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Trillium II
Reinforcing the Bridges and Scaling up EU/US Cooperation on Patient Summary

The Trillium II Prize Award Ceremony

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Mission EU/US Memorandum of Understanding

“To support an innovative collaborative community of public- and private-sector entities working toward developing, deploying, and using eHealth science & technology

• to empower individuals
• to support care
• to advance clinical outcomes
• to enhance patient safety, and
• to improve the health of populations.”

Critical Levers:

• International interoperability
• workforce development
• innovation ecosystems
The story began with epsos - can trans-European patient summaries be understood across the Atlantic?

- **Gap analysis**
  - Compared patient summary specifications in EU/US
  - Shared clinical elements: problems, medications, allergies

- **Interoperability Assets**
  - Established a terminology prototype CTS-2 service: [http://extension.phast.fr/STS_UI](http://extension.phast.fr/STS_UI)
  - Developed Transformer of Patient summaries: [http://informatics.mayo.edu/trillium-bridge](http://informatics.mayo.edu/trillium-bridge)
  - Mediated Differences in EU/US IHE XCPD/XCA profiles for Patient Identity and Document Query/Retrieve

- **Validation activities: 4 EU countries/ Kaiser Permanente**
  - EU/US Marketplace; HIMSS 2015; IHE Europe Connectathon 2015, eHealthWeek 2014, 15

- **Feasibility study:**
  - Reflected upon standards, cross-vendor integration, incentives, clinical research, security and privacy, innovative business models, education

**Recommendation:**

“Advance an International Patient Summary (IPS) standard to enable people to access and share their health information for emergency or unplanned care anywhere and as needed. At minimum the IPS should include **immunizations, allergies, medications, clinical problems, past operations and implants.**”
Trillium Bridge-II partnership
14 countries – 7 health systems

Standards Organizations:
- HL7 International Foundation (Scientific Coordinator), Belgium
- NEN/CEN Technical Committee 251 Health Informatics, NL
- INTEGRATING THE HEALTHCARE ENTERPRISE – EUROPE, BE
- CDISC EUROPE FOUNDATION, Belgium

Health Systems and Associated Competence Centers:
- MedCom (Administrative Coordinator), Denmark
- LISPA - LOMBARDIA INFORMATICA, Italy
- THL - TERVEYDEN JA HYVINVOINNIN LAITOS, Finland
- eSANTE - AGENCE eSANTE, Luxemburg
- TicSalut – Catalunia, Spain
- SPMS, Portugal
- Reliant, Reliant Medical Group, Inc., US
- HSCP Healthcare Services Platform Consortium, US
- KAISER FOUNDATION HOSPITALS, US

Dissemination and Networking:
- ECHA Connected Health Alliance CIC, United Kingdom
- ADI - Advanced Digital Innovation LTD United Kingdom
- European Institute for Innovation through HealthData (I-HD) BE

Development and Evaluation:
- GNOMON Informatics SA, Greece
- PHAST RESEAU Association, France
- Software Research and Development & Consultation, Turkey
- OFFIS EV, Germany
- EMPIRICA, Germany
- LANTANA Consulting Group, LLC, US
- PROSOCIAL Applications INC, US

Other Collaborating Parties
- Sequoia, Healtheway, Inc. DBA The Sequoia Project, US
- American Health Information Management Association, US

June 13, 2019
Trillium-II Prize Award and Launching of IPS Global Community of Practice
What do we do with international patient summary (IPS) standards?

- Highlight the **social value** of patient summaries
- Contribute to their **Governance**
- Develop, Collect, Assess **learning resources**
- Foster innovation & inform **health policy**
- Collaborate across **standardization bodies**
- Bridge grassroots **patient summary initiatives**
- Engage **mobile Health** companies & app developers
- Establish a **Global Community of Practice** for Digital Health Innovation using International Patient Summary Standards (IPS)
Scaling-up use of patient summaries

- Consider the IPS as an active window, a landing page to navigate a person’s linked health data across locations & jurisdictions.

