

Interoperability of health data

The Malta situation

Dr Hugo Agius-Muscat

Presentation to ANTILOPE meeting

18th June 2014



Overview

- Interoperability at national level
 - Electronic Case Summary
 - National Patient Summary
 - myHealth Record
- Interoperability at cross-border level
 - The epSOS project
 - The eHealth network
- The challenges ahead for Malta



Interoperability at national level

- **Legal interoperability**

- Health data exchange is regulated by Data Protection Act and Professional Secrecy Act.
- No specific national “ehealth legislation” yet

- **Semantic interoperability**

- UK English: standard human language for medical documentation
- Standard classifications: ICD-10, ICD-9-CM PCS, ATC
- Standard terminology: since 2012, gradual introduction of SNOMED CT

- **Technical interoperability**

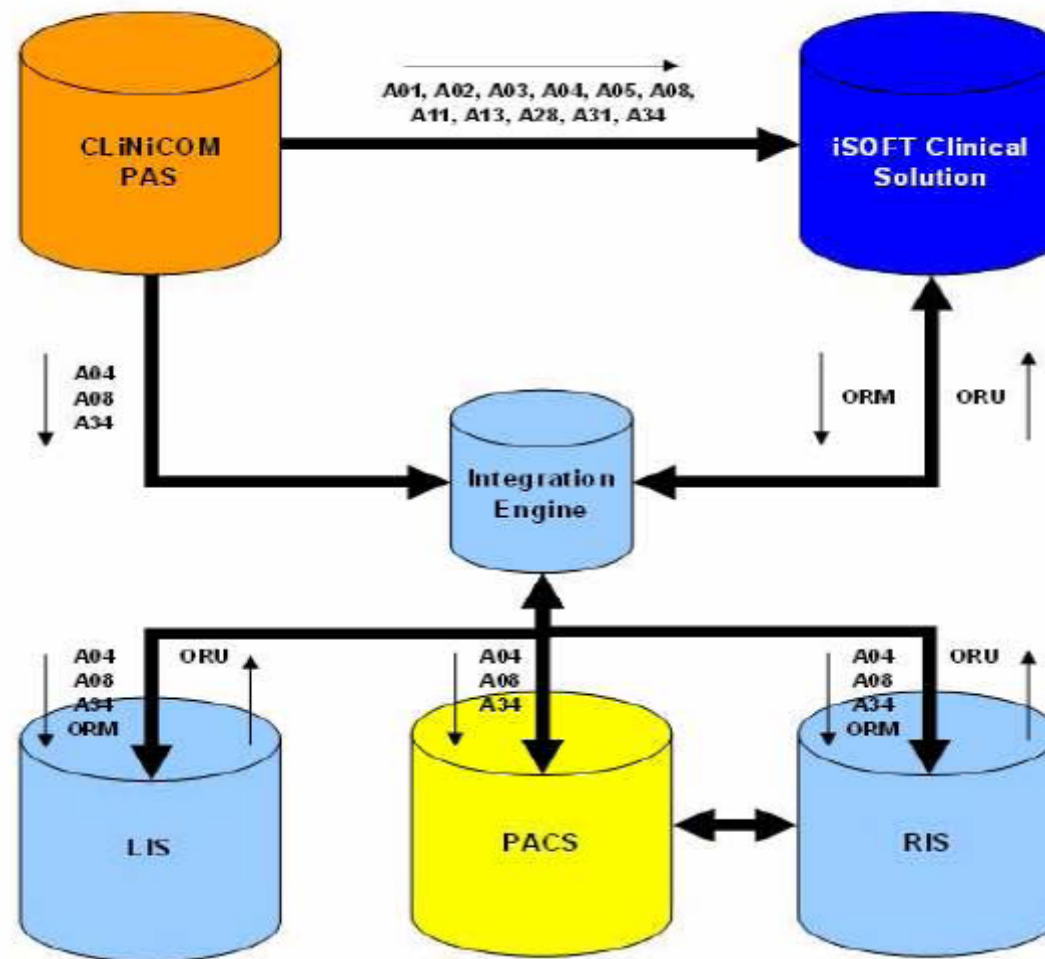
- 1990's to 2007: Shared database/application infrastructure across Government
- Since 2007: Use of HL7 integration between specific health IT systems



