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BUENAS PRÁCTICAS
Actuaciones Cofinanciadas

"Digital transformation of Vall d'Hebron Hospital at the service of the patient: SmartProcess and SmartCare".
Catalan Health Institute

Programa Operativo de Cataluña

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Fondo Europeo de Desarrollo Regional

Submitted as Best Practice: the project "Digital transformation of Vall d'Hebron Hospital at the service of the patient: SmartProcess and SmartCare".

Campus Vall d'Hebron is the largest hospital campus in Catalonia managed by the Catalan Health Institute (Institut Català de la Salut – ICS). The Campus has 22 buildings where more than 45,000 people visit daily and serves a great variety of patients. Patient's interaction with the health world, even more in a large and highly specialized hospital like Hospital Universitari Vall d'Hebron (HUVH), is an intense experience that is lived some times with ignorance, aguish and uncertainty resulting in a negative feeling of uneasiness and lack of authonomy by the patients.

My Vall Hebron gives name to this digital transformation project that aims to improve patient's experience. Its main objective is to achieve more efficient and democratic solution for personalized integral healthcare. Providing easy access to information, fluent relation with the hospital by using new information tools and channels, we favor the patient empowerment and acknowledge of his treatment and health.

The new project is framed within the hospital digital transformation process (**Smart Hospital)**, focusing on two areas: **Smart Care,** that include solutions based on personalized, integrated and more humanized healthcare (free Wi-Fi, new communication channels, indoor/outdoor mapping with a more interactive and comprehensive patient experience) and **Smart Process** that uses lean methodology in hospital processes to ensure and increase safety, efficiency, stability and continuous monitoring. Aiming to improve processes by among others being paper-less and increase precision and automation by using real time location tools.

The project had a total eligible cost of 8 million euros and an ERDF support of 4 million euros. This initiative will increase the number patients electronic services users from around 500,000 users in 2018 to a forecast of more than 800,000 in 2021.

This operation is presented as Best Practice because it meets the following criteria:

1. **High level of dissemination among beneficiaries, potential beneficiaries and the general public**

HUVH digital transformation project has been widely spread among hospital staff, patients and end users thanks to the visibility of the digital systems (web, app, other operational systems) co-financed by ERDF that are included in this operation.

Moreover, the equipment acquired in the framework of this project have been inventoried and labeled. The label use, match hospital requirements concerning cleaning and disinfection and inform of ERDF co-financing.

a) **Actions linked to Smart Care**

The new communication channels that Vall d'Hebron hospital has implemented within this operation include the ERDF logo in a prominent place.

The new website of the Vall d'Hebron www.vallhebron.com incorporates the ERDF logo along with the rest of the institutional logos.
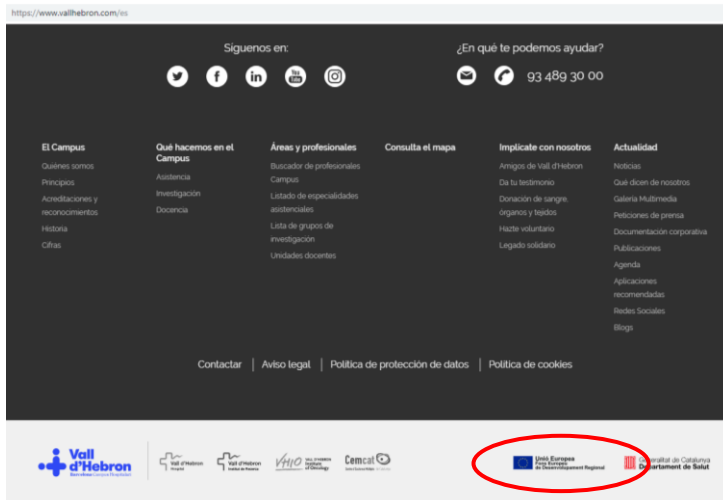
The Vall d'Hebron APP has included the European Union logo and the reference to the ERDF on the boot screen. Since the launching in May 2017, it has been downloaded by more than 26,000 times.

