

# Governmental and private eHealth and telemedicine initiatives in Lithuania

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**East Europe eHealth Innovation Summit, Warsaw, 2015-01-15**





## Governmental initiative

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MINISTRY OF HEALTH  
OF THE REPUBLIC  
OF LITHUANIA



INFORMATION SOCIETY DEVELOPMENT  
COMMITTEE UNDER THE MINISTRY OF  
TRANSPORT AND COMMUNICATIONS

The Ministry of Health of the Republic of Lithuania is coordinating and executing National Electronic Health System Development Program for the period of 2009 – 2015

Information Society Development Committee under the Ministry of Transport and Communications together with the Ministry of Health allocated more than 30 million Euro of the EU Structural Funds for eHealth projects. All projects from this financial period must be finished until August of 2015!



# Governmental initiative: EU SF funded eHealth projects

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- 16 National projects
- 13 Regional projects
- Some additional eHealth related national or institutional projects, financed by EU SF and supervised by other authorities like Ministry of Education and Science or Information Society Development Committee



# Governmental initiative: EU SF funded eHealth projects



## National projects (Core Information Systems)

- **The central part of the system**  
*("The development of E. health services and co-operation infrastructure")*
- **E. prescription**  
*("The development of the electronic service „E. prescription“")*
- **Medical image exchange**  
*(„National medical picture archiving and information exchange system and services on the basis of the electronic creation“)*
- **Development of Patient Appointment Reservation System**
- **National Clinical Decision Support System**
- **East Lithuania Tele-cardiology information system (KardioELI)**
- **Telemedicine in Western Lithuania Cardiology**
- **Electronic services for health care professionals and health care institutions licensing**
- **Electronic services for granting licenses for pharmaceutical and medicinal products**
- **Unified medical terms classification for the development of high quality eHealth services in healthcare institutions**





# Governmental initiative: EU SF funded eHealth projects

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## National projects

dedicated for HIS and EMR development in teaching, tertiary level hospitals and outpatient clinics. All information systems will be integrated with national eHealth information systems.

### Leading institutions:

Hospital of Lithuanian University of Health Sciences Kauno klinikos

Kaunas clinical hospital

Vilnius University Hospital Santariskiu Klinikos

Vilnius city university hospital

Vilnius University Hospital Zalgiris clinic

Klaipėda Seamen's Hospital

Republican Šiauliai Hospital



# Governmental initiative: EU SF funded eHealth projects

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## Regional projects

dedicated for HIS and EMR development in regional hospitals and outpatient clinics.  
All information systems will be integrated with national eHealth information systems.

### Leading institutions:

Klaipėdos University Hospital

Tauragės Hospital

Rokiškio Regional Hospital

Utenos Hospital

Radviliškio Hospital

Jonavos Hospital

Alytaus S. Kudirka Hospital

Marijampolės Hospital

Regional Telšių Hospital

Elektrėnų Hospital

Šeškinės clinic

Vilnius Centre clinic

Kaunas Šilainių clinic



# Governmental initiative: EU SF funded eHealth projects

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## Other important projects



Vilniaus universiteto ligoninės  
SANTARIŠKIŲ KLINIKOS

- ADVANCED TELEMEDICINE SERVICES
- National Open Access Research Data Archive (MIDAS)



- Prenatal and neonatal care information system
- Development of electronic services for patients



# Private initiatives

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## Telemedicine services for patients:

- **TeleKlinika** ([www.teleklinika.lt](http://www.teleklinika.lt))  
*Remote patient consultation over internet without leaving home*



## Telemedicine services for healthcare providers:

- **Telemedicine Research Centre** ([telemedcentre.com](http://telemedcentre.com))  
*Remote diagnostics in ophthalmology*
- **iConsilium** ([www.iconsilium.eu](http://www.iconsilium.eu))  
*International diagnostic services, mostly Teleradiology for Scandinavian hospitals*
- **Eres Optimus** ([www.teleradiologija.lt](http://www.teleradiologija.lt))  
*Teleradiology services for Lithuanian Hospitals and Outpatient clinics*