Mater Dei Hospital



IHIS – Integration through HL7 messaging



Electronic Case Summary (ECS)

- System developed in-house for electronic discharge letters at Mater Dei Hospital
- In productive use since 2007 (shortly before Mater Dei Hospital opened)



Electronic Case Summary system

Case Summary Menu - Microsoft Internet Explorer

[Main Menu](#) [Log Out](#)

Case Summary Menu CLOSED CASE

Fullname
Hospital ID
Consultant MR MARIO SAID
Admission date 01/10/2009
Discharge date 13/10/2009
Discharge Ward MEDICAL WARD 1, MDH
Locality GZIRA

Date of Birth
Age 85

Add/Edit Details

[Patient Details](#)
[Clinical Details](#)
[Clinical Investigations](#)
[Operations & Procedures](#)
[Complications](#)
[Rx on Discharge](#)
[Adverse Reactions](#)
[Awaited Results](#)
[Follow-Up](#)
[Further Information](#)

Close Case

[Close Case](#)

Print Forms

[Discharge Letter](#)
[HAA Form](#)
[Schedule V Applications](#)
[Prescription](#)
[Treatment Guide](#)
[To Whom It May Concern](#)



Start a New Case Summary

Hospital ID	<input type="text"/>	Address	<input type="text"/>
Surname	<input type="text"/>		<input type="text"/>
Name	<input type="text"/>		<input type="text"/>
Date of birth	<input type="text"/>		<input type="text"/>
Age	<input type="text"/>	Locality	SELECT <input type="button" value="v"/>
Gender	U <input type="button" value="v"/>	Mobile	<input type="text"/>
Telephone No.	<input type="text"/>		
Admitting Consultant	DR BERNARD COLEIRO <input type="button" value="v"/>		
Admitting Ward	ENT WARD SLH <input type="button" value="v"/>		
Admitting Date	<input type="text"/>	<input type="button" value="Show Calendar"/>	
Admission Method	SELECT <input type="button" value="v"/>		
Admission Source	SELECT <input type="button" value="v"/>		
Discharging Consultant	SELECT <input type="button" value="v"/>	<input type="button" value="Admitting"/>	
Discharging Ward	SELECT <input type="button" value="v"/>	<input type="button" value="Admitting"/>	
Discharging Date	<input type="text"/>	<input type="button" value="T"/> <input type="button" value="Show Cal."/>	
Discharge Destination	SELECT <input type="button" value="v"/>	<input type="button" value="Clear"/>	
Doctor's Name	Mr Alan Dimech	Qualifications	MCSE, MCSA, CCNA, MCDBA
Designation	HO	Medical Register	1234
<input type="button" value="Save"/> <input type="button" value="Cancel"/>			



Case Summary Menu

Next

Input Rx

Open BNF in a new window

Items in UPPER CASE are available in hospital formulary

Generic

aug

Dosage

Frequency

Adm. Route

Rx Period

Comments

Clavulanic Acid 125mg; Amoxicillin 500mg [co-amoxiclav] film-coated tab (Augmentin Duo 500-125mg Tablets)

Clavulanic Acid 125mg; Amoxicillin 250mg [co-amoxiclav] film-coated tab (Augmentin 250-125mg Tablets)

Amoxicillin 400mg/5ml; Clavulanic Acid 57mg/5ml [co-amoxiclav] pwdr for oral susp (Augmentin®-Duo 400-57)

Clavulanic Acid 125mg; Amoxicillin 875mg [co-amoxiclav] film-coated tab (Augmentin 875-125mg Tablets)

Clavulanic Acid 100mg; Amoxicillin 500mg [co-amoxiclav] pwdr for soln for inj or infusion (Augmentin® Intravenous 600mg)

Clavulanic Acid 200mg; Amoxicillin 1000mg [co-amoxiclav] pwdr for soln for inj or infusion (Augmentin® Intravenous 1.2g)

