# National Integrated Services Framework

29-30 October 2013
Dublin

Part 1

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# Workshop 1

# Information Architecture



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# Introduction

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**The context of this project is:**

Requirements based

facilitation

the **exchange** of

standardised, structured

**health** and care **data**

between IT-systems

based on open International standards



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# HSE
# Information Architecture Stakeholders

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- Business and Strategy
- Clinical, Safety and Research
- Technical
- Allied Agencies
- others

# Introduction

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## What is important?

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# Introduction

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**Complexity**

- **IT is complex?**
- **Exchange of data between systems is complex?**
- **Healthcare is complex?**
- **Co-operation in healthcare is complex?**

**How must/can we reduce complexity for:**

- **healthcare providers?**
- **authorities?**
- **IT-industry?**

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# Topics

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- Introduction: Setting the scene
- Why Standards
- What standards
- Exchange of data between systems
- Patient Summary: epSOS


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# Why Standards

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## NO STANDARDS

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# Why Standards

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## EXCHANGE STANDARD

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# Why European Standards

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- 27 European countries
- Many cultures, many languages
- One united European Community
- Free movement of goods, people, money and services
- One big competitive European economic space


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# European Standardisation

**European standards play a special role:**

- Only National standards derived from European standards can be used in *legislation*
- National and European standards play a role in *procurement*

# European developments

## Directive on patients' rights in cross-border healthcare

EUROPEAN COMMISSION

Directorate-General for
Health & Consumers

### The 3 aims of this Directive

1. Help patients to exercise their rights to reimbursement for healthcare received in another EU country
2. Provide assurance about safety and quality of cross-border healthcare
3. Establish formal cooperation between health systems

# European developments

## Directive on patients' rights in cross-border healthcare

EUROPEAN COMMISSION

Directorate-General for
Health & Consumers

### 3. Cooperation between health systems

- **Recognition of prescriptions**
  A prescription issued in another EU country will be more effectively recognised
- **European Reference Networks**
  They will bring together specialised centres accross Europe helping health experts to disseminate information and expertise
- **Health Technology Assessment**
  A permanent EU structure of cooperation to help decision-makers to make the right decisions on health investment and spending
- **eHealth**
  A first step towards "interoperability" of ICT for health at EU level for safety and quality of care, continuity of care, and health research

# European developments

## Directive on patients' rights in cross-border healthcare

EUROPEAN COMMISSION

Directorate-General for
Health & Consumers

### The legislative process

- **Adoption** of the Commission proposal: 2 July 2008
- **First reading:** July 2008 - September 2010
- **Second reading:**
  - 19 January 2011: Vote in Parliament
  - 28 February 2011: Formal adoption of the Council
- **Publication in the Official Journal:** 4 April 2011
- **Entry into force:** 24 April 2011

# European developments

## Directive on patients' rights in cross-border healthcare

EUROPEAN COMMISSION

Directorate-General for
Health & Consumers

### The transposition process

- **Transposition period:** 30 months **(25 October 2013)**
- **Bilateral discussions** with 27 Member States (MS):
  - COM **questionnaire** on the transposition of the measures provided for in the Directive (May – October 2011)
  - COM bilateral **visits** in all 27 MS (2011 – 2012) to discuss particular issues related to transposition
- **Committee on Cross-Border Healthcare**
  - Formal forum created by the Directive where all 27 MS will meet regularly to vote on implementing acts and discuss general issues linked with the transposition of the Directive.

# European developments

EUROPEAN
COMMISSION

Brussels, 6.12.2012
COM(2012) 736 final

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS**

**eHealth Action Plan 2012-2020 - Innovative healthcare for the 21st century**

The European Commission's

## eHealth Action Plan 2012-2020

provides a roadmap:

- to empower patients and healthcare workers,
- to link up devices and technologies, and
- to invest in research towards the personalised medicine of the future.