# Vilnius University Hospital Santariskiu Klinikos: ICT projects 2012 – 2015

## Leader:



- Development of eHealth Services in Medical Campus of Santariškės (SANTA-HIS2)
- National Clinical Decision Support System



## NATIONAL CLINICAL DECISION SUPPORT SYSTEM

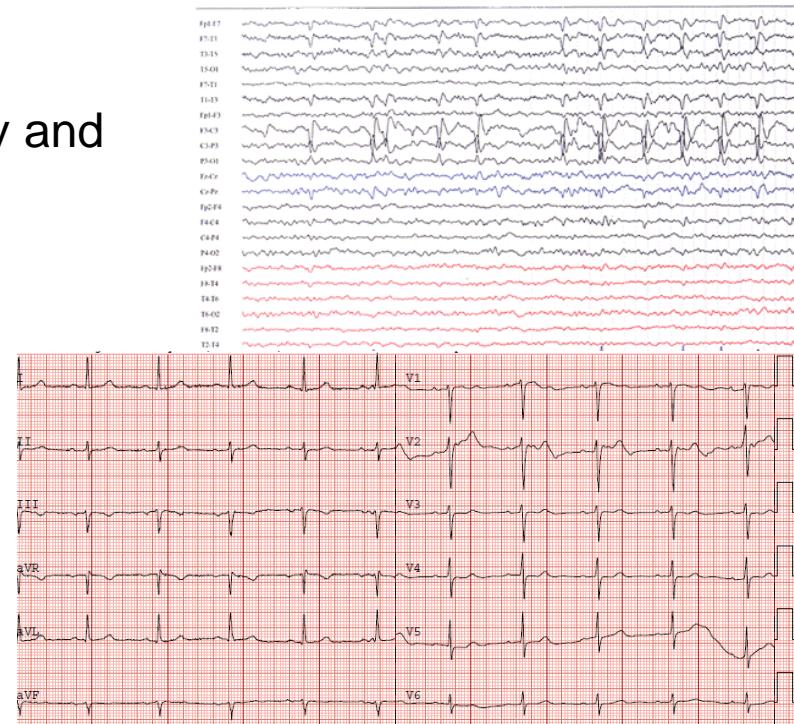
The main goal - to create national platform for various clinical decision support tools and solutions

- Signal processing subsystem
- Image analysis subsystem
- Data transformation subsystem
- Expert subsystem
- Knowledge database



## NATIONAL CLINICAL DECISION SUPPORT SYSTEM

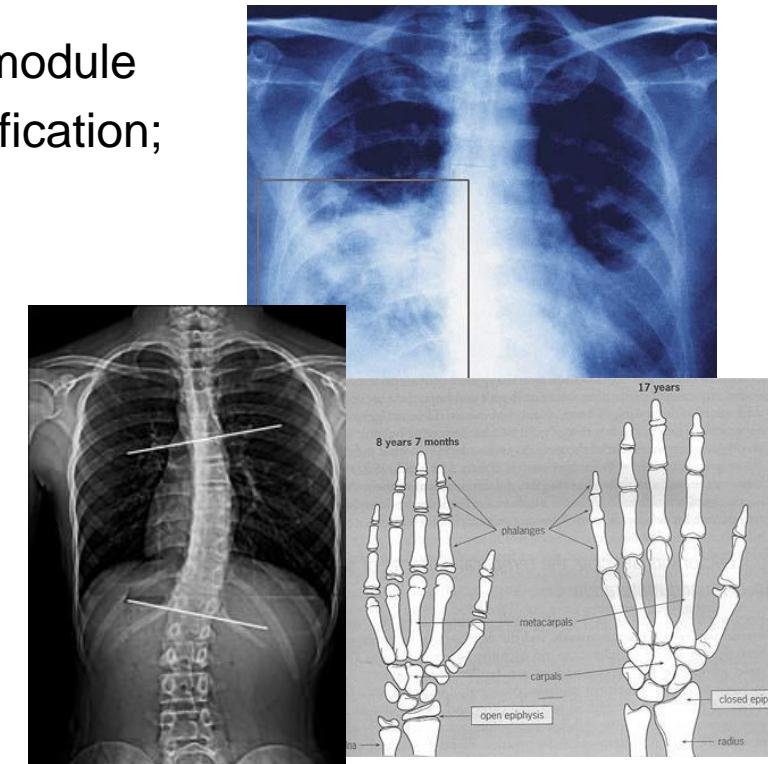
- **Signal processing subsystem** can process and analyze imported signal data, formulate an expected diagnosis and assess its reliability. The analysis process is able to locate and show the key signals which the conclusions of the analysis was made:
  - **EEG module** is designed for epilepsy and other central nervous system diseases diagnosis;
  - **ECG module** is designed for heart disease diagnostics using electrocardiogram data.