Treatment	Frequency	Route	Period		
Clavulanic Acid 125mg; Amoxicillin 250mg [co-amoxiclav] film-coated tab (Augmentin 250-125mg Tablets)	tds	oral	7	Edit	Delete
Bumetanide 1mg Tablet (Burinex®)	daily	oral	Indefinite	Edit	Delete



Electronic Case Summary (ECS)

MATER DEI HOSPITAL
TAL-QROQQ
MSIDA MSD 2090
TEL: 25450000

Case Summary

Hospital ID 0110875M
Name JOHN BORG
Date of Birth [REDACTED]
Age & Gender 68 Years, Male

Address [REDACTED]

Consultant MR CARMEL SCIBERRAS

Ward ORTHO 3 SLH

Admission Date [REDACTED]

Discharge Date [REDACTED]

Diagnosis Left calf pain 8 days post left total knee replacement.

Clinical Details

Had a left total knee replacement on the 29th, April. Did well post-operatively and was discharged on the 3rd, May. Returned on the 5th, May complaining of left calf pain and swelling. Clinically there was mild swelling with slight local tenderness and he was re-admitted to exclude DVT.

Treatment on Discharge

Dosage

Frequency

Period

Comments



Electronic Case Summary (ECS)

- In 2012, functionality extended to handle different hospitals
- Since then, ECS has been successfully introduced at all major Government hospitals:
 - **Boffa Hospital**
 - **Rehabilitation Hospital (Karin Grech)**
 - **Gozo General Hospital**



Boffa Hospital (Oncology)



Karin Grech Hospital (Rehabilitation)

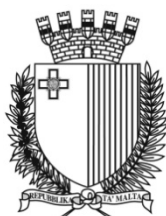
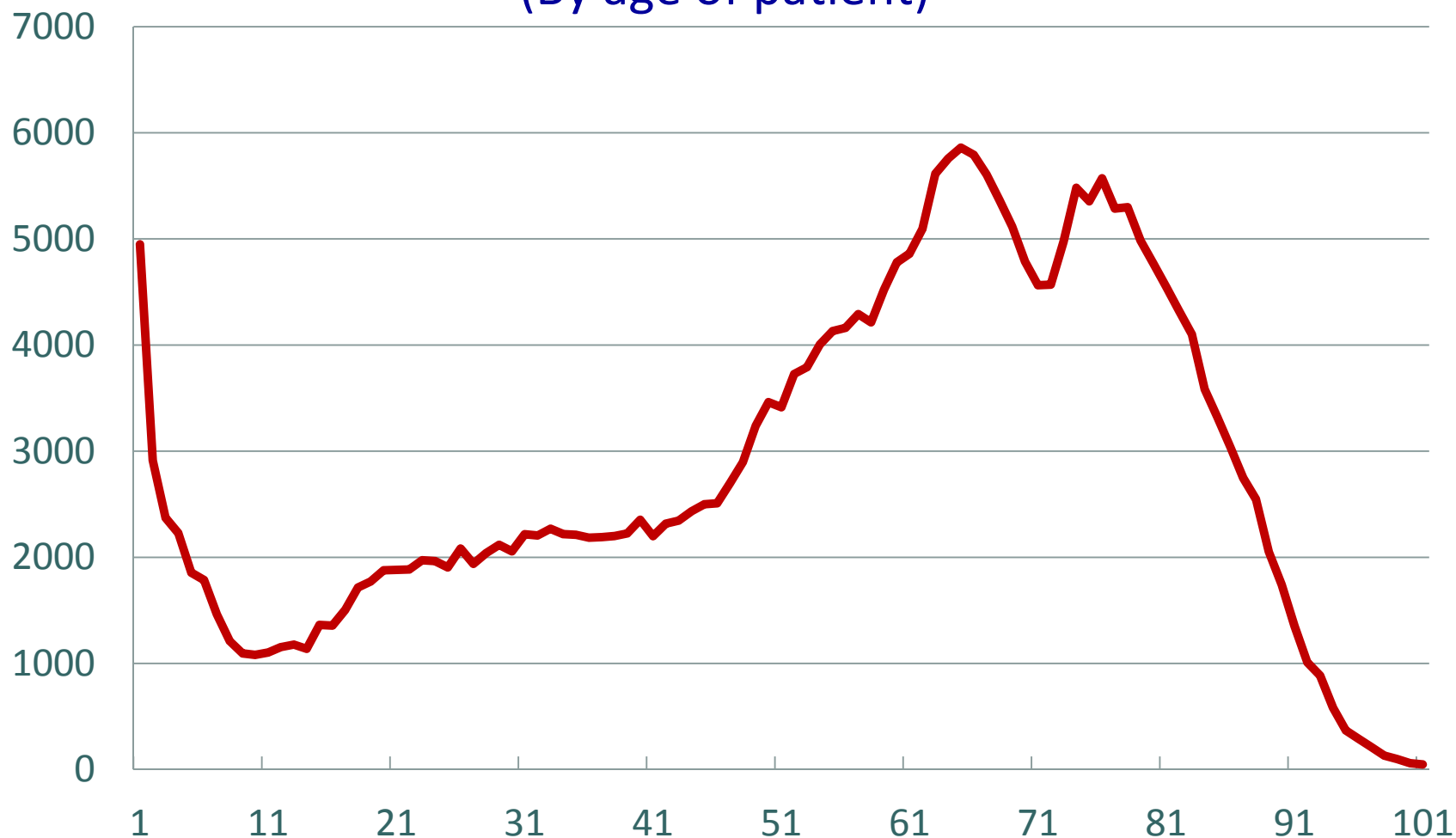


