

WP8b Plenary Presentation



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- Introduction
 - The role of WP8b in TripCom
- The e-Health scenario
 - European strategies in e-Health
 - The European Patient Summary (EPS)
- TripCom as a middleware for the EPS
- Use cases
 - Emergency care path
 - Medical Research
- WP8b Dissemination Activities
- Conclusion

- **Define an e-Health scenario**
 - focused in *exchanging patient clinical data* among healthcare organizations or among different units within the same organization

- **Provide requirements** for the design of the TripCom infrastructure in order to support such scenario

- **Test TripCom infrastructure** on such scenario



2006-2007 Focus: Interoperability

What to address in interoperability

Specific topics are currently identified by EU Ministries of Health and ICT (*eHealth Working Group*)

- Patient summary
- Patient/practitioner identifiers
- Emergency data set

The ultimate goal is to facilitate the **pervasive delivery of healthcare services** at European level

eHealth Stakeholder's group (Users, Industry, Experts) is currently working on these issues

Goal: European Commission: RECOMMENDATION on interoperability

Ilias Iakovidis (Deputy Head of Unit – ICT for Health, DG INFOSO, EC)
"European Commission activities in e-Health: The achievements and future prospects." Med-e-Tel Luxembourg, April 5, 2006

- The interest of European Commission on patient summary is focusing on **providing guidelines** for a **European infrastructure** for accessing critical citizens' health data

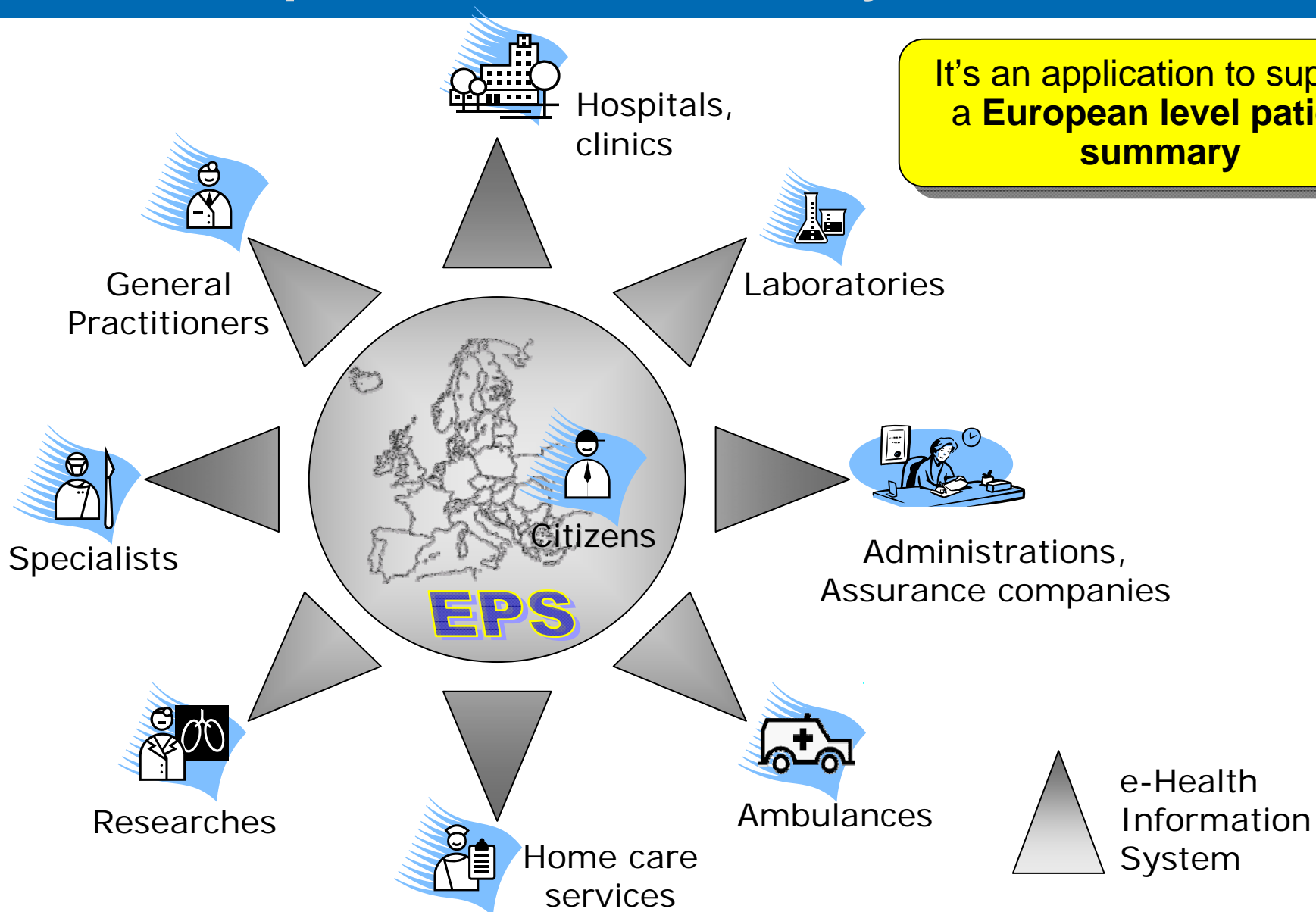
- A patient summary is a **concise clinical document** that makes citizens' health data available for
 - Unexpected contacts (emergency, ...)
 - Shared clinical pathways (citizen movement, ...)

