



Advancing eHealth
Interoperability

eHealth Interoperability State of the Art in Croatia

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1. eHealth – State of the art in the country
 - Health system in figures (number of citizens, number of physicians, hospitals, GP’s etc.)
 - eHealth in the country – overall achievements & challenges
 - Governing structure of eHealth – standardization bodies, standardization/interoperability coordinators
2. eHealth interoperability projects / cases in the country
 - project domain, interoperability components (used standards, agreements etc.), level / scale of interoperability
3. Testing / certification activities in eHealth
4. Plans and Challenges



1. eHealth in Croatia



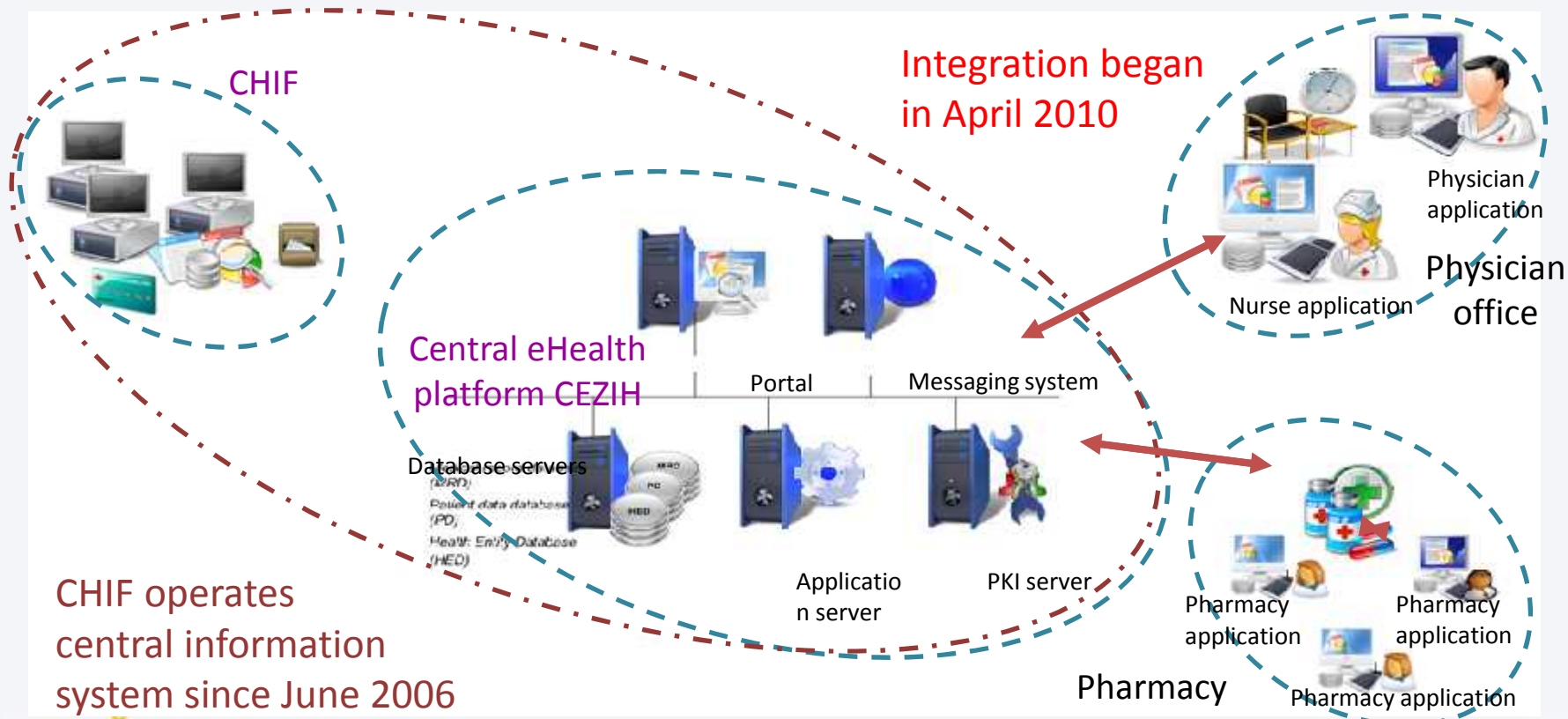
Croatia & Health System in Figures

- Health care insurance in Croatia includes mandatory, complementary and supplementary insurance
- Single-payer system - Croatian Health Insurance Fund (CHIF)
- 4,398,150 citizens (2011 census) - 4,297.228 insured
- Specialities and vendors:
 - 2.300 + GP offices, 192 paediatrician offices, 180 gynaecologist offices, 200+ school medicine offices, 1.900+ Dental practises
 - 1.200+ pharmacies
 - 110 LABa
 - 65 hospitals (4)
 - 1.000+ specialist health care offices