# WHAT
# Exchange of Data

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# What Standards for IT-System Data Exchange

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# What Standards for IT-System Data Exchange

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# What Standards for IT-System Data Exchange

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# What Standards for IT-System Data Exchange

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All these are part of the Information Model

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# What Standards for IT-System Data Exchange

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# Benefits

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Co-operating Stakeholders define Data Sets they need



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# Benefits

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The HSE Tooling Environment operated by a Health Information Expert:

1. Content Models
2. Content Model Editor
3. Codes from a Reference Coding system (SNOMED-CT) attached
4. Data Dictionary with precise curated definitions



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# Benefits

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Possibilities:

The vendors can be informed via **procurement** about requirements and about the data set the IT-system must be able to support



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# Benefits

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Possibilities:

Tools exist that help integration of legacy systems to the HSE INFOstructure

In the future IT-systems that are conformant to standards do not need the Integration support



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# Benefits

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Because of the HSE Tooling Environment and re-usable components an ecosystem can emerge that encompasses:

1. Personal Health Records
2. Disease portals
3. Registries
4. eHealth Apps
5. Research
6. Reporting



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# Benefits

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# Data sets
# Subject Area Models

(for screens, reports, exchange, etc.)

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- **Health care stakeholders need to define their data requirements (data set)**
- **Each group will have its own requirements**
- **Each group must be able to construct its own data set and validate it**
- **Co-operating partners will have their own data sets as defined as part of the co-operation contract**
- **Each IT-vendor must be able to support every, and ever changing, data set inside and between the IT-systems**

## Can we agree upon these principles?


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# Data Sets and Use Cases

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- Use cases provide the context for the Data Sets as the Subject Area Model (SAM).
- In the present project we will construct a demo using the epSOS Data Set.
- In an other project, for example, the Diabetes Use Case and Data Set can be selected as SAM to be deployed in real life.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| | | | Irish Standards Based Diabetes Core dataset for Primary Care | | | | | |
| | | | | | | | | |
| Data Set Element | | Comment | Formal Name | Type & Laterality | Description | Parameter | Definition | Field Na |
| 1 | | Demographic Data | Practice name | n/a | IMC Practice Code 27527 Format | 6 Digit Practice Code | The GP practice name is received from the Health Atlas Directory. | |
| | | Demographic Data | Practice identifier | n/a | IMC Practice Code 27527 Format | 6 Digit Practice Code | The GP practice code is received from the Health Atlas Directory. | |
| | | Demographic Data | Principal treating hospital identifier | n/a | IMC Practice Code 27527 Format | 8 Characters | The Hospital Identifier code is received from the Health Atlas Directory. | |
| | | Demographic Data | GP IMC code | n/a | IMC Practice Code 27527 Format | 6 Digit Code | The GP IMC code is the personal identification number issued to each doctor by the Irish Medical Council permitted approval to practice medicine within the Irish Republic. | |
| | | Demographic Data | GP GMS number | n/a | GMS Practice No. 27527 Format | 6 Digit Code | General Practitioners (GPs) provide services to medical card holders in Ireland free of charge. Those GPs in the Primary Care Re-imbursement Service (formerly known as the 'General Medical Services') scheme enter into contracts with Health Service Executive (HSE) Areas to provide services. The PCRS / GMS number of the GP should be entered in this field. | |


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# Data Set - DEMO: epSOS

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**Goal: Cross border**

- **"to develop a practical eHealth framework and ICT infrastructure that will enable secure access to patient health information, particularly with respect to a basic patient summary and ePrescription, between European healthcare systems."**


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# epSOS Data Set

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## PILOT OPERATION

### Patient Summary

- access to important medical data from the patient´s home country when receiving treatment abroad

### ePrescription and eDispensation services

- access to an individual´s ePrescription from the home country
  ePrescribing: electronic prescribing of medicine using software to transmit the prescription data to the pharmacy
- dispensing: electronic retrieval of an ePrescription, the dispensing of the medicine to the patient and the submission of an electronic report


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# epSOS Data Set
# Patient Summary

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## General Information

- Name, birth date, gender, identification, address, contacts, insurance

## Medical Summary

- Alerts (allergies, vaccinations), current medical problems, medical implants, major surgical procedures during the last 6 months, treatment recommendations, list of current medications, life style, pregnancy, physical findings, blood group

## Other information

- When and by whom generated, updated, etc.


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# Uniqueness
## people, processes and organisations

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Each disease is unique

**ONE LANGUAGE**

Each patient is unique

**used by all**

Each healthcare provider is unique

**when all need to collaborate**

Each health organisation is unique

**and need to exchange data**

Each process is unique

Presentatie
Functionaliteit
Code stelsels
Database



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# Questions?