Gozo General Hospital



250,000+ Case Summaries, since 2007

(By age of patient)



National Patient Summary (NPS) system

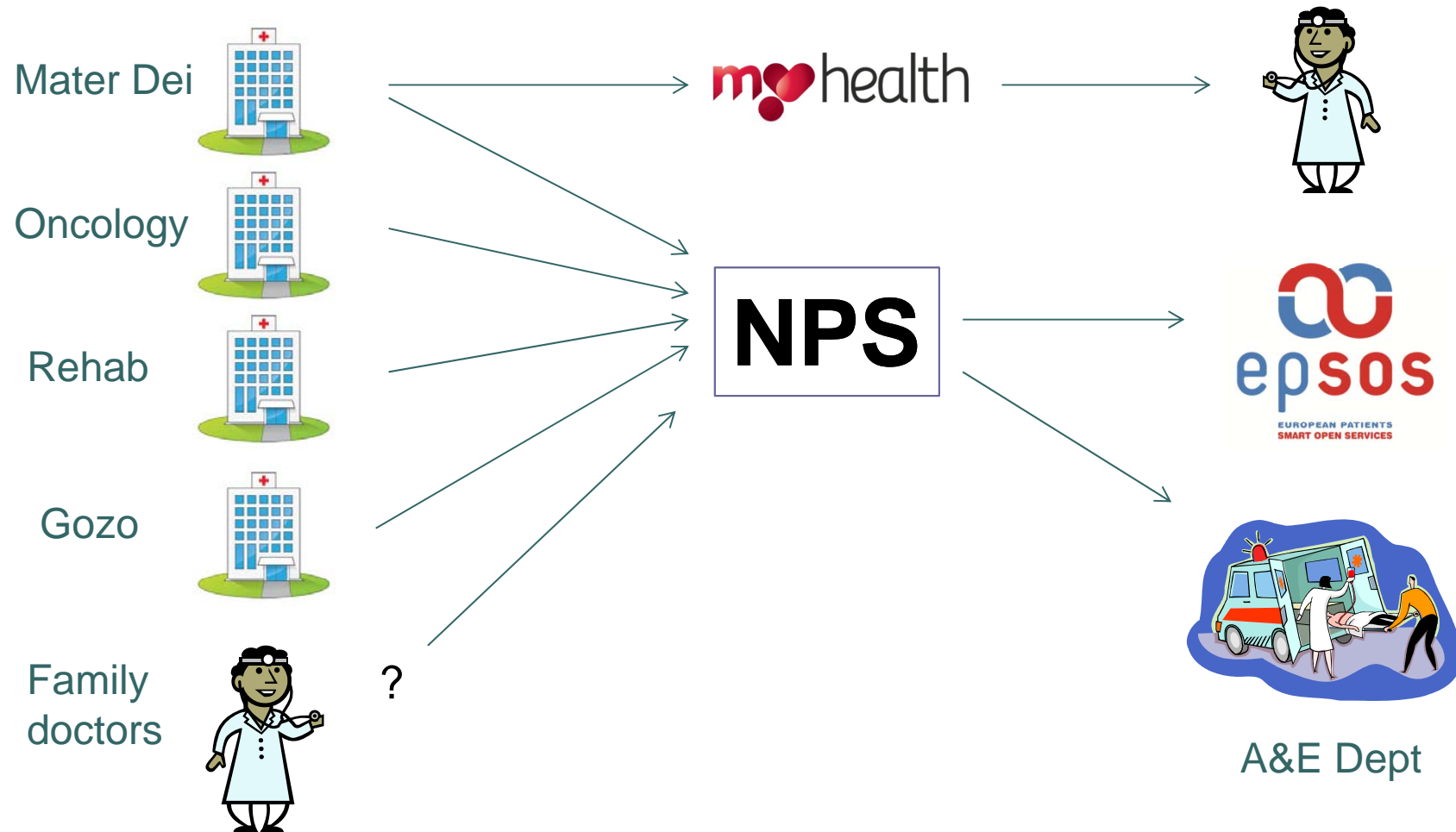
Automatic aggregation of data from

- Electronic Case Summaries (4 hospitals)
- Online Surgical Register entries (Mater Dei Hospital)

Into a single **National Patient Summary** in line with **epSOS Patient Summary** specification



National Patient Summary



National Patient Summary

Government of Malta

National Patient Summary



Patient Demographics

Hospital ID	0469493M	Address	18 TRIQ IL-GIEJUN
Full Name	GEORGE MUSCAT		
Date of Birth	20-Jan-58	City	MARSASCALE
Gender	Male	Country	MT

Allergies

No allergies reported

Inpatient Episodes

Admission	Discharge	Hospital
11-Jan-2013	11-Jan-2013	MATER DEI HOSPITAL
15-Mar-2012	18-Mar-2012	MATER DEI HOSPITAL
18-Feb-2011	18-Feb-2011	MATER DEI HOSPITAL
04-Jun-2010	04-Jun-2010	MATER DEI HOSPITAL
03-Jan-2009	16-Jan-2009	MATER DEI HOSPITAL

Medical Problems (past 6 months)

Diagnoses

No active diagnoses reported

Surgical Procedures

Date	Description
11-Jan-2013	WIDE EXCISION BCC ON RIGHT FOREARM UNDER LA
28-Sep-2012	WEDGE EXCISION MALIGNANT MELANOMA ON LEFT EAR UNDER LA

History of Past Illness (more than 6 months old)

Diagnoses

Discharge	Description
18-Mar-2012	Open cholecystectomy.
18-Feb-2011	lesion on the left side of the nose.
04-Jun-2010	Excision of BCC on right side of nose
16-Jan-2009	Herpes Zoster

Surgical Procedures

Date	Description
16-Mar-2012	OPEN CHOLECYSTECTOMY
29-Nov-2011	EXCISION BCC LEFT LOWER EYEJID

