E-HEALTH CROATIA: NATIONAL HEALTHCARE INFORMATION SYSTEM

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WHAT WOULD YOU SAY ABOUT THE INDUSTRY WHERE...

Focus is on the process and the „seller” not the customer
Costs are fragmented, isolated, not easily manageable
Processes are fragmented and isolated
Decisions are often made upon individual knowledge and experience
Ordering process is manual and paper based
Experience is mostly individual and not truly shared
Information for any participant in the process is fragmented, isolated and not always available

WHAT ABOUT FUTURE COSTS?
WHAT ABOUT QUALITY IN THE FUTURE?

YES, THIS IS CAN BE A MESS!
WHAT IF THAT INDUSTRY WAS HEALTHCARE...?

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WHAT

SHOULD

WE DO?

WHAT CAN

WE DO?

HOW CAN

WE DO IT?
WHAT CAN/SHOULD WE DO?

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Patient centric

Centralized cost management

Managed processes, clinical pathways and guidelines

Guidelines, evidence-based and personalized care

Automated

Best practices

Consolidated, centralized, comprehensive; available wherever and whenever needed
HOW CAN WE DO IT?

HOW TO COLLECT AND DISTRIBUTE INFORMATION?
HOW TO TRUST THAT INFORMATION?
HOW TO MEASURE SUCCESS?
HOW, HOW, HOW?

WHERE TO START?

THROUGH USING ICT!
E-HEALTH - MAIN BUILDING BLOCKS

- Discharge Summary from PHC
- Reporting infectious, malignant diseases
- E-prescription
- E-referral
- EHR (Electronic Healthcare Record)
- Patient portal
- Prevention programs
- Retrieving administrative info (insurance status, medical aids availability...)

E-health - main building blocks
The beginning was hard

- legal, process, architectural, technical, motivation, resistance to change issues!!!

You need to choose the right partner – experienced solution builder rather than a solution supplier

Each new step is easier from previous

Each new step brings significantly more benefits than previous

After some point, momentum is there and you should only not ruin it

Is it possible?

The real cases show that there is no single, ‘right’ strategy for implementing interoperable EHR and ePrescribing systems.

The most transferrable features from different projects are the experiences and capabilities gained, and requirements for success identified.

European Commission, „The socio-economic impact of interoperable electronic health record (EHR) and ePrescribing systems in Europe and beyond“, October 2009
eHealth in Croatia

- Audit
- Messaging
- Business registries (resources, patients, coding lists...)
- Auxiliary databases
- Authentication & authorization
- EHR
- Specialized applications (e.g., national prevention programs, hospital information system, central eBooking...)
- BI & reporting
- Patient portal
- CEZIH is an integration platform with selected business process mechanisms
- Selected nationwide applications are part of CEZIH too

CEZIH

- Hospitals
- Patients
- Physician
- Nurse
- General practitioner
- Pediatrics
- Gynecologist
- Dentist
- School medicine
- Ministry of Health
- Public Health
- Specialist care
- Outpatients care
- CEZIH

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4 Million patients benefit from eHE

E-PRESCRIPTION (50M/YEAR)
PREVENTS ERRORS & SAVES LIVES
EPSOS

E-REFERRAL - 15,000 PEOPLE DO NOT NEED TO DRIVE EACH DAY

E-REFERRAL IN ALL HOSPITALS (12M/YEAR)
E-BOOKING IN SPECIALIST CARE & HOSPITALS
CROATIA 2007-

ERICSSON HEALTHCARE EXCHANGE

PATIENT & RESOURCES ADMINISTRATION
INSURANCE & PUBLIC HEALTH REPORTING

HOSPITAL
POLYCLINIC
HOME CARE
COMMUNITY PHARMACY
LABORATORY
MINISTRY OF HEALTH
PUBLIC HEALTH
HEALTH INSURANCE

PATIENT 
PHYSICIAN OFFICE

IN DAILY USE BY 18,000+
HEALTHCARE PROFESSIONALS

ELECTRONIC HEALTHCARE RECORD
E-REFERRAL
E-BILLING
E-PRESCRIPTION

ADMINISTRATIVE SERVICES

DISCHARGE LETTERS

PRIMARY HEALTH CARE PROVIDERS

ELECTRONIC HEALTHCARE RECORD
PATIENT PORTAL
Electronic healthcare record

Central electronic healthcare record is the only system where authorized user can access comprehensive lifelong patient medical record.

