# Continua, a key component for the transformation of healthcare

## Presentation to governments and healthcare providers


Laurent Bouskela
Chair, MAWG
Product Manager
Orange

Rob Havasy
Executive Director, Continua
Vice President, PCHA

Anthony Delli Colli
Vice-Chair, MAWG
VP, Marketing
Elbrys Networks, Inc.

mawg-chair@continuaalliance.org



Personal Connected Health Alliance
A collaboration between Continua, mHealthSummit and HIMSS

*Empowering individuals to better manage their health.*

December 2014

# Who is the presentation for?

## Governments' related bodies

- Ministries of health / regulators.
- International health organizations.
- Public health insurance organizations.
- European Commission.
- CMS / Medicare / Medicaid / regional governments in the US.

## Healthcare providers

- Hospitals.
- Clinics.
- Medical centers.
- Medical laboratories.
- Doctors.
- ACOs (Accountable Care Organizations) in the US.

# Contributors

In the name of Continua, we thank the people that contributed to improve this document (healthcare providers, government representatives).

# Continua

Continua is a non-profit, open industry organization of healthcare and technology companies joining together in collaboration to improve the quality of personal healthcare. In February 2014, Continua, HIMSS and mHealth Summit created the Personal Connected Health Alliance (PCHA).

Continua is dedicated to providing chronic disease patients with interoperable, unobtrusive devices that can be used at home, at work, or on the move, allow them to regularly track and share their health status. It also enables care givers to make necessary interventions and family members to play a greater role.

ITU adopted Continua guidelines in December 2013. (recommendation ITU-T H.810)

# Personal Connected Health Benefits

MEDICAL — Patients can stay at home and have good care.
"The French government will invest €650 million"
(Le Monde, June the 3rd, 2014)

SOCIAL — Families can play an active role.

FINANCIAL — The Whole System Demonstrator goals

- 14% reduction in the number of patient bed days.
- 20% reduction in emergency admissions.
- 14% reduction in elective admissions.
- 15% reduction in emergency department visits.

(3millionlives/UK)

# We believe in interoperability

Interoperability: Ability of a system or a product to work with other systems or products without special effort on the part of the customer. (IEEE)

We believe, as members of Continua, that interoperability is beneficial for everybody, and that it can help personal connected health develop faster and on a larger scale.

# Continua unique value proposition

The only organization in Connected Health at home to focus on interoperability from the patients to the caregivers, with clear, detailed, and ready-to-use guidelines based on existing standards such as IEEE, HL7, or SNOMED CT.

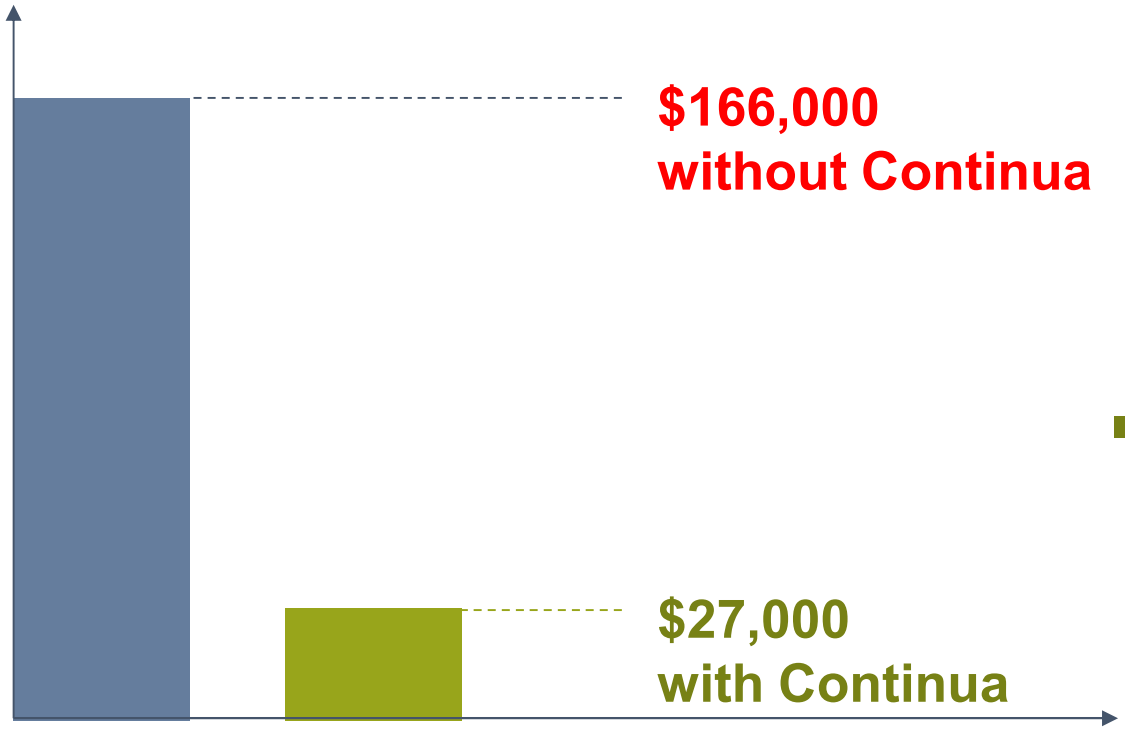
Continua is to the Connected health at home what IHE is to the hospital environment (definition of profiles).

It also provides certification, assistance, and extensive source code library.

"We do not see any alternative to Continua" wrote Roald Bergstrom, the Principal Advisor to the National Health Authority in Norway.