## NATIONAL CLINICAL DECISION SUPPORT SYSTEM

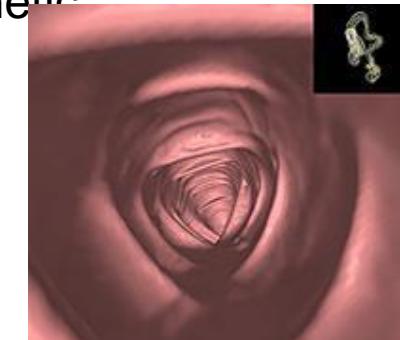
- **X-ray image analysis subsystem** automatic interpret received images, analyze them, formulate an expected diagnosis and show the key x-ray areas which led to this diagnosis to assist in clinical decision-making:
  - Pneumonia and tuberculosis detection module for pneumonia and tuberculosis risk identification;
  - Skeletal age module for skeletal age determination;
  - Spinal disease recognition module for spine deformities, identification and evaluation.





## NATIONAL CLINICAL DECISION SUPPORT SYSTEM

- **Data transformation subsystem –**  
provides tools for 3D reconstructions of computer tomography (CT), magnetic resonance imaging (MRI), ultrasound (US) and other instrumental investigations;  
  
provides virtualization tools like virtual colonoscopy;  
  
provides tools for various automated and manual analysis.
  
- **Expert subsystem** – a tool for healthcare professionals to share and use created by experts in their field of science and approved algorithms, diagnostics and treatment methods.
  
- **Knowledge database** - part of information system where typical cases and standard diagnostic and treatment examples are stored.





# Vilnius University Hospital Santariskiu Klinikos: ICT projects 2012 – 2015

## Leader:



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- National Clinical Decision Support System
- Development of Patient Appointment Reservation System (IPR-2)