The e-Health scenario

The European Patient Summary



It's an application to support a **European level patient summary**



■ **Multi-laterality**

- Virtual common infrastructure to support communication among healthcare parties distributed over Europe

■ **Subsidiarity**

- Capable to cope with heterogeneity of data and application among existing systems and e-Health standards

■ **Multi-lingualism**

- Have to be linguistically neutral by dealing with the heterogeneity of medical coding systems

■ **Privacy**

- Assure EU citizens that only authorized care givers are able to access their data

■ **Reliable** infrastructure

- Enable access to citizens' health data anytime and anywhere



- **Decentralization and Distribution**
 - Enable healthcare parties to communicate by publish and retrieve patient information
 - Ensure a good level of fault-tolerance
- Support for **asynchronous interactions**
 - Decouple interactions in time and location among healthcare institutions
- **Data and application interoperability**
 - Use semantic interoperability to cope with heterogeneity among e-Health systems
- **Security** mechanisms
 - Comply with the privacy regulations for the treatment of citizens' data



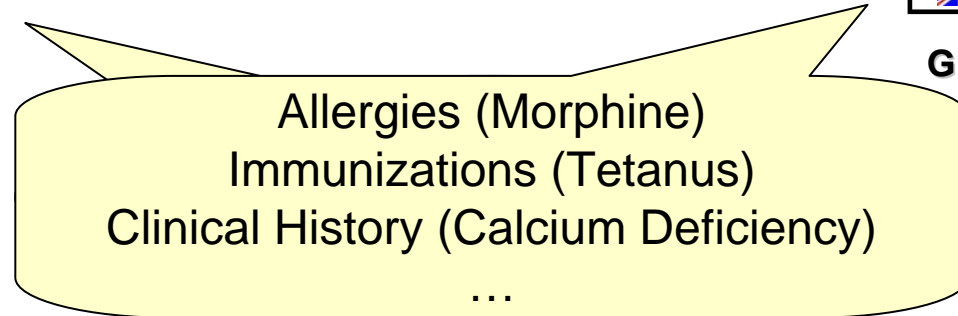
- The middleware demands of EPS are addressed by TripCom

EPS requirements	TripCom capabilities
Multi-laterality	Decentralization and Distribution Asynchronous interactions
Subsidiarity	Data and application interoperability
Multi-lingualism	Data interoperability
Privacy	Security mechanisms
Reliability	Decentralization and Distribution