# Interoperability saves money

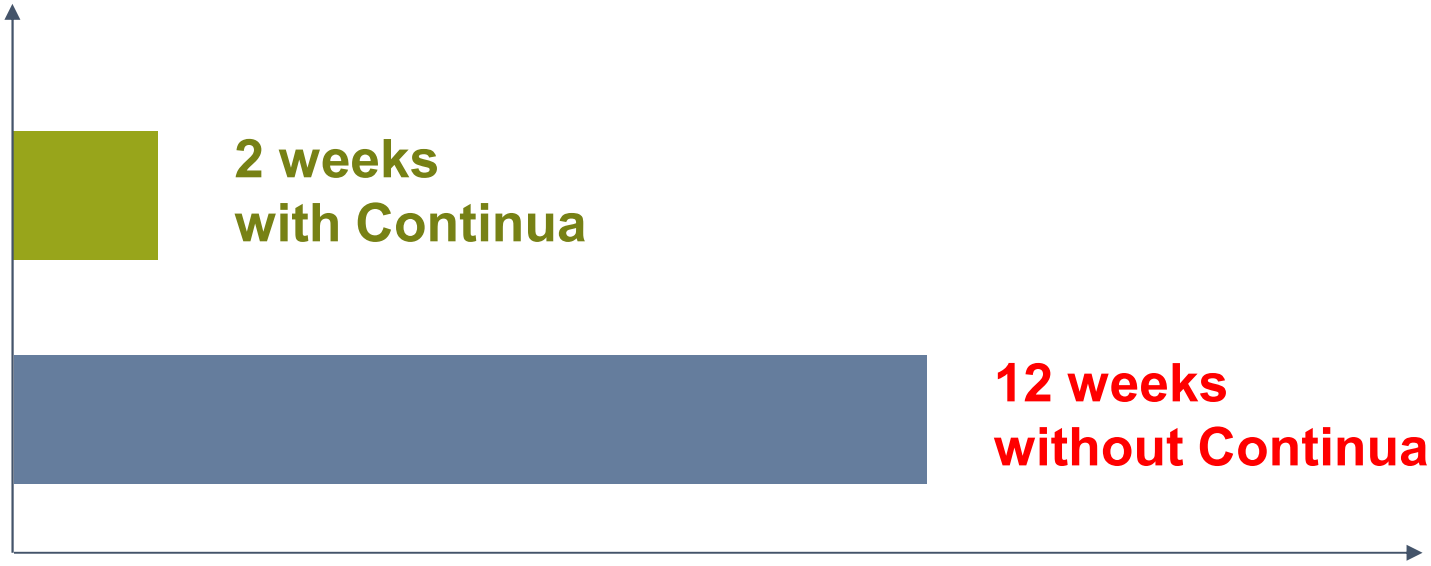
Earthquake survivors dwelling in camps at high risk for a stroke in Japan.
A service to remotely monitor blood pressure has been developed ($).




**- 84%**

# Interoperability saves time

Earthquake survivors dwelling in camps at high risk for a stroke in Japan.
A service to remotely monitor blood pressure has been developed ($).



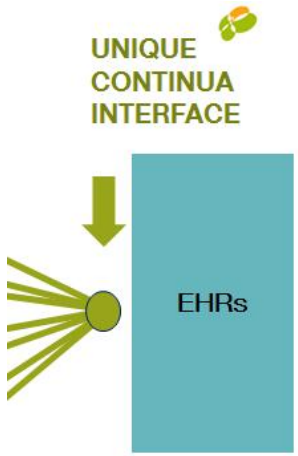

*Source: Continua*
*Estimate from participating companies.*

# 6 times cheaper and faster

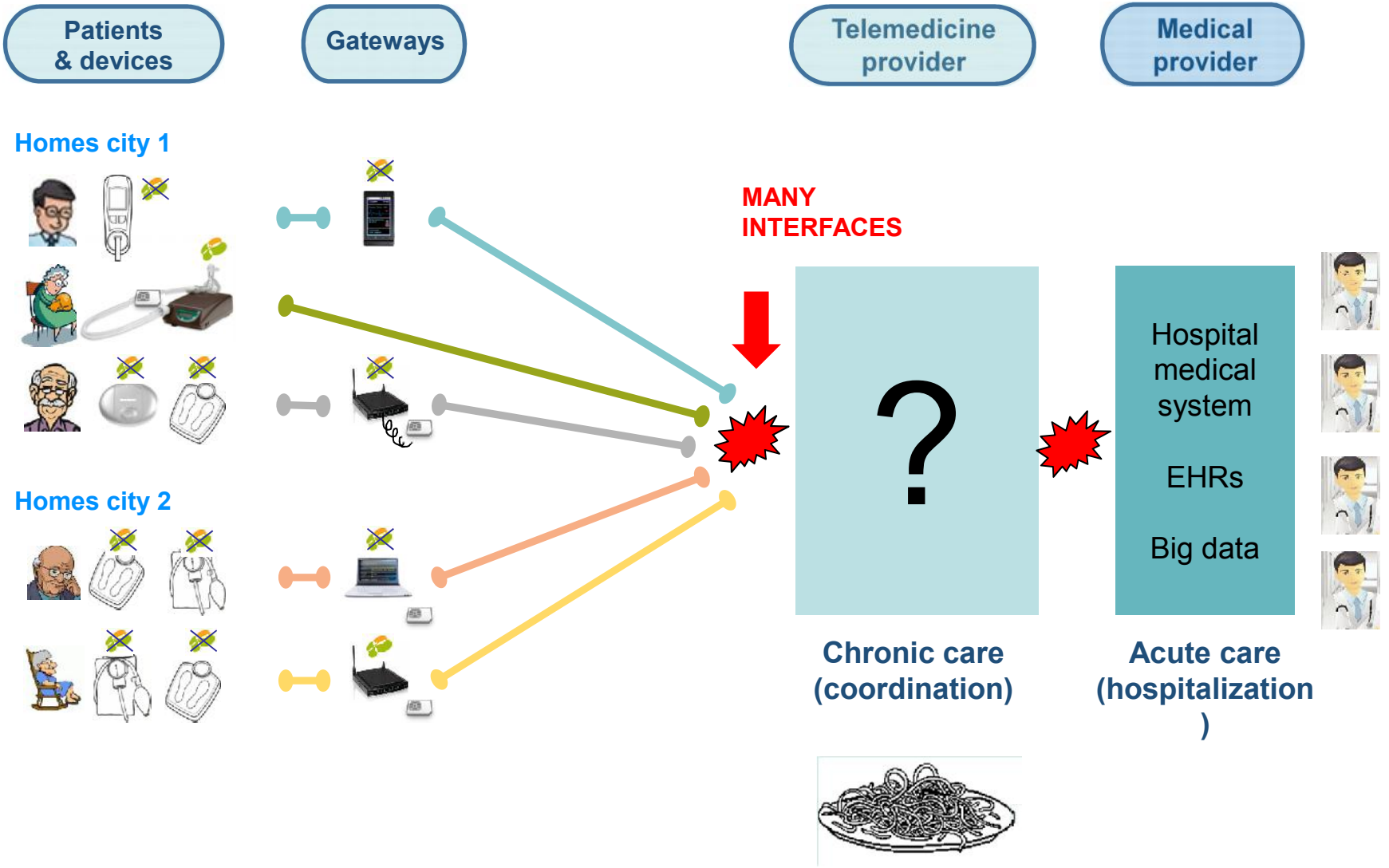
Plug-and-play Continua Certified Devices

