Digital Health – Key Messages

LifeWatch®

Diagnostic services for physicians and their patients. Always. Everywhere.

Digital Health Revolution
("Connected Health")

- Digital Health combines the digital and genetics revolutions with health / healthcare, primarily focusing on faster access to healthcare services, reducing inefficiencies, increasing quality, better and more predictable outcomes [1]

- Digital Health includes all elements of mHealth, wireless health, eHealth, Healthcare IT, Big Data, Health Data, wearable computing, Gamification, Telehealth / Telemedicine, Personalized Medicine, etc.

(1) Source: Wikipedia

Key drivers

- Changes in the healthcare reimbursement paradigm (value based care instead of fee for service)
- Advancement in wireless technology
- Advances in behavioral adaptation
- Increase of chronic disease management
- Importance of medical dates (pattern recognition and predictive analytics) will drive adoption of digital health
- Reduction of hospital readmission rates
- Electronic medical record integration based on interoperability / interconnectivity

Digital Health – Trends (1)

- Power-shift from "eminence"-based medicine / evidence-based medicine towards patient-centered medicine ("smart patient")

- Patients are generating their own data on their own devices

- Data is immediately analyzed, graphed, displayed, updated, stored and shared (at the discretion of the respective individual)

- Pervasive connectivity (availability of on-line services and number of devices per person will multiply over the years)

- Consumerization of data (e.g. Genomics Data)

- Clear trend from physical visits towards virtual visits

- Sensors that enable remote monitoring of diseases and more timely interventions can help off-set projected shortages of healthcare staff; given the improved efficiency the number of healthcare staff employees will drop significantly

- Development towards low cost – high tech – high access

Digital Health – Trends (2)

- Open access to data
  - Open access journals (old paradigm: publish data in a peer-reviewed journal)
  - New developments in medical research
    - Free immediate access to trial data, discoveries and innovations
    - More data sharing between universities and pharma companies and even amongst pharma companies
    - Leverage open digital infrastructure
      - Facilitate recruitment / enrollment / screening processes in clinical trials
      - Reduce number of clinical trials leading to higher efficiency
      - Maximize use of historical data
      - Proactively drive research
      - Use artificial intelligence / algorithms
    - Potential impact on Intellectual Property regulations / landscape
    - Potential legal issues in regards to:
      - Product Liability
      - Cybersecurity (privacy and security rights, e.g. HIPAA, HITECH)
      - Health insurance
      - Monetizing personal data, etc.

Digital Health – Trends (3)

- Biomedical Informatics – Make use of "Big Data"
  - Increased willingness to share anonymous and non-anonymous data
  - Several primarily patient-driven initiatives are ongoing
    (Cancer, Multiple Sclerosis, Diabetes, etc.)
  - Open science expedites discovery
  - Combining in its entirety all past, scientific, technological and digital data
  - Huge amounts of data per patient that can be analyzed / used to predict / preempt disease and meaningfully impact prevention resulting in a new diagnostics "hype"
  - Gradual overlap of disease and prevention (consumerization of medicine)
  - Highly sophisticated IT platforms are a prerequisite ("EMR integration" etc.)

- Interoperability – Interconnectivity will be key drivers
  - Data will be the gold of the future
  - Large players (Apple, Google, etc.) will drive the exchange of data and hence boost awareness, whilst at that same time driving the consumer market (primarily non-regulated)
  - Data mining, predictive analytics
  - New value chain: **Data ➡ Information ➡ Expertise ➡ Wisdom**[1]

(1) Source: Wikipedia

Digital Health – Trends (4)

- What is needed to be a Digital Health player
    - Service platform (Call Centers 24/7/12 + logistics + clinical back-up services)
    - Technology (devices, embedded technology, software)
    - Access to data
    - Secure storage data
    - Analysis capability (algorithms, medical interpretation)
    - Patient / Doctor database
    - Healthcare credibility

Digital Health – Trends (5)

- Total addressable US market for remote patient monitoring could reach approx. USD 15 Billion (near term)
- Potential systems savings still to be determined
- Cardiac diseases incl. relevant co-morbidities are the most important opportunity (e.g. stroke, COPD, diabetes, etc.)

Thank you!