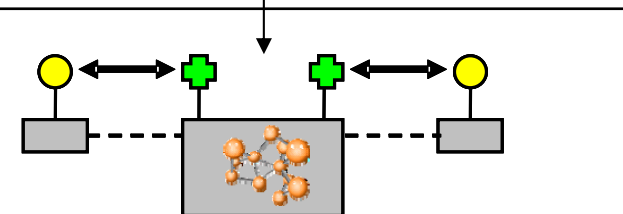
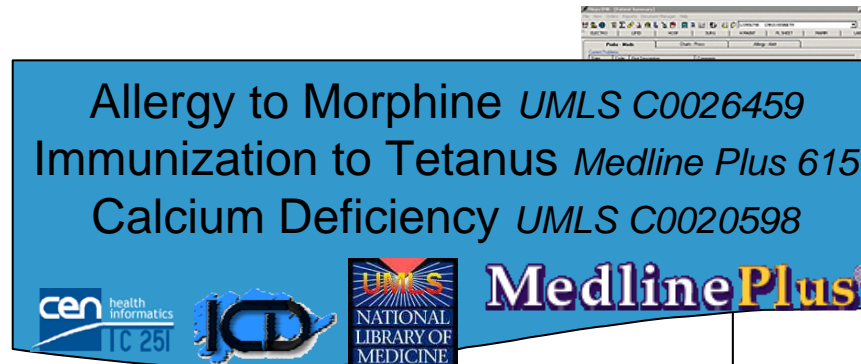
- The EPS over TripCom enables **asynchronous**, **reliable** and **meaningful** communication among heterogeneous e-Health systems

EPS Use Cases

An English citizen asks his General Practitioner to initialize his summary in the EPS



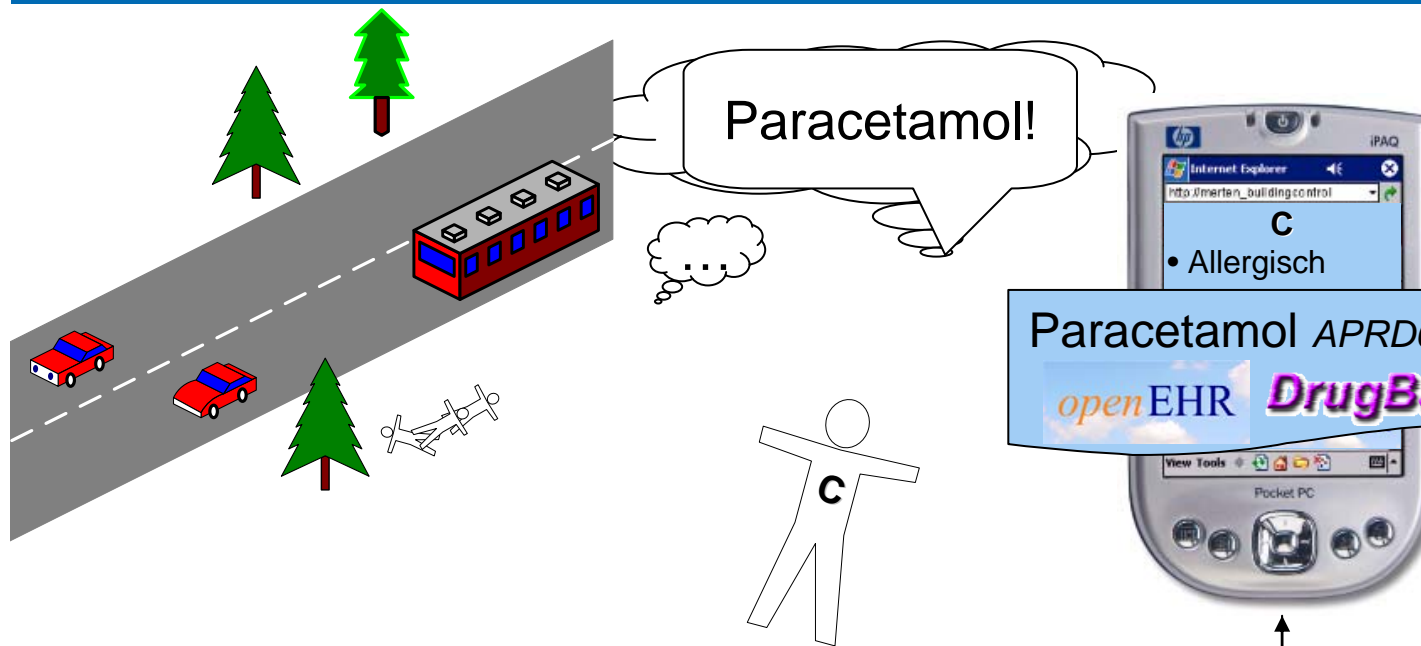
The GP publishes the citizen's clinical information into the EPS through the electronic Health Record



