eHealth For Urgent Public Health Challenges

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eHealth for a Healthier Europe!

opportunities for a better use of healthcare resources
Clinical Metric
- e.g. Number of Adverse Drug Events (ADE)

1-% Technology adoption
- Remaining level of technology adoption

Potential Benefit
- e.g. Reduction in Number of ADEs

Quantified Potential
- e.g. Potential reduction in Number of ADEs

Figure 3. Mechanism for Estimation of Quantified Potential

Documented Benefit
- e.g. 15% reduction in preventable ADEs through CPOE
A quantified potential is calculated based on three factors:

- **Clinical Metrics** – metrics gathered from six EU member states that indicate the current state of various areas of healthcare in these member states.
- **Documented Benefit** – Benefits reported in case studies are extrapolated and applied to clinical metrics from the six EU member states to calculate the quantified potential of technology in each member state.
- **Level of technology adoption** – self-assessed levels of technology adoption are applied to the previous calculation to estimate the potential benefit corresponding to the remaining level of adoption for each technology.
Figure 4. Technologies and Documented Benefits related to Patient Safety

- **Patient Safety**
  - BI
  - CPOE
  - RFID
  - EMR/CPR
  - ETP

- **Technology**
  - B1
  - B5
  - B11
  - B12
  - B4
  - B2
  - B35
  - B19
  - B17
  - B14

- **Documented Benefit**
  - B1
  - B4
  - B2

- **Quantified Yearly Potential**
  - 49,000 reduction in HAIs in all six EU member states potentially releasing 270,000 bed-days
  - Over 100,000 reductions in inpatient ADEs in the six member states
  - 26,000 inpatient medication errors could be avoided in the Netherlands
  - 3,000 diabetic deaths could be avoided in Spain
  - 5 million outpatient prescription errors could be avoided in the six member states
Figure 5. Technologies and Documented Benefits Related to Quality of Care

- **Political Goal**: Telemedicine, Electronic Appointment Booking, RFID, EMR/CPR, BI, PACS, Portal, PHR, CPOE, ETP, EHR
- **Technology**
  - **Documented Benefit**
    - B22
    - B24
    - B10
    - B11
    - B8
    - B9
    - B35
    - B36
    - B7
    - B15
    - B16
    - B17
    - B18
    - B20
    - B21
    - B19
- **Quantified Yearly Potential**
  - Over 5.6 million hospital admissions for chronic conditions could be avoided collectively in the six studied member states.
  - In England over 800,000 surplus laboratory tests carried out on patients could be avoided saving over €3.6 million.
  - The number of 90 days hospital readmissions for CHF in France could be reduced by over 39,000 admissions.
Figure 6. Technologies and Documented Benefits related to Availability

- **Political Goal**: Availability
  - Telemedicine
  - Electronic Appointment Booking
  - RFID
  - EMR/CPR
  - EHR
  - PACS
  - Patient Portal
  - PHR

- **Technology**:
  - **Telemedicine**
  - **Electronic Appointment Booking**
  - **RFID**
  - **EMR/CPR**
  - **EHR**
  - **PACS**
  - **Patient Portal**
  - **PHR**

- **Documented Benefit**:
  - B24
  - B9
  - B10
  - B37
  - B16
  - B19
  - B15
  - B20
  - B26
  - B28
  - B31
  - B25
  - B34

- **Quantified Yearly Potential**:
  - Over 9 million bed-days equivalent to potential opportunity savings of over $3.7 billion could be made available collectively in all six EU member states.
  - Over 600,000 more patients could be seen in secondary care appointments in England.
  - Waiting times for first outpatient appointments in France could be shortened by 5.3 days.
  - Almost 2.8 million bed-days could become available in the Czech Republic achieving potential opportunity savings of over €460 million.
  - 65 million GP appointments could be made available in all six member states. Over 370,000 GP appointments could be made available in Sweden alone.
Figure 7. Technologies and Documented Benefits Related to Empowerment

- **Political Goal**: Empowerment
- **Technology**:
  - EHR
  - Patient Portal
  - EMR/CPR
- **Documented Benefit**:
  - B6
  - B31
  - B18

**Quantified Yearly Potential**:
- Patients can have more control on how and when they engage with their physicians through alternative ways of communication such as e-visits.
- Patients can become more involved in and accountable for the management of their chronic conditions through self-management goals.
Have You Googled Yourself Today?

Internet use in the U.S. is evolving, as shown by a recent Pew study. Some findings:

- 47 percent of all Internet users have searched for themselves online, up from just 22 percent in 2002.
- Only 3 percent of self-searchers say they search for themselves regularly. 22 percent say they search using their own names “every once in a while.” 74 percent say they’ve checked only once or twice.
- 60 percent say they are not worried about how much information is available about them online.
- When users search their names, 60 percent find some relevant results and 38 percent don’t.
- 87 percent of self-searchers who locate information about themselves say most of it is accurate, up from 74 percent who said this five years ago. 11 percent say most of the information is not accurate (down from 19 percent five years ago), and 4 percent say there’s information online that’s embarrassing or inaccurate.
- When it comes to Googling others, most users say they search for someone from their past (36 percent) as opposed to a job candidate (11 percent) or someone they are dating (9 percent).