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# National Integrated Services Framework

28-29 October 2013

Part 2

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# Topics

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- Recapitulation
- HSE Tooling Environment
- Re-usable Components
- Why a Data Dictionary
- What are the benefits
- Summary


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# Recapitulation

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श्रीगणेशायनमः॥ ॐ ३ म्॥ अग्निं। ईळे। पुरः॑हितं। यज्ञस्य। देवं॑। ऋत्विजं॑
॥ होतार॑रत्न॑धातमं॥ अग्निः॑ पूर्वेभिः॑। ऋषि॑भिः॑। ईड्यः॑। नूतनैः॑। उत॥ सः॑। देवा
न्। आ। इह। वक्षति॑॥ अग्निना॑। रयिं॑। अश्नवत्। पोषं॑। एव॑॥ दिवे॑ऽदिवे॑। गृहसे॑।
वीरवत्। तमं॑॥ अग्नेयं॑। यज्ञं॑। अध्वरं॑। विश्वतः॑। परि॑भूः॑। असि॑॥ सः॑। इत्। देवेषु॑। ग
च्छति॑। अग्निः॑। होता॑। कविः॑। क्रतुः॑। सत्यः॑। चित्रश्रवः॑तमः॥ देवः॑। देवे॑। आ। गमत्
॥ ३॥ यत्। अंग। दाशुषे॑। त्वं॑। अग्ने॑। भद्रं॑। करिष्यसि॑॥ तवे॑त्। तत्। सत्यं॑। अंगि
रः॥ उप॑। त्वा॑। अग्ने॑। दिवे॑ऽदिवे॑। दोषावस्तः॑। धिया॑। वयं॑॥ नमः॑। भरंतः॑। आ। इमसि॑।
राजंतं॑। अध्वराणां॑। गोपां॑। ऋतस्य॑। दीदिविं॑॥ वर्धमानं॑। स्वे। दमे॑॥ सः॑। नः॑। पिता॑ऽइव॑।
सूनवे॑। अग्ने॑। सूपायनः॑। भव॑॥ सचस्वा। नः॑। स्वस्तये॑॥ ४॥ वायोइति॑। आ। याहि॑।
दर्शतेमे॑। सोमाः॑। अरंकृताः॑॥ तेषां॑। पाहि॑। श्रुधि॑। हवं॑॥ वायोइति॑। उक्थेभिः॑। जरंते।
त्वां॑। अच्छ॑। जरितारः॑॥ सुतसोमाः॑। अहः॑ऽविदः॑॥ वायोइति॑। तव॑। प्रऽस्थंचती॑। चेना॑।
जिगाति॑। दाशुषे॑॥ उरूची॑। सोमे॑। पीतये॑॥ इंद्रवायूइति॑। इमे॑। सुताः॑॥ उप॑। प्रयः॑ऽभिः॑।
आ। गतं॑॥ इंदवः॑। वां॑॥ उशंति॑। हि॑। वायोइति॑। इंद्रः॑। च॑। चेतथः॑। सुतानां॑। वाजिनीव
सूइति॑। वाजिनी॑। वसू॑॥ तौ॑। आ। यातं॑। उप॑। द्रवत्॥ ५॥ वायोइति॑। इंद्रः॑। च॑। सुन्वतः
॥ आ। यातं॑। उप॑। निःऽकृतं॑। मक्षु॑। इह्या॑। धिया॑। नरा॑॥ मित्रं॑। कृवे॑। सुतऽइंद्रं॑।
वरुणं॑। च॑। रिशादसं॑। धियं॑। घृताचीं॑। साधंता॑॥ ऋतेन॑। मित्रावरुणौ॑। ऋतऽचि
द्यौ॑। ऋतस्पृशा॑॥ क्रतुं॑। बृहंतं॑। आ। शाथेइति॑। कवीइति॑। नः॑। मित्रावरुणा॑। सु
विजातौ॑। उरु॑। सया॑। दृशं॑। दृघातेइति॑। अपसं॑॥ ६॥ अश्विना॑। यज्वरीः॑। इषः॑।

# Recapitulation

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Chair

Tree

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# Recapitulation

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## National Integrated Services Framework

- Exchange of health and care standards based structured data for primary and secondary (re-)use
- Health, Care and Management requirements based
- Health, Care and Management process driven
- HSE Tooling Environment plus re-usable common components
- Based on existing open International standards
- Usable in IT-systems procurement
- Evolutionary change process, gentile migration