Treatment Prescribed on Hospital Discharge

Date	Treatment	Route	Unit	Frequency	Period	Comments
18-Mar-2012	OMEPRAZOLE 20MG CAP	PO ORAL	1 - 0 - 0	Daily	Indefinite	
18-Mar-2012	Mycophenolate Sodium 360mg Film-coated gastro resistant tablets (Myfortic)	PO ORAL	1 - 0 - 1	BD Twice a	Indefinite	
18-Mar-2012	PREDNISOLONE 5MG TAB	PO ORAL	1 - 0 - 0	Daily	Indefinite	
18-Mar-2012	CYCLOSPORIN 100MG CAP	PO ORAL	1 - 0 - 1	BD Twice a	Indefinite	
18-Feb-2011	Chloramphenicol 10mg/g Eye ointment (Posifenicol? C 1%)	transdermal	ointment	Daily	7	
04-Jun-2010	Chloramphenicol ointment	topical	ointment	BD Twice a	7	
16-Jan-2009	OMEPRAZOLE 20MG CAP	PO	1	dail	Indefinite	
16-Jan-2009	CO-TRIMOXAZOLE TABLETS 400mg + 80mg	PO	1	Daily	Indefinite	
16-Jan-2009	CYCLOSPORIN 100MG CAP	PO	3	BD	Indefinite	
16-Jan-2009	Mycophenolate Sodium 360mg Film-coated gastro resistant tablets (Myfortic)	PO	1	BD	Indefinite	
16-Jan-2009	Omic	PO	0.4mg	NOCTE	Indefinite	
16-Jan-2009	PREDNISOLONE 5MG TAB	PO	2	Daily	Indefinite	