Source: Pew Internet & American Life Project, 2008
The use of Internet to find health care related in formations

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Health On the Net

- 26,000 health related websites available
- 33m US citizens used the net for health advice in 1998
- 27% of female users & 15% of males look at medical information at least once per week (Source BMJ 13/11/99)

Primary Hits (August 1999)

1. drkoop.com (No. 76) - 3,474,000
2. aol health.aol (No. 229) - 1,508,000
3. onhealth.com (No. 246) - 1,432,000
4. webmd.com (No. 324) - 1,207,000
5. discoveryhealth.com (No. 405) - 1,036,000
6. betterhealth.com (No. 533) - 819,000
7. thriveonline.com (No. 539) - 813,000
8. Mayohealth.org (No. 583) - 766,000
9. Healthyideas.com (No. 637) - 709,000
10. Intelihealth.com (No. 898) - 514,000
Every month, there are over 25 million website visits to nearly 500 online health and wellbeing sites by UK citizens, with NHS Choices accounting for over half of all traffic and WebMD handling nearly two million visits.

NHS - Digital First - The delivery choice for England’s population, 2012
The New Model

Involve patient and family

The patients know more about their diseases than me. I must get faster modem, higher speed internet access than them.

Valdivieso, Spain
Figure 10. eHealth Self Estimated Level of Adoption among the Six Member States

*Electronic Medical Record / Computer based patient record
Figure 8. Remaining Potential Contribution of eHealth to Political Goals
<table>
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<tr>
<th>Technologies</th>
<th>P1 Patient Safety</th>
<th>P2 Quality of Care</th>
<th>P3 Availability</th>
<th>P4 Empowerment</th>
<th>P5 Continuity of Care</th>
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<td>T10 Business Intelligence (BI) – for real time detection of hospital infection patterns</td>
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Three Models

Real-time Teleconsultation

Store-and-forward Teleconsultation

Telemonitoring (Remote Patient Monitoring)

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Real-Time Teleconsultation

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<th>Modality</th>
<th>Pros</th>
<th>Cons</th>
<th>Comments</th>
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<td>Real-time Teleconsultation</td>
<td>Immediacy, ‘In person’, Trust, Consultant able to drive session, Teaching moment</td>
<td>Must schedule all parties at once, Not more efficient, Supply ≠ demand, Scope expansion, Regulatory implications</td>
<td>Addresses inequitable distribution, not scarcity, Avoids travel</td>
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## Store-and-Forward Teleconsultation

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<td>Store-and-forward</td>
<td>More efficient</td>
<td>Time lag to diagnosis</td>
<td>Addresses inequitable distribution and scarcity</td>
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<tr>
<td>Teleconsultation</td>
<td>Defined scope</td>
<td>Limited patient interaction</td>
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<td></td>
<td>Supply = demand</td>
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<tr>
<td></td>
<td>All parties work independently</td>
<td>Potential distrust</td>
<td>Avoids travel</td>
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Proprietary & confidential
# Remote Patient Monitoring

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<td>Telemonitoring</td>
<td>Better access</td>
<td>Data issues</td>
<td>Multimodal by population</td>
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<td>‘Personalization’</td>
<td>Integration issues</td>
<td>Team-based care</td>
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<td>Early detection</td>
<td>Rules engine issues</td>
<td>Requires initial in-person visit</td>
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<tr>
<td></td>
<td>Fewer visits and hospitalizations</td>
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<td></td>
<td>Members love it</td>
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Proprietary & confidential
The AALJP is a funding activity that started in 2008, with 23 countries working together to develop a joint programme of activity to improve the quality of life for older adults through the application of Information and Communication Technology (ICT). The programme co-funds projects between at least three partners from our partner states (Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Israel, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Switzerland and the United Kingdom).
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What is included in Bodycheck kit?
Potential of the m-Health Market

• 9.8 bln USD in 2010

• 23.0 bln USD in 2015

• 500 mln smartphones will use apps for mobile healthcare
Pricing Model – you sell tests

• Sales price of the test € 195,-

Payment to Bodycheck for analysis of test results and medical validation:
€ 50,-

Your net income per test:
€ 145,-
Pricing Model – we give you tests

Bodycheckpoint receives € 50,- for each test performed on customers that are referred to Bodycheckpoint by Bodycheck.

Bodycheck has contracts with companies, insurers, sport associations to perform tests. Bodycheck sends the people for tests to Bodycheckpoints.

REMARK: performing a full test takes roughly 20-30 minutes.
Business model

- 30 leads offered to you: $30 \times € 50,= \quad € 1,500,=
- 10 leads by you: $10 \times € 161,= \quad € 1,610,=
- Total: \quad € 3,110,=

- Leasing price Bodycheck kit: € 480,=
- Payment for medical assessment: € 500,=

- Profit per month: € 2,130,=
FIAT 500 with Bodycheck Logo’s