+

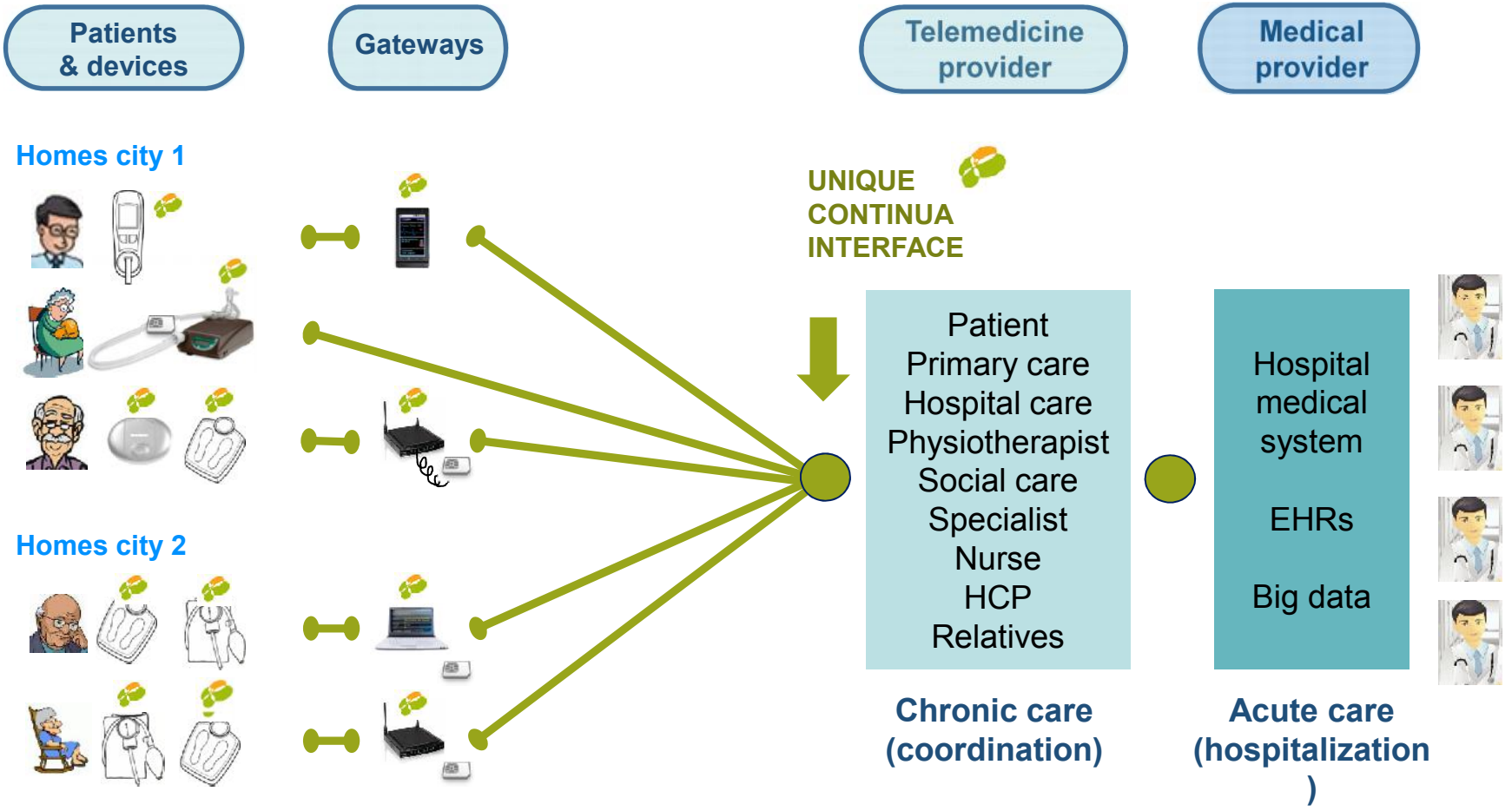
Pre-existing Continua Interface



# What happens without Continua



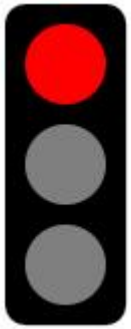
# With Continua

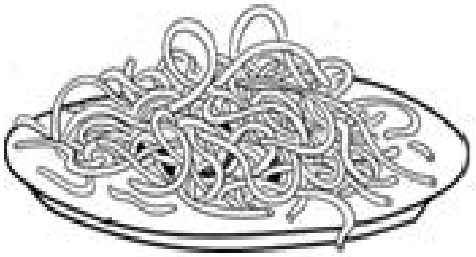


# Without Continua

| | | |
|---|---|---|
| several devices | = | several interfaces |
| several interfaces | = | several data models |

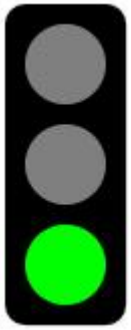
**integration**
**maintenance**
**rollout**
**cost**
**security**
**reliability**





# With Continua

| | | |
|---|---|---|
| several devices | = | one interface |
| one interface | = | one data model |
| one data model | = | one application |
| one application | = | one portal |



**integration**
**maintenance**
**rollout**
**cost**
**security**
**reliability**
**economies of scale**
**care coordination**
**pooled resources**
**EHRs**

# Continua latest on adoption

ITU adopted Continua guidelines in December 2013 (ITU-T H.810).