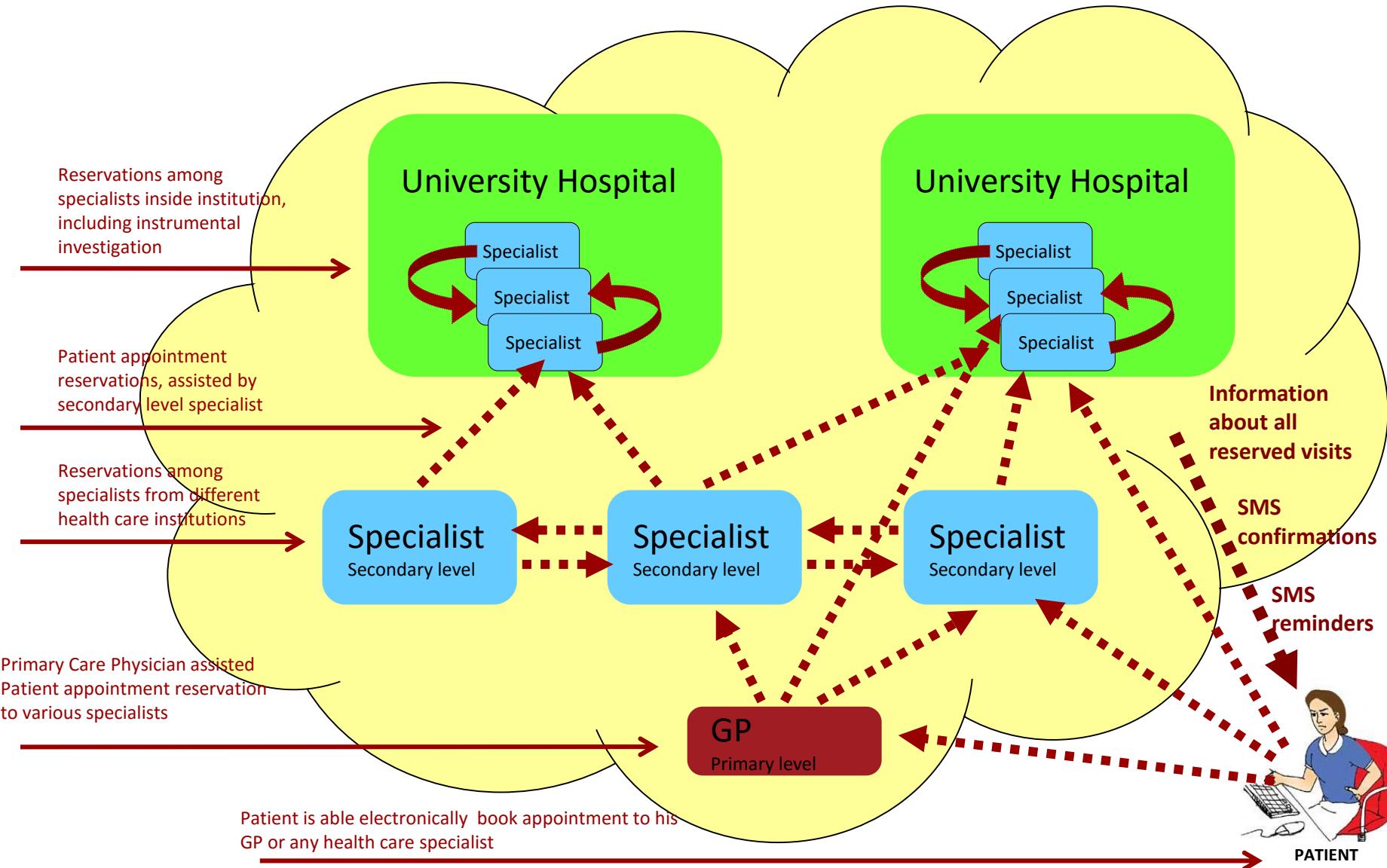


## PATIENT APPOINTMENT RESERVATION SYSTEM

**Paper based (obsolete) reservation system** – operator simultaneously worked with several registration journals



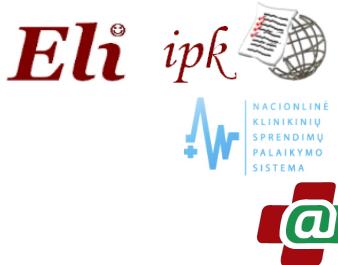
# PATIENT APPOINTMENT RESERVATION SYSTEM





# Vilnius University Hospital Santariskiu Klinikos: ICT projects 2012 – 2015

## Leader:



- Development of eHealth Services in Medical Campus of Santariškės (SANTA-HIS2)
- National Clinical Decision Support System
- Development of Patient Appointment Reservation System (IPR-2)
- ADVANCED TELEMEDICINE SERVICES

## Partner:

- National Open Access Research Data Archive (MIDAS)  
Lead Partner - Vilnius University
- Telemedicine for Western Lithuania Cardiology  
Lead Partner – Lithuanian University of Health Sciences