eHealth in Croatia - overall achievements & challenges

- Croatian **national** healthcare information system (CEZIH)





eHealth governing structures

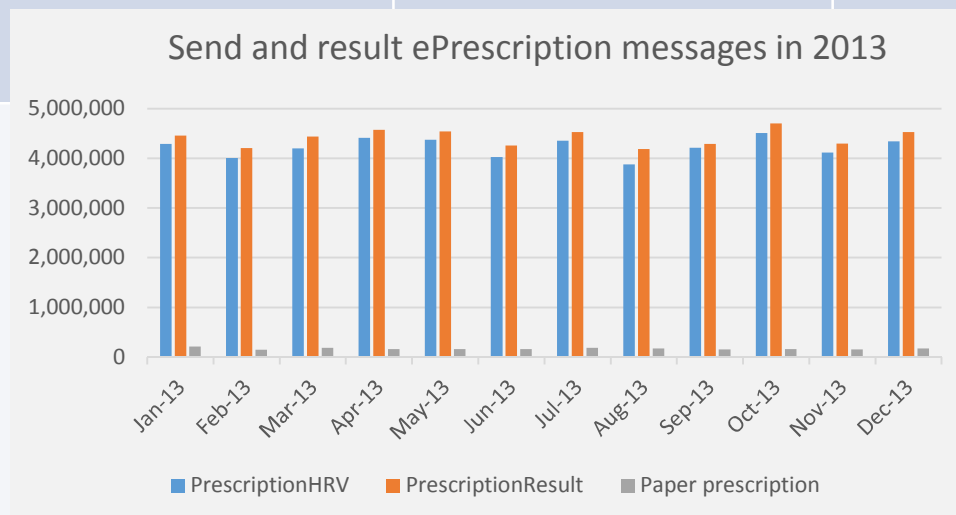
- CHIF is appointed by MoH for eHealth
- CHIF operates central information system which is integrated with its own data replication, PKI, coding list management
- Health care providers connect to CEZIH using certified software solution
- Certification is organized and conducted by the CHIF
- Commission for certification appointed by Director of CHIF
- Certification is conducted in accordance to the Protocol and methods of testing, defined by CHIF



2. eHealth Interoperability Cases / Projects



Medical domain	Project in country / status	Interoperability level	Interoperability challenges
Medication	E-Prescription and e-Dispensing	1a) Cross-border, 1b) National	Semantic - register maintenance, drugs with more active ingredients



Interaction	Name	Total in 2013
PORX_IN990005	PrescriptionHRV	50.739.784
PORX_IN990007	PrescriptionRetrieve	36.485.518
PORX_IN990011	PrescriptionTakeover	53.490.104
PORX_IN990009	PrescriptionResult	53.021.852
PORX_IN990003	PrescriptionReport	52.743.585

Interaction	sij.13	vlj.13	ožu.13	tra.13	svi.13	lip.13	srp.13	kol.13	ruj.13	lis.13	stu.13	pro.13
PrescriptionHRV	4.292.918	4.010.291	4.201.762	4.415.502	4.373.867	4.027.623	4.357.284	3.878.814	4.212.247	4.510.495	4.118.243	4.340.738
PrescriptionResult	4.457.921	4.210.239	4.437.106	4.574.459	4.542.199	4.260.503	4.527.527	4.188.455	4.293.891	4.702.804	4.296.312	4.530.436
Paper prescription	211.684	147.465	186.008	161.156	161.553	155.850	187.288	173.366	149.828	158.606	150.838	170.858





E-Prescription and e-Dispensing -changes to make prescription “Epsos compatible”: legal, organisational, semantic, tehcnical

ATK šifra	Nezaštićeno ime lijeka	DDD i jed. mj.	Način primjene	Proizvodac	Zasticeno ime lijeka	Oblik, jačina i pakiranje lijeka	Cijena
95 N02BE01 312	paracetamol	3000 mg	O	JGL d.d.	Paracetamol	sirup 1x150 ml (120 mg/5 ml)	

ATK_SIFRA	ATK	BROJ_JEDINICA	DOZA_KONCENTRACIJE_BROJNIK	MJERNA_JEDINICA_BROJNIK	DOZA_KONCENTRACIJE_NAZIVNIK	MJERNA_JEDINICA_NAZIVNIK	EPSOS_FARM_OBLIK
N02BE01312	N02BE01	150	120	mg	5	mL	10117000