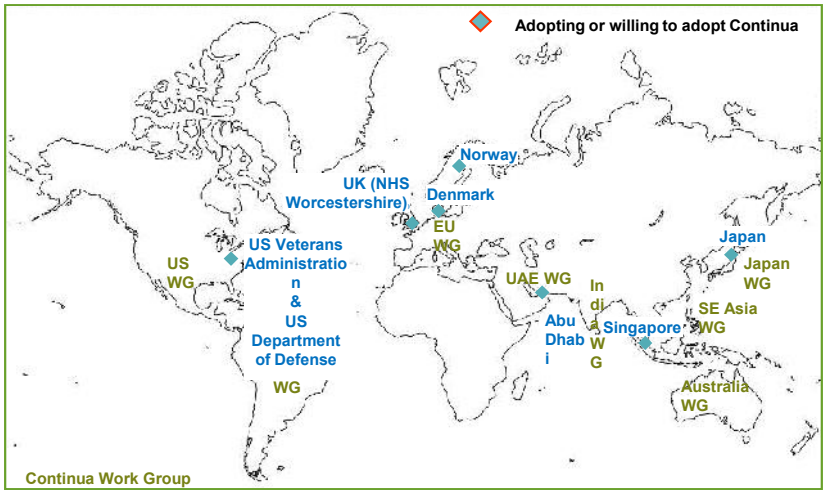
Norway will adopt Continua following Denmark's adoption, and other Nordic countries (Finland, Sweden, Iceland) should follow too.

Continua guidelines are referenced in the European Commission's eHealth Interoperability Framework (2013) and its refinement proposed by the Antilope project (2014).

In the US, ONC is requesting Continua to support DIRECT and FHIR and the FDA recognizes the need for medical device interoperability standards including Continua, with a special focus on creating a quality framework for implementation and testing with Continua.

Canada health Infoway is showing interest for Continua.

Singapore is promoting Continua.



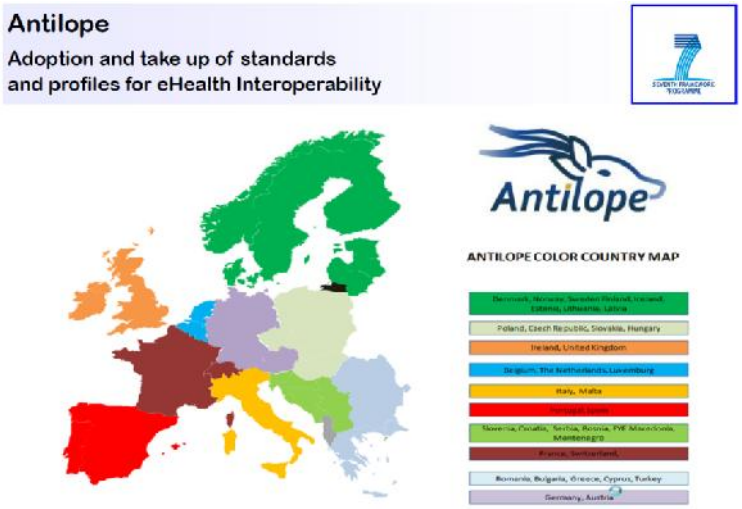

eHealth summer university in Castres (France) - July 2014

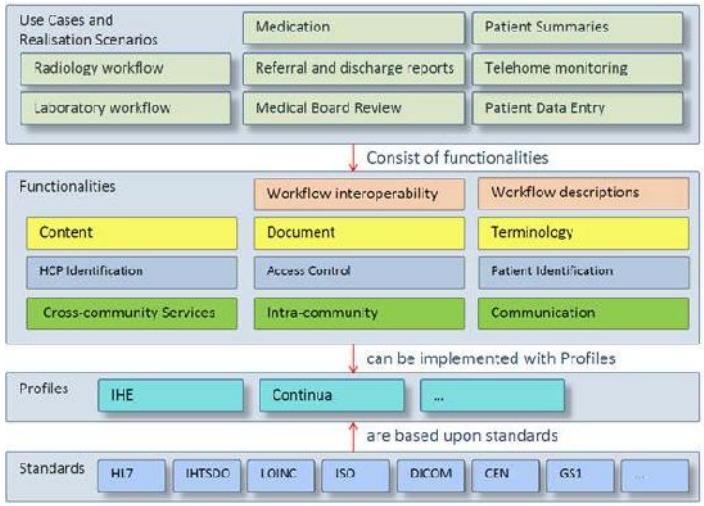
Interview of Terje Peetso, EU Policy officer to health &wellbeing: "the EU can help eHealth to develop in 4 fields: Interoperability/legislation; eHealth uptake & wider development; R&D, international cooperation".

Interview of Roald Bergstrom, Principal Advisor to the National Health Authority in Norway: "The Nordic countries will share the same interoperability standards".

# The European interoperability framework

The Antilope project has refined the European eHealth interoperability framework to advise and guide national and regional health administrations on promoting interoperability locally. Continua and IHE are both core partners.