Lithuanian  
Telemedicine  
Association

# Eastern Lithuania Cardiology Project





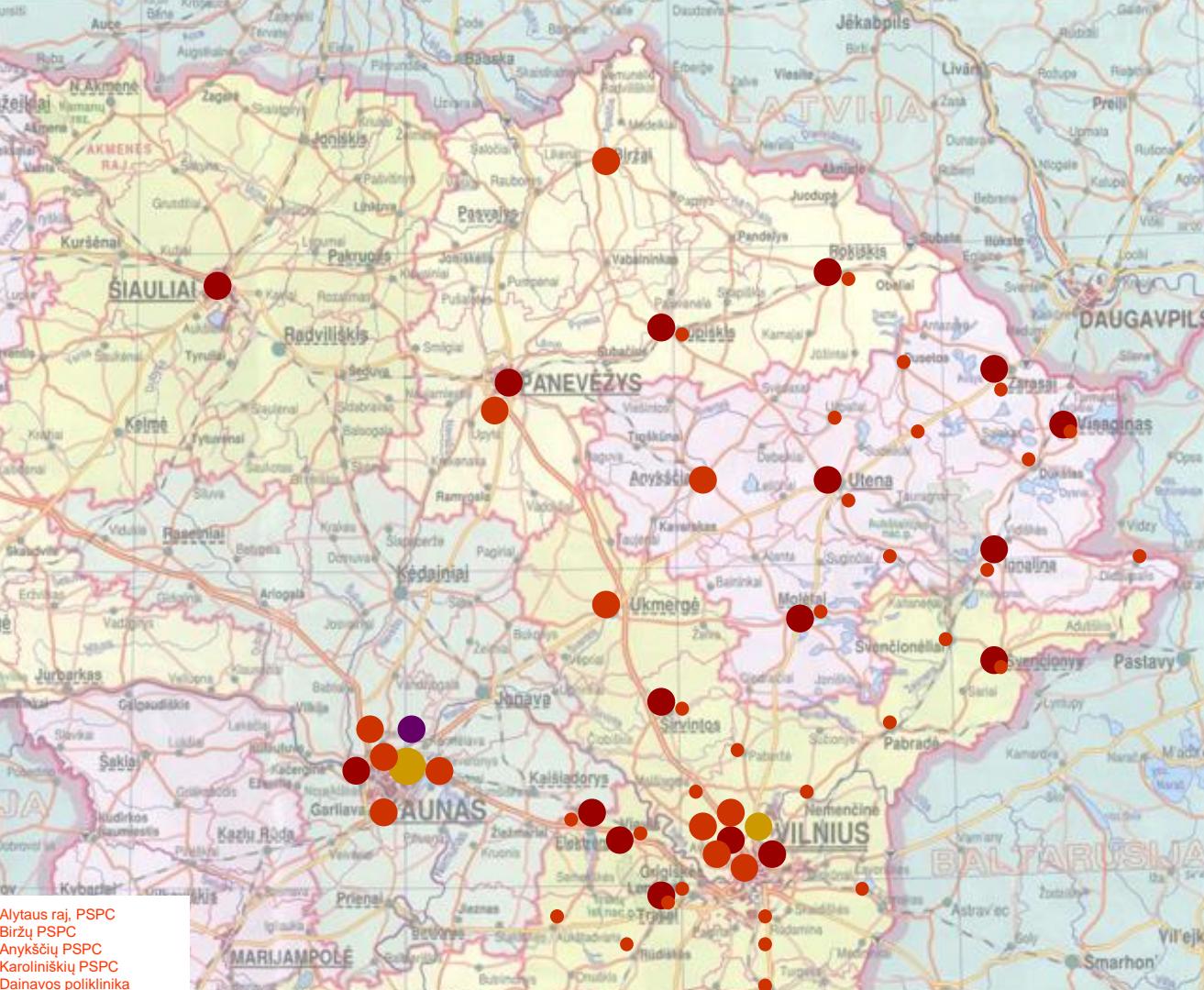
Lithuanian  
Telemedicine  
Association

# Eastern Lithuania Cardiology Project



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VšĮ Švenčionių rajono PSPC  
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Pabradės padalinys  
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Švenčionių padalinys  
VšĮ Trakų PSPC  
VšĮ Utenos PSPC  
VšĮ Utenos PSPC, Užpalių ambulatorija  
VšĮ Utenos PSPC, Daugailių ambulatorija  
VšĮ Utenos PSPC, Salduškiškio ambulatorija  
VšĮ Varėnos PSPC  
VšĮ Varėnos PSPC, Merkinės ambulatorija  
VšĮ Varėnos PSPC Panocių BPG kabinetas  
VšĮ Vievio ambulatorija  
VšĮ Vilniaus rajono Kalvelių ambulatorija  
VšĮ Vilniaus rajono Maišagalos ambulatorija  
VšĮ Vilniaus rajono Rudaminos ambulatorija  
VšĮ Vilniaus rajono Paberžės ambulatorija  
VšĮ Vilniaus rajono Juodšilių ambulatorija  
VšĮ Vilniaus rajono Nemenčinės poliklinika  
VšĮ Visagino PSPC  
VšĮ Zarasų rajono savivaldybės PSPC  
VšĮ Zarasų rajono PSPC,  
Dusetų ambulatorija