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# EHR in Context

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# Example Use Case
# Child Health Care

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| Stakeholders | Activities |
|---|---|
| GP | Treats most common problems and needs to maintain an overview, Referral and discharge notes. |
| Pharmacists | Dispensing prescribed medicinal products and advice |
| Cummunity Nurse | Monitoring the development new born, young children. Vaccination program |
| School | Monitoring the development of young children |
| Pediatrician | Clinical disease episodes, referral en discharge notes |
| Public Health | Monitoring: child developments, environment, infectious diseases, … |
| Researcher | Own academic research or on behalf of third parties |
| Authorities | Monitoring the health care organisations and programs and projects |
| Patient / parents | Personal Health Record: collecting and reporting data obtained |
| Disease specific portal | E.g. Disease specific portal for Diabetes or Asthma , or … |


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# HSE Tooling Environment

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## Intended process

- Definition of Data Sets by healthcare Stakeholder groups
- Production of Semantic Interoperability Components (Content Models)
- Inserting codes for Reference Terminology
- Validation of health content
- Insertion and curation in the Data Dictionary
- Quality Assurance
- Publication and deployment


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# HSE Tooling Environment

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**Collaboration platform**

- **Content Models**
- **Content Model Library**
- **Content Model Editor**
- **SNOMED-ct**
- **Data Dictionary**



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# HSE Tooling Environment

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**Requirements can be captured in many formats:**

- **free text**
- **an excel**
- **or a Mind Map**

**And transformed in to an Content Model using the Content Model Editor**

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# HSE Tooling Environment

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**The Content Model Editor uses pre-defined re-usable shared components from the HSE Content Model Library.**

**The pre-defined components have codes from SNOMED-CT attached to it.**
**Local codes can be mapped to the reference codes.**

```
CEN-EN13606-COMPOSITION.HSEDemo.v1.adl
1 archetype (adl_version=1.4)
2     CEN-EN13606-COMPOSITION.HSEDemo.v1
3
4 concept
5     [at0000]
6
7 language
8     original_language = <[ISO_639-1::en-gb]>
9
10 description
11     original_author = <
12         ["organization"] = <"ERS B.V.">
13         ["email"] = <"">
14         ["name"] = <"GF">
15         ["language"] = <"en-gb English (United Kingdom)">
16         ["date"] = <"20131024">
17     >
18     lifecycle_state = <"Draft">
19     details = <
20         ["en-gb"] = <
21             language = <[ISO_639-1::en-gb]>
22         >
23     >
24
25 definition
26     COMPOSITION[at0000] occurrences matches {1..1} matches {  -- HSE Demo
27         content existence matches {0..1} cardinality matches {0..*; unordered} matches {
28             SECTION[at0001] occurrences matches {1..1} matches {  -- Dempgraphics
29                 members existence matches {0..1} cardinality matches {0..*; unordered; unique} matches {
30                     ENTRY[at0008] occurrences matches {0..*} matches {  -- ENTRY
31                         items existence matches {0..1} cardinality matches {0..*; unordered; unique} matches {*}
32                     }
33                     ENTRY[at0009] occurrences matches {0..*} matches {  -- ENTRY
34                         items existence matches {0..1} cardinality matches {0..*; unordered; unique} matches {*}
35                     }
36                 }
37             }
38             SECTION[at0002] occurrences matches {1..*} matches {  -- Problem List
39                 members existence matches {0..1} cardinality matches {0..*; unordered; unique} matches {
40                     ENTRY[at0007] occurrences matches {0..*} matches {  -- ENTRY
41                         items existence matches {0..1} cardinality matches {0..*; unordered; unique} matches {*}
42                     }
43                 }
44             }
```

**In this way any data set can be defined and data can be re-used.**


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# Why a Data Dictionary

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## One language, one meaning
## More than one way to express the same meaning

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# Why a Data Dictionary

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The Data Dictionary contains
standard data definitions and data elements
for use in any Irish health or
community services data collection.

The Data Dictionary is the authoritative source of
information about endorsed national data standards
and
provide the basis for consistent
national collection, exchange and reporting.


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# Benefits

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# Discussion Topics

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**Your expectations for data exchange and usage?**

**Your experience or perception of the major obstacles to achieving your data requirements?**

**What existing datasets, codes or standards if any you currently use?**

**Relevant current and emerging business activity?**


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