# Appendix

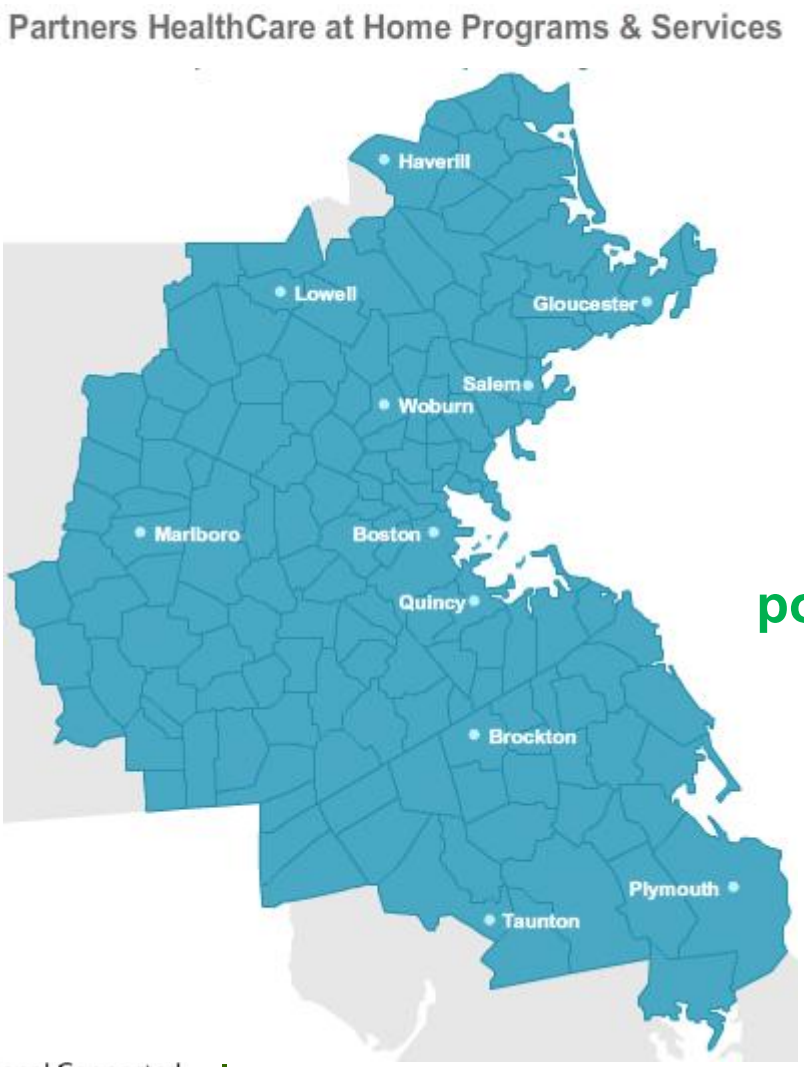
# Continua on the web

| Topics | Presentations | category |
|---|---|---|
| Continua's brochure | Enabling Connected Health Around the World | brochure |
| Continua's overview | Chuck Parker's interview | video |
| Continua's vision | Technology Meets Health Care | video |
| Continua's vision | Personal Telehealth Overview | website |
| How to join Continua | http://www.continuaalliance.org/about-the-alliance/join | website |
| Personal Connected Health Alliance<br>(A collaboration between HIMSS, Continua and mHealthSummit) | http://www.pchalliance.org/ | website / video |
| Denmark | eHealthNews.eu<br>Denmark reference | website<br>documentation |
| UK | 3millionlives | documentation (see p6) |
| Abu Dhabi, UK, Denmark | ITU blog on Interoperability (Continua) | blog |
| Singapore | Continua in Southeast Asia | press |
| Canada Health Infoway | Mobile Computing in Clinical Settings | white paper |
| Case studies | Telemonitoring & disaster recovery | case study |
| mHealth Tour<br>(GSMA, International Diabetes Federation, under the patronage of the European Commission) | mHealth Grand Tour presentation | website |
| ITU collaboration | Clint McClellan's interview<br>Healthcare IT News | video<br>press |

# Links to a few studies

- Partners HealthCare: Connecting Heart Failure Patients to Providers Through Remote Monitoring of 640 patients with chronic heart failure and COPD
- Scaling Telehealth Programs: Lessons from Early Adopters
- Centura Health at Home: Home Telehealth as the Standard of Care
- The Veterans Health Administration: Taking Home Telehealth Services to Scale Nationally
- Return on investment analysis of the VISN1 telehealth program
- Telehealth Navigating the Maze and Turning Challenges into Opportunities
- Deployment of an mHealth Patient Monitoring Solution for Diabetes
- 3millionlives program
- Socio-economic impact of mHealth