All co-funded items have been labelled- from Information Screens for families in the waiting rooms (Virtual waiting room project) to medical equipment that improve processes or patient experience (Ultrasound for tele-cardiology screening in primary care, Integrated systems for Operating rooms (ORs), Telemedicine suites for pediatric cardiology department) – informing both professionals and patients of ERDF cofounding.

Relatives Information Screen includes ERDF logo (Virtual Waiting Room project)

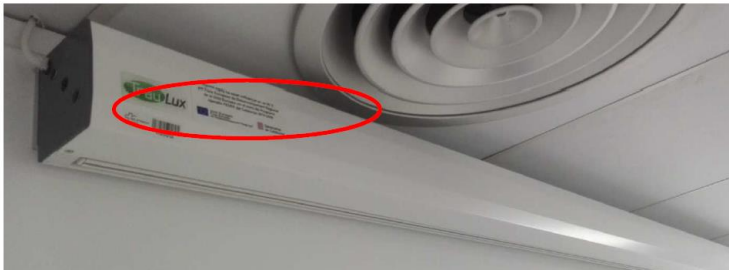Label on a TV screen of the Operating area waiting room (Virtual Waiting Room project)

Portable Cardio Ultrasound
(TeleCardiology screening
with primary Care)

Integrated Operating Room Panel at Pediatric surgical block

Proyection screen at Telemedicine suites for pediatric cardiology
department

Speaker at Telemedicine suites
for pediatric cardiology
department
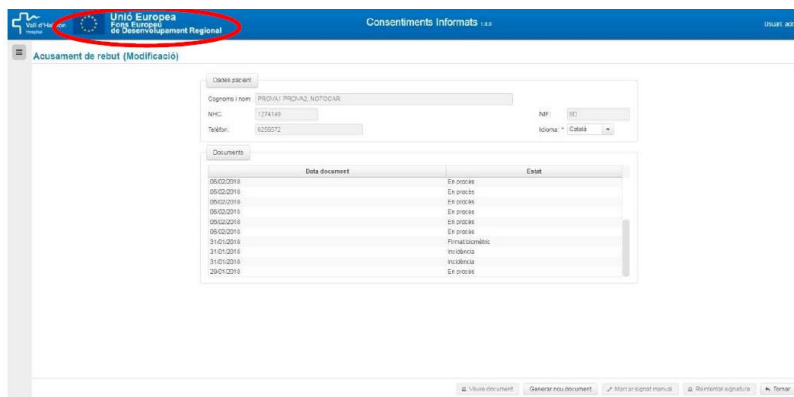
Screen shot of voice signature System for patient's consent