epSOS project



**EUROPEAN PATIENTS
SMART OPEN SERVICES**

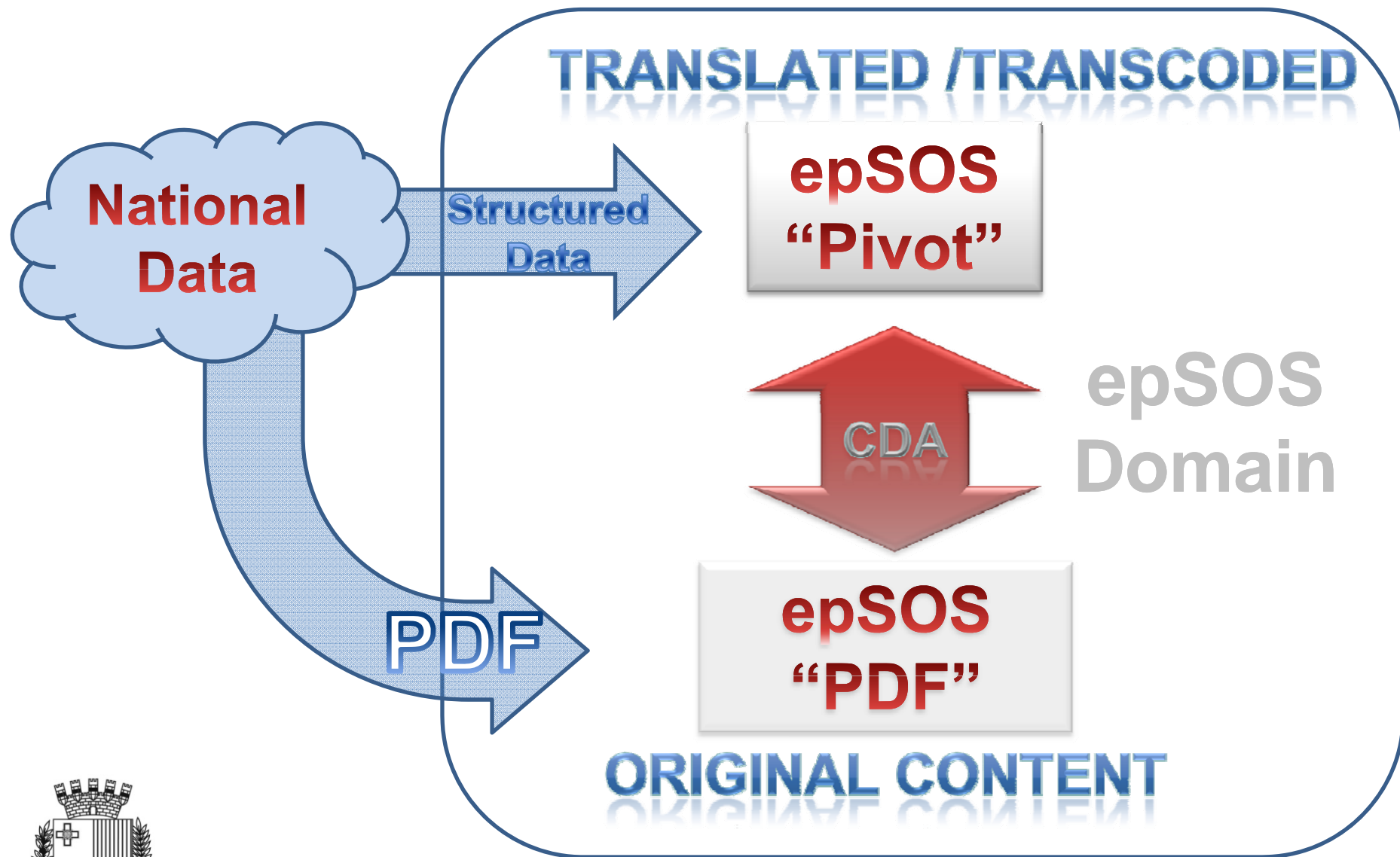


epSOS project

- Main EU health data cross-border interoperability project (till June 2014)
- Malta piloted the exchange of **patient summaries**
- Malta was approved for live Operational Pilot in July 2013
- Data was exchanged with several countries, e.g. Portugal, Italy (Lombardy), Slovenia
- Malta intends to maintain epSOS-type infrastructure for cross-border health data exchange



epSOS – Semantic transformation





Winner of the
HEALTHTECH
INNOVATION
Award 2013
making
healthcare
better.eu



Print

Search this website:

Choose your Country
epSOS Europe

[Home](#) | [epSOS Services](#) | [For Patients / Citizens](#) | [For Health Professionals](#) | [Technical Background](#) | [Legal Background](#) | [FAQ & Glossary](#) | [News & Press](#)

HOME

- About epSOS
- epSOS results & outlook
- Project Members & Beneficiaries
- Ethics
- Links & Collaborations
- Download Area

+++ epSOS

epSOS - the European eHealth Project

After more than 3 years of hard work to develop feasible cross-border eHealth services, the efforts of the epSOS project team have culminated in the large scale pilot entering into **operational mode**. In this phase, which is active since April 2012, the developed solutions are tested in a real-life environment.

Download the Press Release announcing the pilot start [here](#) or click [here](#) to find participating health professionals in Europe.

Share your opinion on the epSOS Services with us!

The epSOS questionnaire under https://es.surveymonkey.com/s/epsos_end_user has been designed to collect opinion(s) on the epSOS Services. European citizens are invited to complete it, regardless of whether they already used the services or not. Help us to improve cross-border eHealth services by filling out the questionnaire today!