2. eHealth Interoperability Cases / Projects



Medical domain	Project in country / status	Interoperability level	Interoperability challenges
Laboratory	Request and results sharing workflow for laboratory	National	Organisational – different standard and age of equipment

- eReferral to biochemistry lab incl. Electronic structured results, pdf supported

Interaction	01/2013	02/2013	03/2013	04/2013	05/2013	06/2013	07/2013	08/2013	09/2013	10/2013	11/2013	12/2013	Total
ReferralHRV	343.717	333.631	332.259	341.254	323.845	270.877	257.996	232.988	316.197	337.914	326.960	272.603	3.690.241
SendLaboratorySample	65.554	70.051	71.872	72.742	70.766	58.661	52.981	41.808	68.722	76.842	77.130	61.727	788.856
ReferralHRVResult	277.364	284.446	293.760	287.603	277.069	237.063	223.002	194.505	264.743	293.042	278.510	243.979	3.155.086



2. eHealth Interoperability Cases / Projects



Medical domain	Project in country / status	Interoperability level	Interoperability challenges
Referral- and Discharge reporting	Cross-enterprise Referral and Discharge Reporting	National, Referral of patient from primary to secondary care, Discharge report from secondary care	Organisational

- All referrals from primary healthcare are already being sent to CEZIH
- Specialist care institutions (outside of hospitals) partially use the eReferral mechanism
- First four hospitals connected

Interaction	01/2013	02/2013	03/2013	04/2013	05/2013	06/2013	07/2013	08/2013	09/2013	10/2013	11/2013	12/2013	Total
SKZZReferralHRVResult	1.321.870	1.235.606	1.227.900	1.292.149	1.234.152	1.006.538	929.442	819.143	1.099.223	1.120.953	1.066.271	844.286	13.197.533
SKZZReferral	30.369	34.840	35.460	31.492	32.943	26.497	22.916	16.432	24.104	28.249	25.772	19.380	328.454



Medical domain	Project in country / status	Interoperability level	Interoperability challenges
Patient Summary	Patient Summary sharing - to be ready for piloting in Croatia in mid 2014	National	Tehnical, Legal

Prerequisites for implementation of PS in the eHealth system:

- the migration to the new middleware infrastructure,
- implementation of communication messages,
- extending of existing encounter summaries.

Procurement procedure for acquisition of new middleware has started with funding exclusively from national resources.

Patient consent for access to his data has to be regulated.



2. Other eHealth projects overview



Croatian eHealth system supports:

- Encounter summary from primary healthcare physicians
- eWaiting Lists and eOrdering
- Sickness reports
- National prevention programs

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3. Testing / Certification Activities in eHealth



Certification activities in the Croatia:

- Invitation to certification is published on the CHIF and MOH public website
- Software manufacturer submits request via e-mail with testing log attached in order to receive Commission approval for access to certification procedure and the term for testing
- Software manufacturer is instructed to install the application on a virtual computer on the CHIF equipment
- Software manufacturer performs testing on the test environment according prescribed guidelines and instructions of the Commission
- The Commission issues a testing minutes which contains an analysis of the content of exchanged messages
- In case of positive testing results CHIF issues a license for software distribution
- After the implementation of the software solution in a medical institution, additional check will be carried out in the production environment and a permit to operate/certificate will be issued by CHIF



3. Testing / Certification Activities in eHealth



Examples of testing:

- After the query in insurance status, a check whether the local database is updated is performed, for example: changes in surnames, changes to insurance policy, etc.
- Software solution must provide adequate exemption from participation for specific categories of insurance
- When prescribing drugs the software solution checks the rules of CHIF and issues a warning to medical professional on attempts of prescribing narcotics on repeatable prescription
- When prescribing referrals to lab the software solution checks the rules of CHIF and issues a warning to medical professional on attempts of prescribing prohibited tests combinations (CBC + S-CRP)
- - Software solution performs checks on whether all the data is recorded in “Encounter summary after each examination”



“Informatization and eHealth” underlined as priority No 1

- First set of measures is standardization of:
 - all coding lists
 - information and data exchange
 - integration of all stakeholders in healthcare
 - connection to EU countries in data exchange
- Activities within Digital Agenda EU 2020:
 - Analysis of existing legislation for the further development of eGovernment
 - Establishment of a register of the IT projects and resources of the State Administration
 - Establishment of a central catalogue of all records, files and other data sets which are maintained by the State Administration
 - Set up of a system for monitoring the quality of IT solutions in government bodies



5. Conclusion



....Lot of new useful functionalities are ahead of us

Final aim of all the above mentioned eHealth projects is to have a healthcare system that ensures optimal quality, patient safety and eligible expenditures

Thank You!