# A regional case with Continua




Continua devices

Continua Hub

regional

national

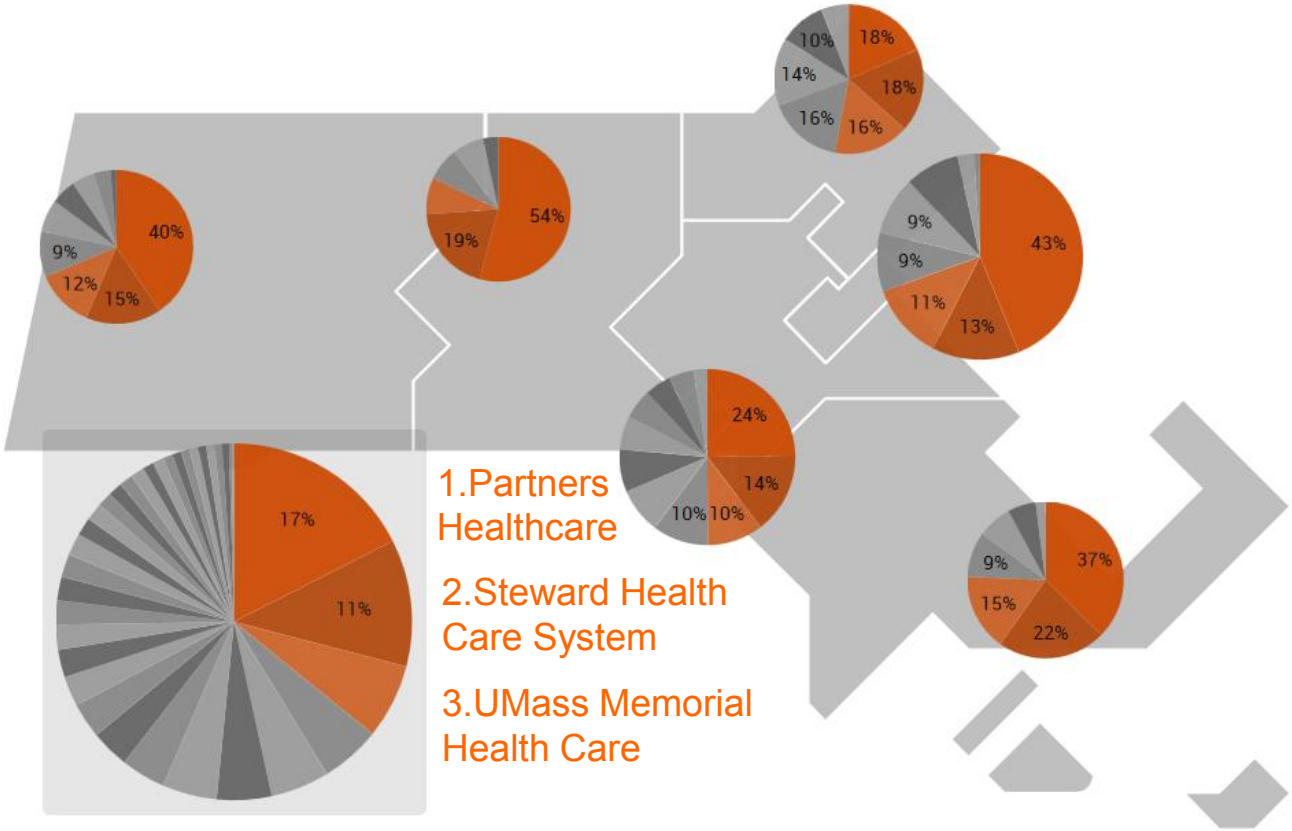
pooled resources

economies of scale

care coordination

# Healthcare providers get married

36% of the hospital beds in Massachusetts owned by 3 hospital systems.



# Healthcare providers pool resources

Continua devices

Continua Hub

Continua interface

Application / portal

Hosting platform

Call center

# US model through incentives

The US (Medicare/Medicaid) fosters innovation via incentives based on meaningful achievements. Healthcare providers have objectives they must achieve to get incentive payments.

| Stage 1 | Stage 2 | Stage 3 |
|---|---|---|
| **2011-2012** | **2014** | **2016** |
| Data capture and sharing | Advance clinical processes | Improved outcomes |

| Stage 1: Meaningful use criteria focus on: | Stage 2: Meaningful use criteria focus on: | Stage 3: Meaningful use criteria focus on: |
|---|---|---|
| Electronically capturing health information in a standardized format | More rigorous health information exchange (HIE) | Improving quality, safety, and efficiency, leading to improved health outcomes |
| Using that information to track key clinical conditions | Increased requirements for e-prescribing and incorporating lab results | Decision support for national high-priority conditions |
| Communicating that information for care coordination processes | Electronic transmission of patient care summaries across multiple settings | Patient access to self-management tools |
| Initiating the reporting of clinical quality measures and public health information | More patient-controlled data | Access to comprehensive patient data through patient-centered HIE |
| Using information to engage patients and their families in their care | | Improving population health |

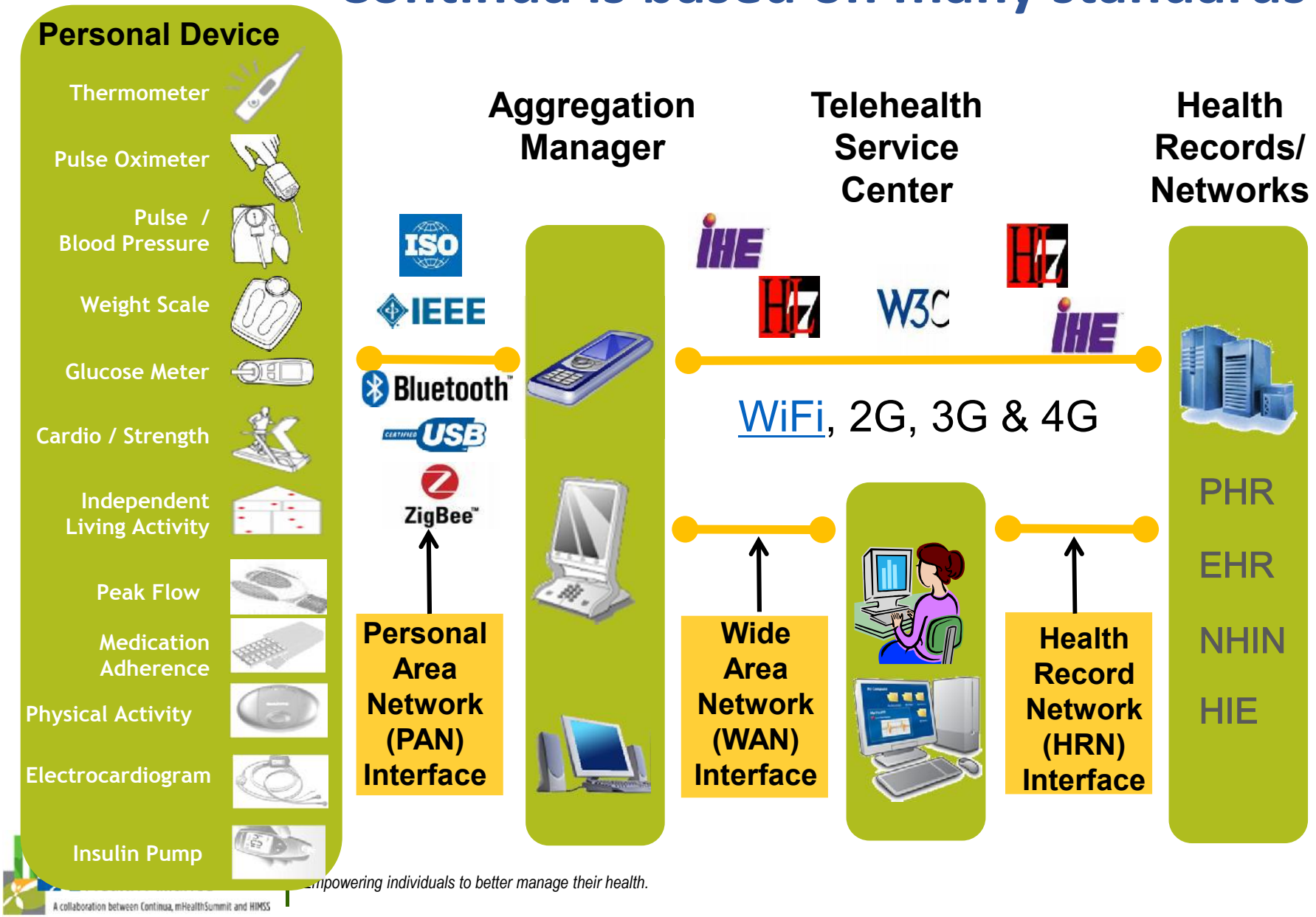
## How much will you get paid?