Find epSOS Services

[Click here](#) to find the Point(s) of Care in the country you want to visit!



Evaluation

Did you already use epSOS Services? Help us to improve our services and fill out the questionnaire!

- [→ Feedback as patient](#)
- [→ Feedback as health professional](#)



epSOS results and outlook

Interested to read more about the project's results & achievements? Then follow...



www.myhealth.gov.mt





myHealth Login

e-ID Number

Password

Login

[Register for your e-ID](#)
[Forgot your password?](#)

myHealth: the Government of Malta's portal for online access to health records

NEWS: The e-ID Office has moved to Gattard House, Blatal-Bajda. This office issues both e-ID cards and e-ID passwords. To access myHealth, you need an e-ID password.

Patients and the doctors they choose can access health data through this site. The following data is accessible:

- 1) Mater Dei Hospital (MDH) Case Summaries (inpatient discharge letters from 2008 onwards),
- 2) Current Pharmacy of your Choice medicines entitlement
- 3) Lab results and medical image reports (Biochemistry, Haematology, Immunology, Toxicology from 2008 onwards; Microbiology, Virology, Blood Bank, Histology and Cytology from December 2012 onwards). **For patients to access this data it has to be released to them by the doctor/s they are linked to in myHealth.**

- 4) Outpatient / clinic appointments at Government Hospitals.

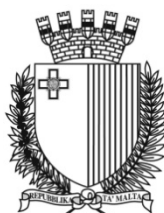
Patients may approach one or more doctors through myHealth, to give the doctor/s access to their data and to access results and reports released to them by their doctors in myHealth.

Patients and doctors can also set up email notifications, and sms reminders for appointments.

