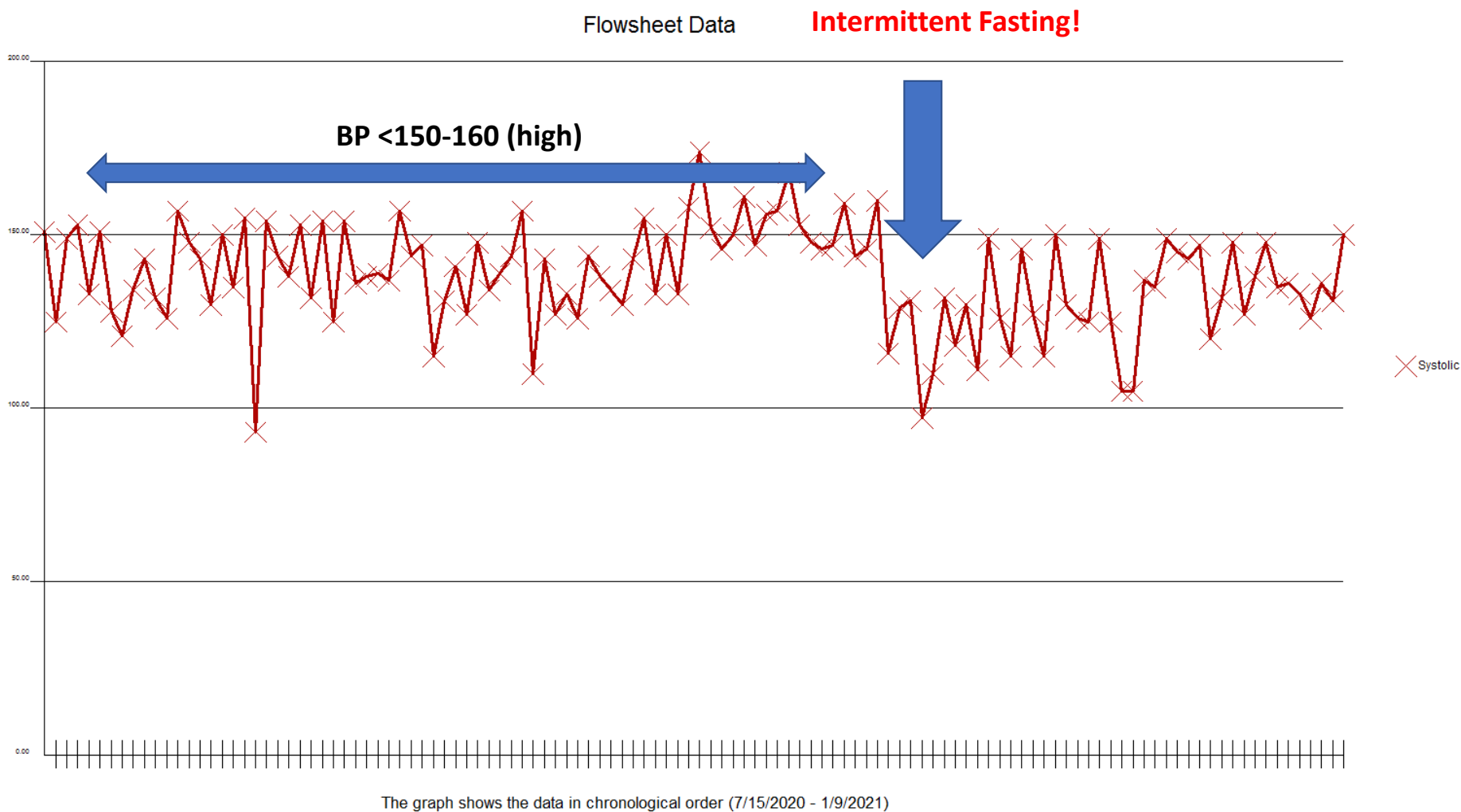
Shared Decision Making

Near Realtime Monitoring

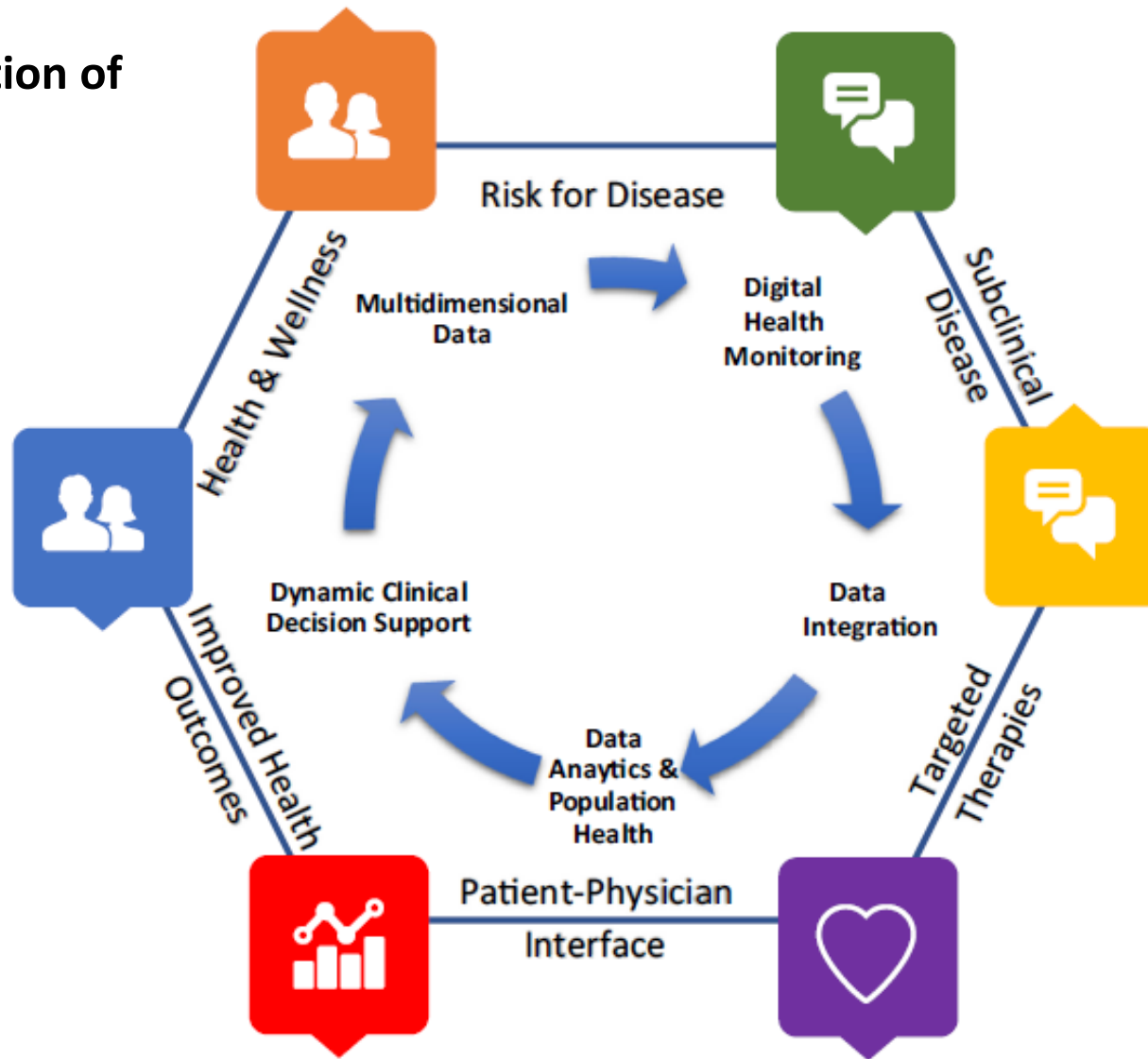
Duration: 4 months



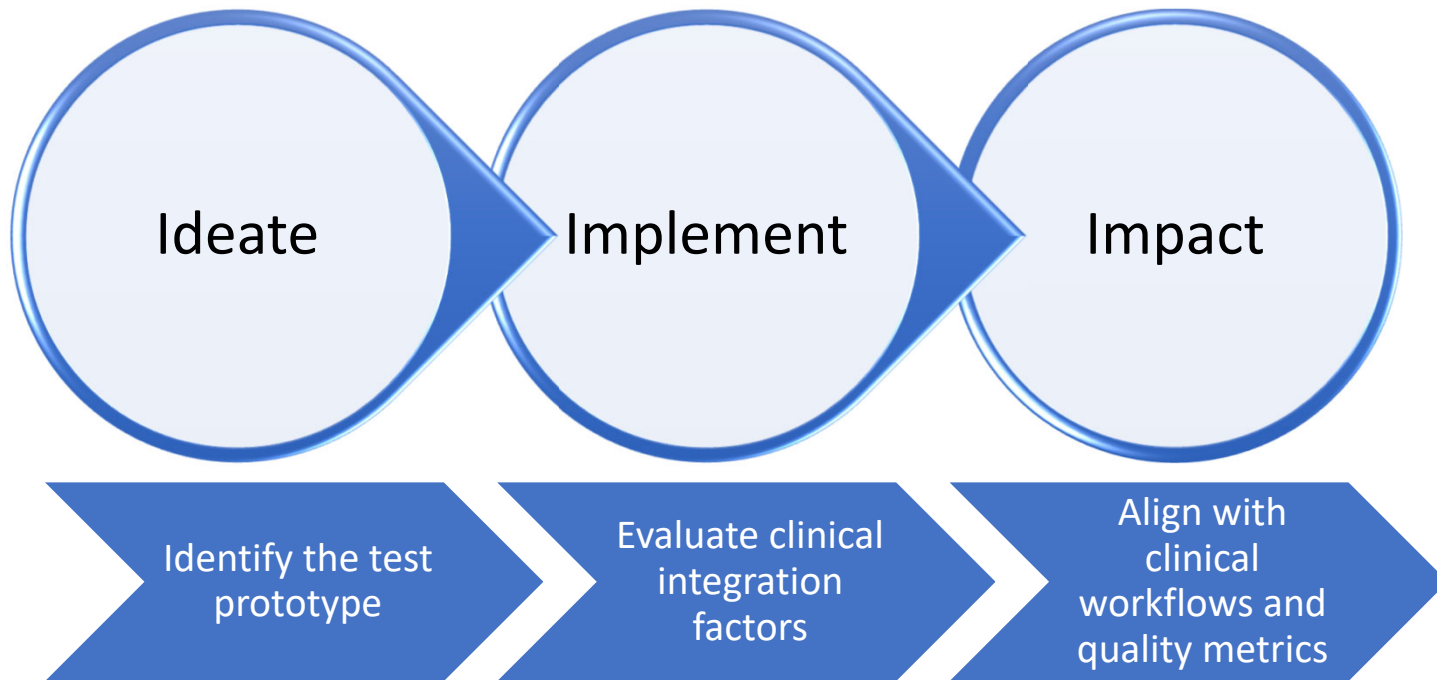
68 year old IHD, hypertension, and obesity → learning about patient behaviors



Digital Transformation of Clinical Cardiology



i³ - Innovation Model for Healthcare



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