Source of the data is any application/system connected to CEZIH.

Test data
PATIENT PORTAL

› COMPREHENSIVE VIEW ON YOUR OWN HEALTH

› MANAGING DASHBOARD FOR DIFFERENT ACTIVITIES

› ADMINISTRATIVE INFORMATION

› COMMUNICATION PLATFORM WITH DIFFERENT HEALTHCARE PROFESSIONALS

› REMINDERS, GENERAL INFO...

TEST DATA
OUR EFFORTS HAVE NOT GONE UNRECOGNIZED....

CROATIA BECAME ONE OF THE EUROPEAN LEADERS IN E-HEALTH

"THE TOP 3 PERFORMERS FOR EPRESCRIPTION ARE ESTONIA (100%), CROATIA (99%) AND SWEDEN (97%)..." (EC, 2014)
CAREWELL
Multi-level integration for patients with complex needs

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1. Overall coordinator of Croatian pilot site
2. mHealth technology provider
   - Ericsson Mobile Health
   - System Integration
3. Pilot site deployment and maintenance
4. Service and organization design

36 months
18 months operational pilot period targeting multiple chronic diseases
8 Countries
Spain, UK, Denmark, Germany, Belgium, Poland, Croatia, Italy

Croatia Pilot Execution
PILOT EXECUTION - CROATIA

Faculty of Electrical Engineering and Computing

Croatian Society for Pharmacoeconomics and Health Economics

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Technology provider
Organizational change management
Quality and security management
Technological Interoperability assessment

Health Center ‘Zagreb Center’
(HEALTHCARE SERVICE DELIVERY)

Overall coordinator of Croatian pilot site
mHealth technology provider
Healthcare service design and use-case creation
Pilot site deployment and maintenance

Patient recruitment
Health professionals and decision makers involvement
Data analysis and market research
Pilot evaluation and socioeconomic performance analysis
FIELD NURSE SERVICE IN CROATIA
TECHNOLOGY STATUS

› TECHNOLOGY MISSING IN FILED NURSE CARE:

- COMMUNICATION TOOLS BETWEEN PROFESSIONALS ON FIRST LINE (GP AND FIELD NURSES)
- COMMUNICATION SUPPORT BETWEEN PATIENT AND HEALTHCARE STAFF
- DIGITAL EDUCATIONAL MATERIALS FOR PATIENT EMPOWERMENT

› In place
  - EHR
  - ePrescription
  - eBooking
  - eRefferal

- 64 hospitals
- 46 health centers:
  960 field nurses
  5000 GP's

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STABLE PATIENT OUT OF HOSPITAL CARE

GP and nurse
- Managing patients overall health status
- Prescribing medications and field nurse service to patient
- Referring patient to specialist examination
- Cooperation with field nurse and specialist
- Keeping GP's health record for patients

Specialists
- Patient examination based on GP referral
- Providing feedback to GP
- Issuing prescriptions for medications

ePres
- Issuing medications based on GP or specialist prescription

Pharmacy

F2F Phone

F2F

Diagnostics
- Performing diagnostics tests based on GP referral

Informal Caregiver
- Helping patient on daily basis with medications and therapy

Field nurse
- Patient home visits
- Medical measurements
- Patient and caregiver education
- Psychological support to for both patient and caregiver
- Cooperation with GP
- Initiating social care interventions

Social worker
- Patient home visit and intervention based on field nurse request
- Initiating field nurse visits
- Cooperation with field nurses
INTEGRATED CARE COORDINATION

HOME SUPPORT AND PATIENT EMPOWERMENT

Education materials on multiple devices:
- About disease
- Prevention
- Therapy adherence
- Regular Workouts

Data Sharing

Medical Measurements

Communication
ADDED VALUE FOR HEALTHCARE SYSTEM

› Increased amount of accessible information
› Increased speed of data flow on patient-doctor pathway
› Increased adherence to therapy and compliance with specialist examinations
› Decrease in number of GP visits and unnecessary travel for patient
› Decreased number of hospitalizations and excessive health resources usage
“Will we look into the eyes of our children and confess that we had the opportunity, but lacked the courage? that we had the technology, but lacked the vision?”*

› www.ericsson.hr
› www.cezih.hr

THANK YOU!

* Energy Revolution
Greenpeace, Pachauri foreword 2009