BigData & Digitalization HUB

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@vallhebron
@yolimacossio

10–12 May 2017 MALTA
WELCOME TO VALL D´HEBRON BARCELONA HOSPITAL CAMPUS
WHO WE ARE

The largest hospital complex in Catalonia
Second largest in Spain

>450,000 Barcelona Community Hospital

>7 M Catalonia Reference Population for Tertiary care

Reference in Catalonia, Spain and to the international scope in high complexity tertiary procedures
BACKGROUND

1966 The residence became the Sanitary City
Three new monographical buildings were built: orthopedics and rehabilitation, pediatrics and obstetrics and gynecology as an extension of the General Hospital

1970 First pediatric hemodialysis in Spain

1981-1990 The first pediatric kidney transplant, liver transplant and lung transplant in Spain

1994 the first multiorgan transplant in Spain

1955 inaugurated General Hospital Vall d’Hebron
A single thirteen-floor building that functioned as an open center, with no fixed medical staff

The first national Pediatric Intensive Care Unit
First promotion of medical interns and residents (MIR)

1994 Creation of the Research Foundation of Vall d’Hebron University Hospital (future VHIR)

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2009 **Fully introduce EHR**
Foundation of Research in Molecular Therapy Unit, committed to personalized medicine

2012 **Inauguration of Multiple Sclerosis Center of Catalonia (Cemcat)**

2001 **Fusion of the 3 hospitals into one under the name of Vall d’Hebron University Hospital**

2011 **Creation of the new Paediatric Intensive Care Unit, one of the best in Europe**

2017 **Inaguration of the most modern surgical block in Spain**
Clinical Assistance

Research

Teaching
VALL D’HEBRON BARCELONA HOSPITAL CAMPUS

Clinical assistance  Research  Teaching

DATA & INNOVATION

Vall d’Hebron
Barcelona Campus Hospitalari

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>1,146 Beds. 22 Buildings
>1,200,000 patients / year
>58,000 discharges / year
>42,000 Surgical Intervention/ year
>200,000 emergencies/ year
>800,000 outpatient visits / year
>130,000 day hospital sessions
>950 home hospitalization/ year
> 9,000 professionals
> 530 physicians residents
80 research groups
> 2,000 researcher staff
> 900 active clinical trials
> 300 competitive projects

23 European Reference Network
DATA MAGNITUDE SO FAR

>3 M doses of drugs

>18 M Lab results

>1 M Clinical Procedures

>1 M Diagnostics

>10 M nursing registries

>1 M imagen test results
### SAP asistencial
- Hospitalización
- Urgencias
- Gabinete / hda
- BST / (terapia hemoderivada)
- Análisis / Patología
- RPT

### Portal CatSalut
- Gacela
- Silicon
- Modulab
- Centricity (UCs)

### Gimnás

### Seguimientos
- Salud Internacional, Marfin, UCI, ...

### Dietes

### SIUAC
- Reclamaciones
- Trabaja Social
- Pet documentació
- Suggeriments

### SAP EcoFin
- Capital HI Prim, biod. Intermed. ...
- Facturació MMMS

### SIP
- Nómina
- Plantilla
- Dies substitució

### GIRHA

### AIDA
- Gestió tores (excepte facultat)

### GSM
- Manteniment i obres

### SGP (gestió professionals)
- Accés menjador i targetes

### UBP (Serveis bàsics preventiu)
- Gestió revisióes mèdiques dels professionals

### PLT (previa de Serveis & treball)

### BO/BI
- Diagonstic per la imatge
- CMRD-hex

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### Eco-Fin1

### Ex-SIP

### Silicon

### Gacela

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@eHealthWeekEU #eHealthWeek
WHY DIGITALIZATION

BigData & Digitalization HUB

- Predictive Modeling
- OMICS
- Healthcare management
- Budgeting and cost forecasting
- Patient Tracking
- Real-time alerting
- IoT & connectivity
- E-Health solutions
SCIENTIFIC KNOWLEDGE

- 1 question every 2 patients
- Evidence
- Too slow to share
- Too quick to update

DiCenso, 2009 ACP Journal
Health Informatics for Neonatal Intensive Care Units: An Analytical Modeling Perspective

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WORKING IN NEW MODELS OF

• Patient empowerment
• Personalised Medicine
• Remote health
• Experts’ second opinion
• Guide patients & Improve waiting times
• Communication & Patient experience
• Gaming/ patient literacy (apps, videogames...)
• Energy Efficiency and Sustainability
WORKING IN NEW MODELS OF

- Predictive Command Charts
  Control, analysis and prediction of core indicators
- Chronicity
  Preventing decompensation of patients with chronic pathologies
- Sustainability
  Analysis of energy consumption in real time
50% of today’s clinical trials fail to achieve the target recruitment…

- Platform for trustworthy re-use of EHR data to support innovation in clinical research and healthcare operations
- Building upon the outcome and the community of the IMI EHR4CR Project
- Deploying all over Europe in 2016 – 2017
- 35 partners -10 Pharma Companies -11 major hospitals in 5 countries

NO patient data leaves the hospitals

Site dependent process

Secure access for researchers

@eHealthWeekEU #eHealthWeek
MOLECULAR IMAGING AND METABOLOMICS FOR MEDICINE

Multidisciplinary Research Group

- Molecular Imaging (PET and SPECT).
- Use metabolomics to find peripheral blood biomarkers

Objective

- Generate imaging patterns linked to diseases, both related with precision and preventive medicine.

What do we want?

Consortium in precision and personalized health. New projects on BigData and Digitalization

@eHealthWeekEU #eHealthWeek
Pioneering treatment of ADHD with virtual reality in Vall d’Hebron
NON-INVASIVE SENSORS FOR MENTAL HEALTH PATIENTS MANAGEMENT

Tool

To be designed, to measure patient’s activity:

- Compatible with the normal activity of the patient
- Useful for patient monitoring, screening and diagnosis
- Easy to use

Dr. Toni Ramos Quiroga

Objectives

- Differentiate the state of activities
- Associate symptoms with movement patterns
- Accepted by the patients

What do we need?

- Design and testing
- Partners for development

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Objectives

- Education and self-control
- Improve treatment adherence
- Research and predictions

What do we need?

- Clinical implementation
- Partners for further development

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THE TRANSITION OF THE HEALTHCARE

Reactive

Proactive
ONE POWERFUL BRAIN
COMPUTERS ARE USELESS...THEY ONLY GIVE YOU ANSWERS

Pablo Picasso
Thank you!

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