- Trillium-II will select and elaborate
  - resources to accelerate implementation and sharing of experience
  - new use cases on the use of patient summaries from unplanned emergency care
Uses of the IPS… It’s personal

• Listening to the patient and the family
  • Quality assurance: medication reconciliation by the family
  • Health goals: tracking progress and identifying health trends
  • Early warnings: frailty in the elderly

• Navigating digital health data: portability, trust, and flow
  • Tracking hypertension: Chronic disease management
  • Rare Disease Passport: patient summaries for patients with rare diseases
  • European Vaccination Card: Vaccination of children in communities and refugee camps
  • Survival passport: Survivors of childhood cancer
  • Mother / Child Summary: fertility, pregnancy, child birth, infant home records

• Tracking the health needs in communities
  • Disaster and emergency management
  • My Healthy neighborhood
The Trillium II Prize

• The purpose is to promote the awareness and innovative use of the HL7 FHIR International Patient Summary (IPS) by health companies and organizations.

• Public international campaign through the project’s social media and website as well as Trillium II consortium partners’ own channels.

• Application details concerned Organisational role; IPS implementation details; Coverage and Future plans.

• Nine international and independent experts were chosen as judges, using a detailed scoring system in their evaluation.
The Trillium II Prize Finalists

- SMEs, Governments & public authorities, private companies, and consortium from North America, Latin America, and Europe

- Innovative technology for health and care service through electronic health record (EHR) extensions, personal health record (PHR), pre-hospital record, shared medication card, telehealth, country networks, wellness apps etc., incl. cross-border health data exchange using IPS standards at scale.

- Reaching condition specific, regional, national or international scale between 6,000 to 40,000,000 users
**FrailSafe: IPS for Frailty risk assessment** by **Gruppo SIGLA (IT)** demonstrated interoperability with HL7 FHIR IPS to share key health data among healthcare systems.

**Expanding Shared Medication Record to IPS** by **Trifork A/S (DK)** aims to build, tune and expand the Shared Medication Record (SMR) established by the Danish Health Data Authority in 2007 with IPS for all Danes when abroad.

**CAPABLE tool for active use of IPS by patients in all health and care interactions** by **University of Oslo, Akerhus University Hospital, Norwegian E-Helse AS (NO)** wants to empower citizens to actively collect, manage and update clinical and personal health data as IPS, info leaflets, appointments, diet and nutrition needs, etc.

**Care Consumers mediating sharing of their IPS among care providers** by **Drimpy (NL)** allows care consumers can supervise and share their health data in the Personal Health Record available in the drimpy.com eHealth portal.
IPS connecting ambulances to hospitals by North Denmark Region (DK) will use the IPS to integrate the Prehospital Patient Record on tablets used by paramedics in ambulances with the Electronic Patient Record at the hospitals / healthcare systems of all 5 Danish regions.

IPS as part of Telehealth Platform by Ask Your Pharmacist (CAN) will use IPS for clinically support health professionals in unscheduled teleconsultations.

IPS in the Latin American Network for Cooperation in Health Informatics by RACSEL (UY) plans to use IPS for health data exchange turning Clinical Summary Document to HL7 FHIR IPS.

IPS as minimum data set for Electronic Health Record sharing by HL7 ARGENTINA (AR) will deploy the IPS as the minimum data set shared among providers.

MedicalData using pictograms to convey IPS information by MyData S.A. (AR) is using pictograms to convey essential health information in the IPS of a patient for use in emergency situations and alleviate language barriers when travelling abroad.
And the winners are:

- Trillium
- II Prize Award and Launching of IPS Global Community of Practice
CAPABLE -
Empower citizens to active use of their health information
anne.moen@medisin.uio.no
The vision

CAPABLE tool will enable every citizen to collect, complement and/or control their clinical and personal health information. 

Citizen is the active user

Demonstrators: medication, nutrition, and health services coordination, are well aligned with the IPS and based on HL7 FHIR® protocols
**CAPABLE innovation and the IPS**

**CAPABLE concept**

- Trusted Companion (relatives, others)
- **CAPABLE** Individual
- Current communication
- Primary care
- Hospital care

**Key features**

- Citizen centered
- Collect – complement – Control – communicate (GDPR art. 15)
- HL7 FIHR® v. 4.0
  - Information exchange
  - Database conformity

**Core values**

- Universal design
- Full version handling
- Multi level individual access
CAPABLE demonstrators and IPS

Nutrition
- Overview – diary
- Weight
- Diet restrictions
- Fortifying meals
- Groceries -choices