The new indoor and outdoor interactive guidance project at Vall d'Hebron includes new strategies and digital way finding tools, such as Digital admission kiosk (Teseo Project), new digital and traditional signs, together with new interactive guidance solutions, that help patients find their way in the campus and reduce the anguish of not knowing where one is or how to go to an appointment.
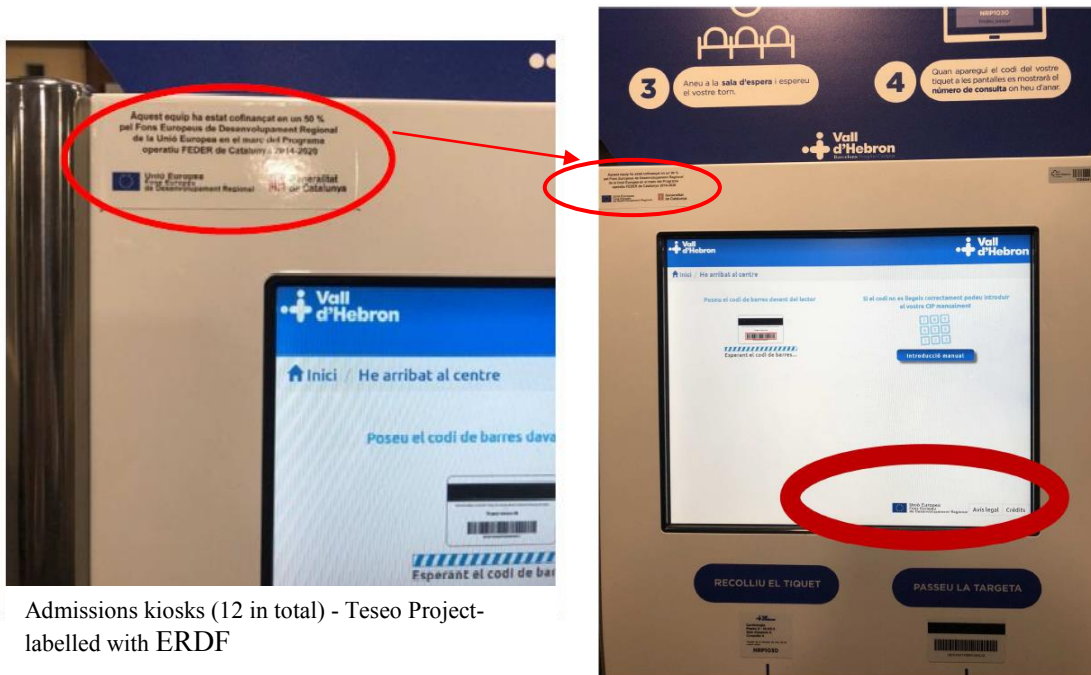
Admissions kiosks (12 in total) - Teseo Project-
labelled with ERDF
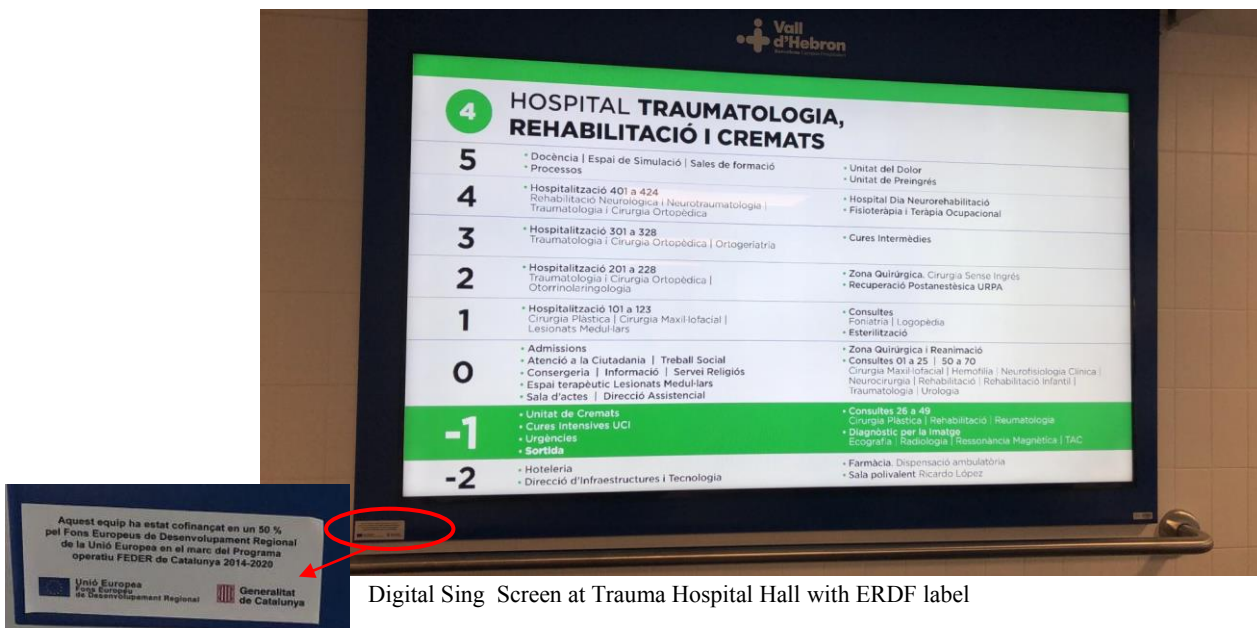
Digital Sing Screen at Trauma Hospital Hall with ERDF label