C = Citizen
GP = General Practitioner

EPS Use Cases

Emergency care path



Medical benefits

- Language comprehension
- Privacy respect
- Avoidance of administering a wrong drug

TripCom

- Data interoperability
- Application interoperability
- Security
- Time & Location autonomy

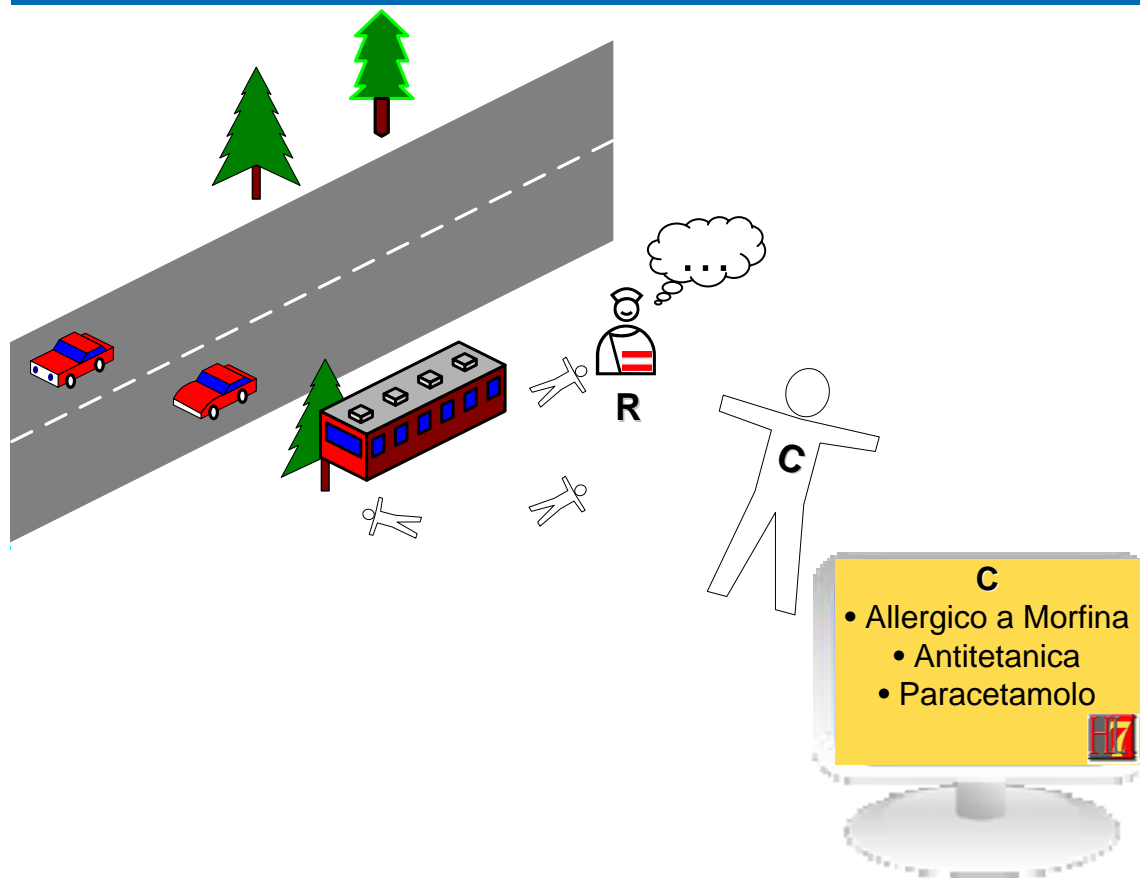
C = Citizen
R = Rescuer

Allergisch gegen Morphinum APRD00215

openEHR SNOMED INTERNATIONAL

EPS Use Cases

Emergency care path



Medical benefits

- Awareness of patient clinical situation
- Support for interactions
- Privacy compliancy

