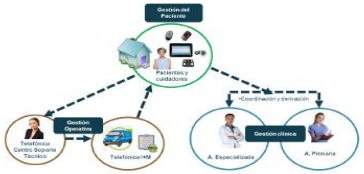
TELÈMAC

01

Definition of Telèmac

TELÈMAC (Telemonitoritzacio de Malalts Crònics)

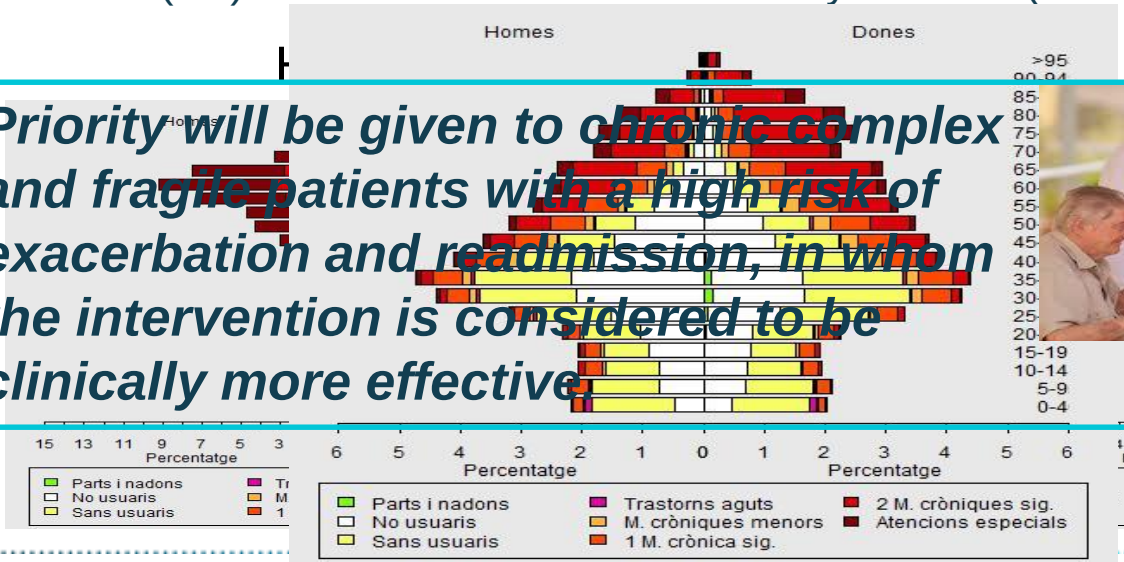
- The TELÈMAC project (remotemonitoring of Chronic patients) is an initiative whose aim is to evaluate improvement in the care of chronic patients by means of remote-monitoring devices that make it possible to monitor biomedical readings on a daily basis.
  - This wealth of information will allow us to **anticipate changes** in the state of health of the patient at an early stage and prevent potential complications in the short term. The system therefore acts in a preventive capacity and will make it possible to reduce the number of visits to the emergency department due to exacerbations and reduce the mean duration of hospitalization in these patients, as they would have to be admitted in a less severe condition.
  - The equipment the patients will have available in the home, based on their diseases is as follows: glucose meter, pulse oximeter, sphygmomanometer, and scales, connected using M2M technology via tablet.