b) Actions linked to Smart Process

The objective of the Smart Process is process reengineering in order to make them safer and
stronger. Process that work one paper are reviewed and native digital solutions found to make
them paper-less, examples of such solutions are Digital Electrocardiographs that provide
electronic curve in Dicom waveform format that can be directly stored into the Electronic
Health record (HER) and image data archive (PACS) or BlooPressure Monitors that integrate
measures directly in the HER. All items supported by ERDF have been duly labelled including
ERDF logo.

Electrocardiogram with the ERDF
co-financing label (51 in total)

Digital blood pressure monitor with
the ERDF co-financing label (49 in
total)

Moreover IT solutions to optimize and make more efficient processes have been developed, such as a Maintenance App (GSM mobility project), for technicians and end users and a teaching department solution (Docens Track), which covers all teaching process and serves all stakeholders (from tutors to resident students).

Screen shot of the DocensTrack solution

Startup screen of the GSM mobility APP

Finally, a real-time location solution for patients and assets has helped to digitalize the surgical process (patient and OR pathway. By launching tasks and thus automatizing the process and securely identifying patients and medical equipment and their location, ensure a more stable and safe process. Depending on Patients pathway (provided by RTL system) task will be launched for OR cleaning, patient transport and families information system (Virtual waiting room project) improving the whole workflow and patients and professionals safety and satisfaction. The general hospital Surgical Block (with 19 OR) has been the first pilot of this innovative solution that will be extended to the rest of surgical blocks (30 OR). All items, programs and screens linked to this action have been duly identified with the ERDF logo.

Corridor screen with surgical programming

2. Inclusion of innovative elements

The Vall d'Hebron digital transformation project includes two innovative actions co-finance by this ERDF operation.

The **Smart Care** action, not only improves patients and hospital communication and interaction by using new communication channels (web, app, patients platform), providing free Wi-Fi and hospital landing page to all hospitalized patients and new way finding solutions but also aims to improve patient care by implementing innovative solutions such as Virtual Reality (VR), Telemedicine (TM) and artificial intelligence (AI).

Moreover **Smart Process** action improves the safety, quality and efficiency of healthcare by transforming process into paper-less and automatized ones. This is achieved by using different IT solutions that are not often used in a Hospital environment, such as electronic administration, voice signature, digital native medical equipment and medical images/ reports integration in the EHR. New Information systems to improve hospital and departments management and workflow, have been developed internally to match the process and specific departments requirements. RTL systems used as a tool to digitalize de OR and Patients pathway is an innovative solution, not frequently used in Hospitals, that ensures the stability, safety and quality of the OR process. Surgery is the core business of a hospital and an intensive production area, therefore all improvements made in the OR process are key to both patients and professionals.

3. Linkage between results obtained from the supported actions and the objectives established

Main goal of this operation is to improve patient's experience as well as humanise healthcare. New technologies, IT and mobility solutions will help to fulfil the challenge of providing personalized healthcare while ensuring the continuum of healthcare within the healthcare ecosystem. ERDF co-funding will allow HUVH to fully disclose the Digital Transformation of the hospital in order to provide the best care to the patients.

Thanks to the new patients communication channels that have been launched (Web and App) within the framework of this operation and the fact that almost everyone has mobile devices, the hospital can optimize and personalize communication and information with patients and interact

more effectively. Therefore a more personalized, right on time and place information can reach patients and families through the channel of their choice.