# RLKP + IPR



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- ADVANCED TELEMEDICINE SERVICES

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Lead Partner - Vilnius University
- Telemedicine for Western Lithuania Cardiology  
Lead Partner – Lithuanian University of Health Sciences
- National Medical Imaging Project – MEDVAIS  
Lead Partner - Ministry of Health
- National ePrescription Project  
Lead Partner - Ministry of Health



# Vilnius University Hospital Santariskiu Klinikos: ICT projects 2012 – 2015

## International:



- **ICT for Health** – ended in 2013, created VivaPort portal



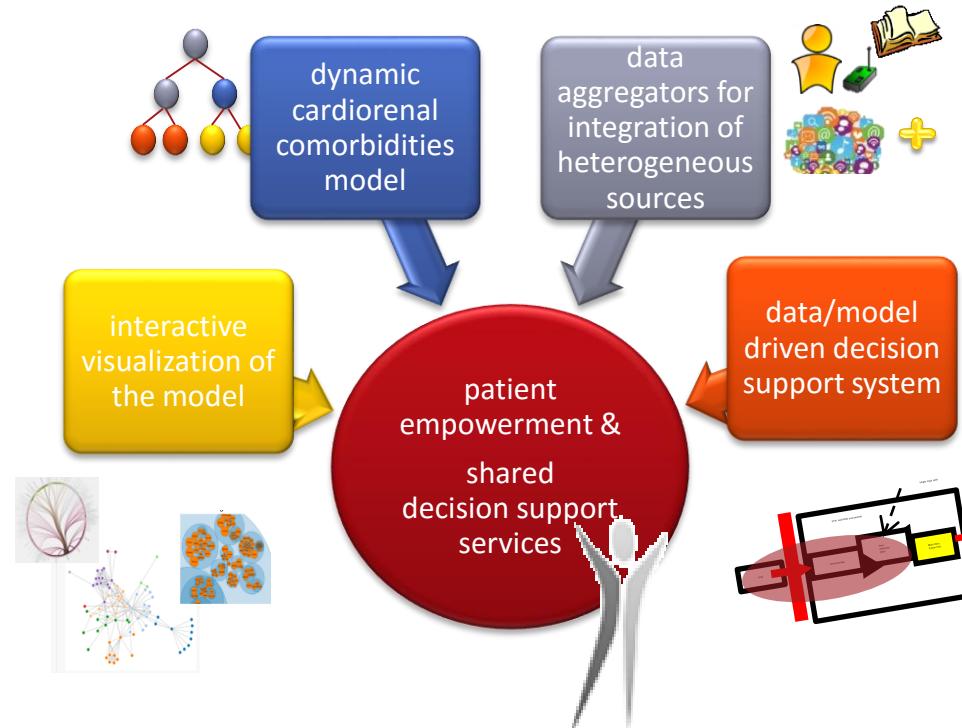
- **PrimCare IT** – ended in 2014, Santa Telemedicine pilot



- FP7 project **CARRE** – started in 2014  
*Personalized patient empowerment and shared decision support for cardiorenal disease and comorbidities*

## personalized patient empowerment & shared decision support for cardiorenal disease and comorbidities

- understanding nature of comorbidity
- informed estimation of disease progression
- personalized alerting, planning, education



This project was supported by the European Commission



FP7-ICT-2013-611140 STREP

duration: Nov 2013 – Oct 2016

EC contribution: 2.573,755€





*Thank you for attention!*

Vilnius University Hospital Santariškių klinikos