Medication
- Prescribed by MD
- Permanent or Dynamic
- Over the counter
- Admin / dispensing
  - "Dosett" - Multidose
  - Pill dispenser

Coordination
“logistics”
- Appointments
- Lab values
- Clinical summaries
- eHealth literacy
- ODL / PGHD
CAPABLE team

- Akershus University Hospital (project owner)
- Helsam, University of Oslo (project manager, PI)

- Norsk Regnesentral
- Norsk E-helse AS
- Helsetelefonen AS
- Ullensaker Kommune
- Bydel Nordre Aker, Oslo
- Kongsvinger Kommune
- Norges Revmatikerforbund
- Norges Blindeforbund
- LHL Oslo
- Karlstad Universitet
- Aalborg Universitet
- Västra Götaland Region
- HL7 International

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International Patient Summary
- it’s YOUR health it is all about

TRIFORK 2019
Our Mission

We believe we can change the world with software. We think of smarter solutions that make life better and easier for everyone.
ABOUT FMK

LIFESAVER: The Shared Medication Record saves lives by minimizing the risk of erroneous medication and by improving the safety and effect of vaccinations. It is the biggest Danish cross-sectoral public healthcare project ever. The solution integrates healthcare data between hospitals, doctors, home-care institutions and pharmacies.

100 % UP-TIME: Trifork delivers the central solution with a goal of 100% up-time with no service windows.

ONE PATIENT – ONE MEDICATION RECORD: Historically the data resided in many different local systems. The Shared Medication Record solution comes to the rescue by ensuring that the medication data for one person is stored in one and only one central system which reduces risk of erroneous medication dramatically.
Existing setup with Shared Medicine Record (FMK)

- A lot interfaces in multiple version
- ~60 different client systems

- 700,000 patients have their medical information updated every week
- Covers the entire population of Denmark
IPS as a natural next step

- In Denmark, national level has been reached with FMK
  - Natural next step is international -> IPS
- Current solution covers drug medications, prescriptions, effectuations, prescription orders, patient organisation relations and medication grants
- Requires a few more integrations to existing national registries to get full IPS coverage for Danish citizens such as active diagnoses and allergies
Existing setup

The National Danish Health Authorities

Sundhed.dk

Citizens

National portal

Municipalities

Intra healthcare dataset

FMK interface

Hospitals (EHR)

Dentists

Doctors on call

GP systems

FMK-online

Pharmacies

Sundhed.dk

Citizen app
ABOUT FMK

• The Shared Medication Record (FMK) is a national service that enables healthcare providers to see patients’ complete and current medication information at the point of care (drug medications, prescriptions, effectuations, prescription orders, patient organisation relations and medication grants).

• People can access this information at www.sundhed.dk (Denmark’s e-Health portal) by using NemID, a national digital signature platform.

• Healthcare institutions such as hospitals, general practitioners and emergency services require fast, around the clock access to the Danish citizens’ medical data in order to provide the appropriate treatment.

• The Shared Medication Record is in operation and was fully implemented at all hospitals and general practitioners in 2014.
FMK DETAILS & NUMBERS

• 100 service requests/sec

• Backend system:
  • Processing: 18 nodes divided into multiple groups
  • Database – Live data: MariaDB. 4 nodes
  • MessageQueue – audit, advis, request/responce: 6 kafka Server

• 300,000 users

• 100 mill prescriptions

• 2 billion auditlogs in two year

• Divided into a number of micro-services to avoid the disadvantages of a monolithic architecture
Thank You
What’s next for Trillium II?

• IPS Global Community of Practice
  • for incremental and disruptive health innovation

• What is the IPS Global Community of Practice?
  • domain of knowledge, a notion of a community, and a practice.

• For the IPS Community of practice
  • Domain of knowledge: knowledge of IPS standard and tools
  • Community: mutual learning fostering interactions and sharing of experience, mentorship
  • Practice: IPS implementation, agile, events, testing, hackathons, datathons, ideas and data sets, feedback from implementation.

• In the end the IPS community of practice is our reference site for our shared knowledge, the meeting place of the IPS community.
  • What bridges strategic intent with the capacity to act!

• Come join us! www.trillium2.eu/IPS-global-community-of-practice