The site is secured by the Government's electronic identity (e-ID) system, so the service is available to all those who have a Maltese e-ID and their e-ID delegates.

The Three Steps to access myHealth

- 1) Register for an e-ID (if you don't already have one). Please go to [this myGov link](#) for information.
- 2) Subscribe to myHealth. Go to [mygov.mt](#), sign in with your e-ID, go to "Manage My Services", then to "Subscribe to an eGovernment Service", then choose "Ministry for Health" from the drop-down list and subscribe to myHealth.
- 3) Enter your ID number and e-ID password on this webpage.



myHealth Portal – Functions

- Access to patients and their doctors over the internet using e-ID to:
 - MDH Case Summaries (discharge letters)
 - Pharmacy of your Choice entitlement data
 - MDH Lab results
 - MDH X-ray/medical image reports
 - Hospital appointment data
- Email notifications / sms reminders



Interoperability at cross-border level


○ Legal interoperability

- Data protection: There are many different “legal flavours” across the EU
- In epSOS: the solution was the “epSOS framework agreement”, which established a “circle of trust” among the participating nations
- The Cross-Border Health Care Directive (2011) has catalysed efforts to find a common legal solution, especially through the work of the Article 14 network, i.e. the **eHealth Network**



eHealth Network

About this site | Legal notice | Contact | Search English (en)



PUBLIC HEALTH

European Commission > DG Health & Consumers > Public health > eHealth > Policy > eHealth network

EHEALTH

All topics

Policy





EU coordination

Projects

Portal >

Go back to [eHealth](#) > [Policy](#) > [eHealth network](#)







eHealth Network

- ❖ **Structure and legislative framework**
 - Directive on the application of patients' rights in cross-border healthcare 
 - Commission Implementing Decision  (712 KB) 
 - Rules of procedure  (24 KB)
- ❖ **Network's meetings**

eHealth Network's meetings (Agenda, minutes and documents)
- ❖ **List of participating members**

The Network is composed of members coming from 28 Member States

Members:

 Austria – Ministry of Health	 Italy - Ministry of Health
 Belgium - Ministry of Social Affairs and Public Health	 Latvia - Ministry of Health
 Bulgaria - Ministry of Health and National Health Insurance Fund	 Lithuania - Ministry of Health


e-newsletter 05 June 2014

1 effective, accessible and resilient health systems +


Latest updates


Press release - eHealth Forum: health management in the 21st century
Released 12 May 2014

5th Meeting of the eHealth Network, Athens, 13 May 2014 - Agenda available
Released 05 May 2014

 [More](#) +

Related information

 [Press material](#)

 [Key documents](#)



eHealth Network

19th November 2013

- Adoption of **Guidelines on minimum/non exhaustive patient summary dataset for electronic exchange in accordance with the cross-border Directive 2011/24/EU**

http://ec.europa.eu/health/ehealth/docs/ev_20131119_co1_2_en.pdf



Semantic interoperability at cross-border level

- Biggest challenge: diversity of human languages used across Europe
- In epSOS: creation of Master Value set Catalogue (MVC) and Master Translation/transcoding Catalogue (MTC).
- Use of standard classifications and nomenclatures is fundamental.
- Malta's use of standard English versions of ICD-10, ICD-9-CM, ATC and SNOMED CT has proved crucial for effective cross-border exchange.



Technical interoperability at cross-border level

- In epSOS: HL7 CDA and IHE profiles were used (as well as the IHE Connectathon approach towards testing)
- Malta did not use HL7 CDA or IHE profiles before the epSOS project, so there was a steep learning curve
- In April 2013, Malta tested successfully at the Istanbul IHE Connectathon for sending and receiving of epSOS-format Patient Summaries
- This work catalysed the formation of the “National Patient Summary”



Challenges ahead for Malta

- Continue the move from direct sharing of databases towards use of web services and exchange of data through HL7 messages / HL7 CDA documents
- Maintain epSOS-style infrastructure for cross-border health data exchange, initially for Patient Summaries, later for ePrescriptions (within the EC eHealth Network framework)
- Continue to evolve eHealth systems in line with EU/international developments



Thank you for your attention!