The amount of your incentive payment depends on when you begin participating in the program. The incentive payment is 75% of your Medicare allowed charges up to a maximum annual cap. The table below shows the maximum incentive amounts broken down by the year you start participating in the program.

| Calendar Year (CY) for which EP Receives an Incentive Payment | | | | | |
|---|---|---|---|---|---|
| | CY 2011 | CY 2012 | CY 2013 | CY 2014 | CY 2015 and later |
| CY 2011 | $18,000 | | | | |
| CY 2012 | $12,000 | $18,000 | | | |
| CY 2013 | $8,000 | $12,000 | $15,000 | | |
| CY 2014 | $4,000 | $8,000 | $12,000 | $12,000 | |
| CY 2015 | $2,000 | $4,000 | $8,000 | $8,000 | $0 |
| CY 2016 | | $2,000 | $4,000 | $4,000 | $0 |
| TOTAL | $44,000 | $44,000 | $39,000 | $24,000 | $0 |

http://www.healthit.gov/providers-professionals/how-attain-meaningful-use
http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/downloads/Beginners_Guide.pdf

# Continua is based on many standards




*...mpowering individuals to better manage their health.*

A collaboration between Continua, mHealthSummit and HIMSS

# Why have standards based interfaces

- From Renewing Health: examples of non-standard based interface issues
  - Use of different vendor's glucometer resulted in new analysis and filtering interface being written to take into account different measurement range (off by 10%)
  - Use of newer model of glucometer resulted in new software interface required for mobile phone due to "undocumented" features in transmission protocol from glucometer
  - Use of newer model mobile phone due to market changes resulted in redo of software interfacing to medical device
  - Use of different vendor's medical device in hospital without data standards based interface resulted in rewrite of integration software to EHR

# Japan

The Disaster Cardiovascular Prevention Network program (DCAP)

- DCAP followed the Japan Earthquake of 2011: hundreds of evacuees housed in a camp lacking basic services. No electricity, water and sewer for the first three months. Limited healthcare and access to medical records.
- DCAP objective: remote blood pressure monitoring for 400 earthquake survivors dwelling in an evacuation camp, at high risk for a cardiovascular event.
- Thanks to pre-existing Continua receiver and plug-and-play Continua certified devices, the cost of the solution was cut by 84%.

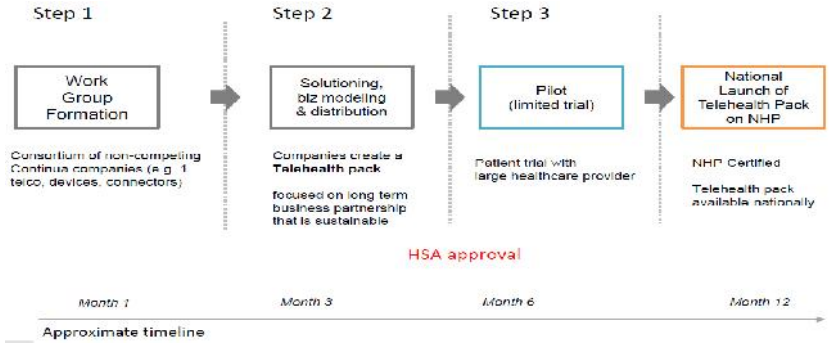
| Without Continua* | DCAP (with Continua) |
|---|---|
| overall cost = $ 166 000 | overall cost = $ 27 000 |
| time from conception to launch = 12 weeks or 72 man-weeks | time from conception to launch = 2 weeks or 12 man-weeks |

*estimate from participating companies

# Singapore

Singapore's Ministry of Health (MOHH) has launched a program to remotely monitor people with chronic diseases.

- Several consortiums will develop and sell the remote monitoring services.
- Hospitals will remotely monitor their patients.
- Patients will buy the devices (blood pressure, diabetes,...) at pharmacies.
- Continua is required by MOHH to avoid [several devices = several interfaces] (actually, to avoid a specific solution from each consortium).



# 3millionlives (UK)

3 million patients for telecare and telehealth (target)

- Conditions: chronic pulmonary disease, diabetes type 2, blood pressure, body mass index, cardiac arrhythmia, medication reminder systems…
- The program involves all players of the healthcare ecosystem.
- Continua's standards-based guidelines ensure Continua certified products and services connect to other systems without restrictions or specific implementation.

# Partners HealthCare (US)

Partners Healthcare is a pioneer Accountable Care Organization. Center for Connected Health is in charge of a telehealth, remote care and disease management program.

- Devices: glucometers, blood pressure cuffs, heart rate monitors, bathroom scales, pulse oximeters. Data are centralized into the hospitals' EHRs.

The Connected Cardiac Care Program

- 1,200 patients since its introduction in 2006.
- 50 percent reduction in heart failure hospital readmission rates.
- Total cost savings of more than $10 million from 2006 to 2013.