The expected results fully comply with the objectives established to improve procedures, information, continuum of care, service, and giving tools to patients for a more expert approach, better monitoring of their pathologies and better adherence to treatments. This new concept of patient centred healthcare and e-health, improves the relationship and transparency of hospital and patients and provides ameliorate the experience. Moreover SmartProcess activities, aiming to process digitalization and eliminating paper depending procedures, ensures safer and more efficient processes patient centred and easies professionals workflow.

4. Contribution to resolving a regional problem or weakness

Arriving at a hospital to be treated, visiting a family member or waiting for results o end of treatment, implies stress due to the nature of process, however this stress is often increased by the lack of information and the it's hard to find your way within the hospital and find healthcare professionals that can provide the required information. This issue is shared by most hospitals round the globe and it needs to be solved, not only due to the amount of paper communication with patients (appointments, results, reports, consent…) but also to find a new and more patient centred channels of communication.

My Vall d'Hebron project aims to solve these problems inherent to the hospital world by implementing new tools of way finding and patients/families information to improve their experience. Virtual waiting room project, focuses in humanizing the waiting during relatives surgery. The system provides anonymous information of patients surgery progress through different channels (App, web and screens in the waiting room) thus reducing the anguish of not knowing if everything is going well but also allowing relatives to do the follow-up from home, work, outside the hospital or elsewhere but the waiting room.

This operation no only benefits hospital and patients ameliorating care (SmartCare) and processes (SmartProces) but also impacts on technology sector, by bringing into the market public tenders for innovative health solutions and establishing agreements with local companies. The innovative solutions that will arise will help to develop new products or transfer knowledge that will result in technology transfer (from other sectors to healthcare) and market opportunities related to patient centred care, healthcare humanisation and process innovation for both start-ups and established companies.

Moreover by innovation in hospital processes result aim to increase efficiency and savings, that can be reinvested or used to exploit new ways to interact with partners and suppliers in a more innovative way.

5. High degree of coverage of the target population

Since the beginning of this operation until December 2018, Vall d'Hebron hospital Digital Transformation project has provides services to round 600,000 users with the different actions involved.

In addition, the project has a direct impact on the more than 45,000 people who circulate daily (between patients, families, hospital staff) within the Vall Hebron hospital campus.

It's important to highlight that Vall d'hebron hospital is part of public healthcare group (Institut Català de la Salut) that provides primary and specialized healthcare for over six million people in the whole catalan territory and employs over 39.000 professionals. Solutions developed

within the framework of this operation can easily be transferred to this healthcare group and thus enhance the coverage scope.

6. Compliance with horizontal principles (sustainable development, equality between men and women and the principle of non-discrimination) and environmental legislation

Vall d'Hebron Hospital follows in all its relations with patients the citizenship rights and duties newsletter for healthcare approved by the Department of Health of the Catalan Government (Generalitat de Catalunya) for equity of service and non-discrimination.

On the other hand, the Hospital applies the Equality Plan between men and women of the Healthcare group (Institut Català de la Salut) to ensure equal treatment and opportunities between all workers and promote presence of women in the organization. Equality between men and women is a main focus for Institut Català de la Salut, that aims to become an example in the Catalan healthcare environment.

Finally, Vall d'Hebron Hospital has an environmental management committee that develops strategies to reduce the environmental impact of its activities and to comply with environmental regulations. This project in particular, with the paper savings that digital transformation implies, contributes to the reduction of waste and to the environment respect.

7. Synergies with other policies or instruments of public intervention

The Vall d'Hebron Hospital digital transformation project is part of the e-health objective of the Digital Agenda for a digital society and healthcare improvement promote by the Health Care Catalan Government (Generalitat de Catalunya). Moreover it's also aligned with 2016-2020 Health Plan of the Departament de Salut (Catalan Healthcare Department) since it contributes to the improvement and transformation of the healthcare system through the intensive introduction of new technologies and patient centred approach. This operation contributes to activate IT sector in Catalonia and Barcelona, by demanding the market innovative solutions for e-health and is therefore aliened with Catalan Government Innovation and Research program (RIS3CAT)

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