TripCom

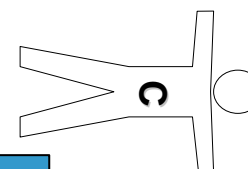
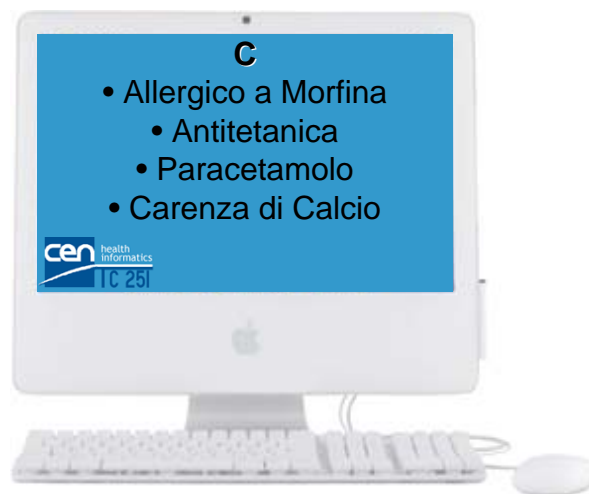
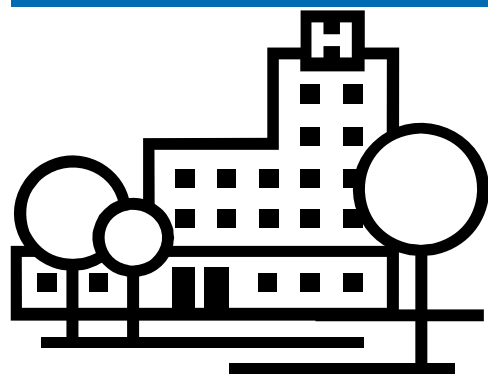
- Data interoperability
- Application interoperability
- Time & Location autonomy
- Security
- **Asynchronous interactions**

C = Citizen
 R = Rescuer
 A = Ambulance doctor

Allergico a Morfina CAS 57-27-2
 Antitetanica ICD A33
 Paracetamolo CAS 103-90-2

EPS Use Cases

Emergency care path



Allergico a Morfina CAS 57-27-2
 Antitetanica ICD Y58.4
 Paracetamolo CAS 103-90-2
 Carenza di Calcio ICD E58

cen health informatics TC 251

CCS[®] ICD

C = Citizen
 A = Ambulance doctor
 E = Emergency doctor

Medical benefits

- Awareness of patient clinical situation
- Privacy compliancy
- **Forestall acceptance**
- **More efficient treatment**

TripCom

- Data interoperability
- Application interoperability
- Time & Location autonomy
- Security
- **Coordination**

- The EPS infrastructure (along with proteomic and genomic databases) is an **high value source** of clinical information **for medical research purposes**
- The nature of **clinical research is more complex** than the emergency scenario because:
 - privacy of citizen must be protected against too detailed queries
 - access to information is potentially spread all over Europe
- TripCom capabilities are designed to support such scenario

- Publications:
 - *Seamlessly and Securely sharing health care data with Triple Space Communication*, Proc. of **Med-e-Tel 2006**, Luxembourg, Apr 5, 2006
 - *Towards European Patient Summaries based on Triple Space Computing*, Proc. of 1st **European Conf. on eHealth**, Fribourg, Switzerland, Oct 12-13, 2006
- Pending submissions:
 - *Triple Space communication*, Poster of 1st **International Conference on Semantic and Digital Media Technologies**, Athens, Greece, Dec 6-8, 2006
 - *Enabling the European Patient Summary Through Triplespace Computing*, Proc. of **ACM Symposium on Applied Computing**, Seoul, Korea, Mar 11-15, 2007
- Contribute to standards:
 - *A proposal for Building the European Patient Summary using Triple Space Computing*, **Workshop for W3C Semantic Web Health Care & Life Sciences**, International Semantic Web Conference (ISWC), Athens, Georgia, Nov 6, 2006

- The European Patient Summary is a **first step** towards a network of complementary healthcare centres

- The e-Health scenario emphasizes the needs of:
 - **Interoperability** among heterogeneous systems
 - **Coordination** among multiple and different actors
 - **Time** and **Location** autonomy
 - **Privacy** for the treatment of data

- TripCom is a **suitable middleware** for the EPS and may become a **new technology infrastructure** to accomplish European challenges in e-Health

Thank you for your attention



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David de Francisco, Reto Krummenacher, Henar Munoz
Martin Murth, Elena Paslaru-Bontas Simperl