Source: The Commonwealth Fund.

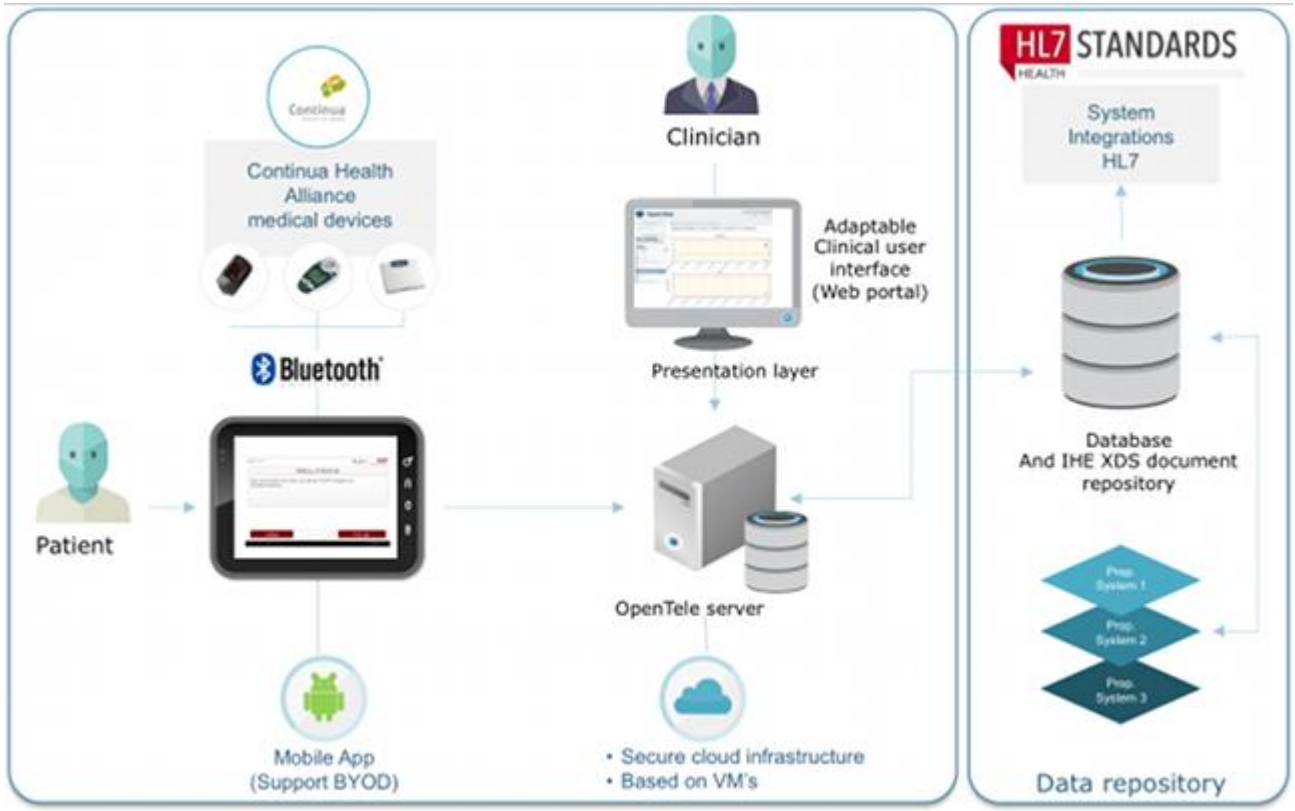
# US Veterans & Defense

Veterans Affairs (2013 figures)

- 144,520 Veterans enrolled for home telehealth services.
- 41,430 patients were supported by telehealth to live independently in their own homes.
- 35% reduction in hospital admissions.
- 59% reduction of bed days of care.
- 84% patients' satisfaction.
- $1.999 = annual average cost per patient which is half the traditional remote monitoring services cost thanks to Care Coordination/Home approach.
- Fixed system for deployment to chronic population.
- Conditions: COPD, asthma, diabetes, blood pressure, heart failure.
- Published reports show savings of 53 to 85% over existing practice and treatments.

The department of Veteran Affairs has approved the Continua guidelines on 06/25/2012.

# Denmark: projects use Continua



# Large scale remote monitoring success stories

- Sleep apnea remote monitoring (France)
  - French authorities have stopped reimbursing patients treated with CPAP (Continuous Positive Airway Pressure) unless it is proved they are compliant. In 2016, all devices will have to be connected (400 000).
  - Device manufacturers have developed a remote monitoring solution (Philips Respironics, Resmed, Weinmann, Air Liquide).

- Home Prothrombin Time (PT/INR) remote monitoring (US)
  - Since 2008, Medicare covers the use of home PT/INR monitoring for chronic, oral anticoagulation management for patients with mechanical heart valves, chronic atrial fibrillation, or venous thromboembolism.
  - The solution is not Continua compliant as very few device manufacturers are in this market but the one involved here (Roche Diagnostics) is the leader and an active member in the Continua Alliance with a Continua certified glucometer.
  - In 2013, **50 000 patients** are remotely monitored in the US.

# A few regional initiatives in remote monitoring

- Telemaco (Italy)
  - Remote monitoring of 640 patients with chronic heart failure and COPD.

- mHealth Grand Tour – September 2013 (European Union)
  - Type 1 diabetic patients continuous remote monitoring on a 2000 km bike ride.
  - Patronage from the EC / GSMA / International Diabetes Federation.
  - Research study by Newcastle University based on the data collected.
  - Cross-industry technology platform with Continua compliance required.

- Cardiauvergne (France)
  - Remote monitoring of 700 patients with heart failure (weight, blood pressure, …).
  - Encouraging medical results (May 2014)
    - mortality after one year: 12% versus 26% to 35% (European data)
    - annual hospital readmissions: 13,6% versus 28% to 40% (European data)
    - average stay at hospital: 9,2 days versus 10,5 days (European data)

# Thank you

Contact us at: mawg-chair@continuaalliance.org