Scope

Patient Stratification

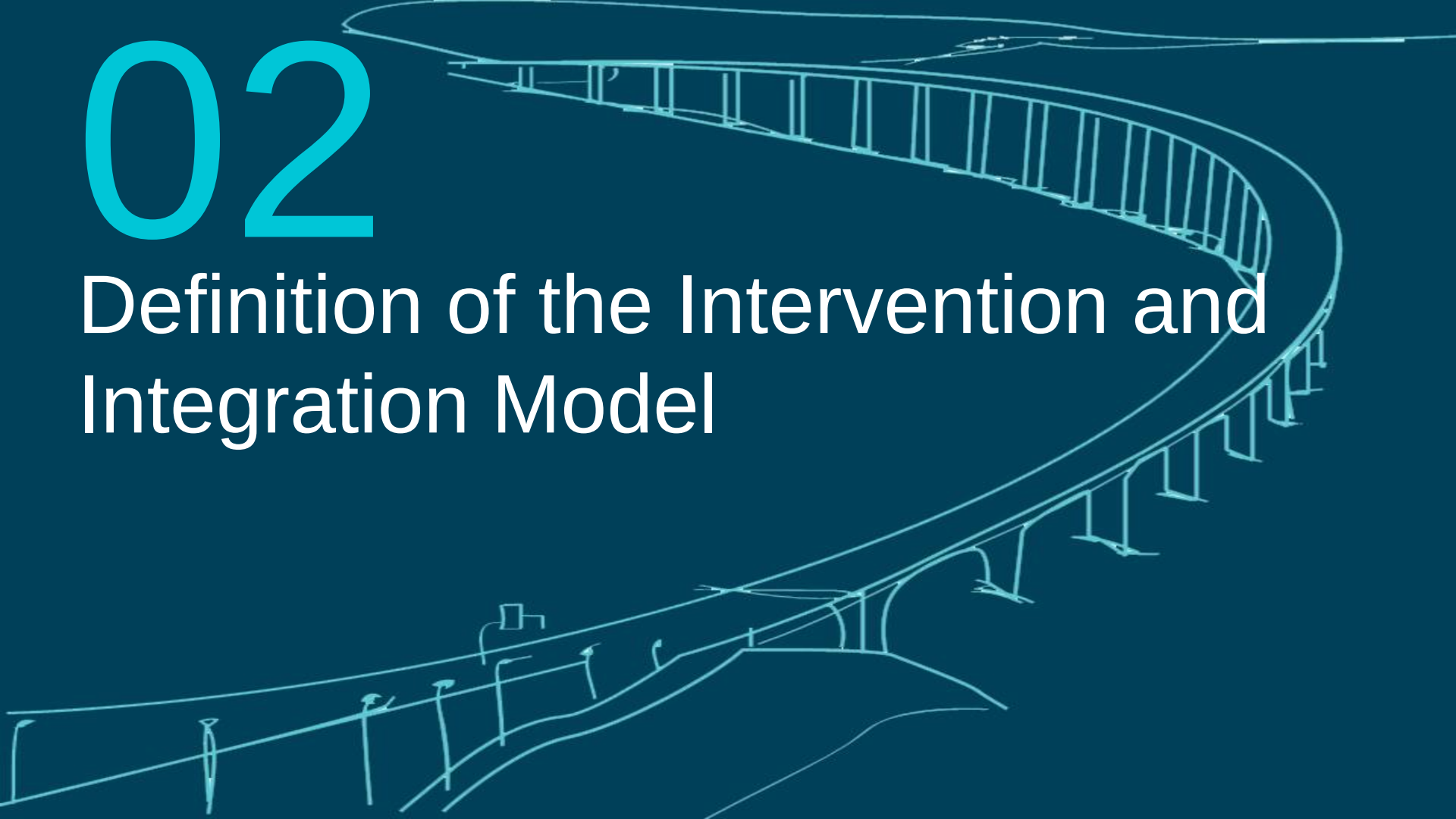
- The patients included in the program will be chronic complex patients (**CCP**) or patients with advanced chronic disease (**ACD**) with a minimum of the following diseases:
  - Heart Failure (HF)/Chronic Obstructive Pulmonary Disease (COPD)



Priority will be given to chronic complex and fragile patients with a high risk of exacerbation and readmission, in whom the intervention is considered to be clinically more effective

02

Definition of the Intervention and Integration Model



Definition of the intervention model

Subprograms and Devices

- 12 subprograms have been defined and the equipment associated with each subprogram, based on the combination of diseases considered.

* M2M communication that ensures a high level of security and availability, with a supervision and control platform

Definition of the intervention model

Subprogram matrix

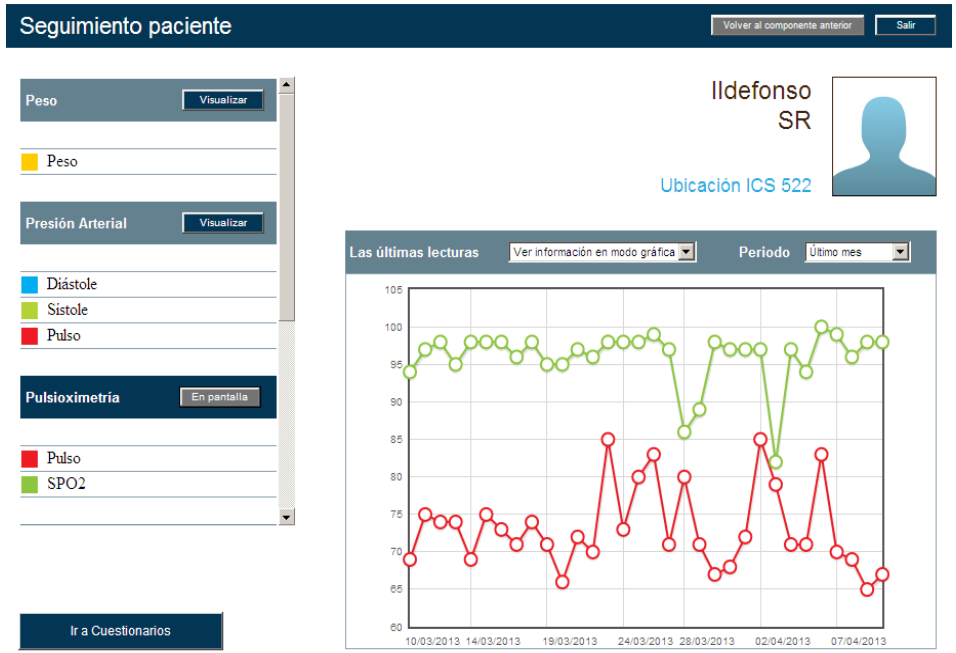
- Each subprogram has been thoroughly designed, indicating alert thresholds, periodicity for taking biomedical measurements, associated health questionnaires, educational content, etc.

IC + MPOC+DM ALTO RIESGO

I. SIGNOS VITALES MONITORIZADOS	Variable	Pulso	TA Sistólica	TA Diastólica	% Saturación Oxigeno en Sangre	Nivel de Glucosa (Glucemia basal)	Nivel de Glucosa (Glucemia preprandial)	Nivel de Glucosa (Glucemia post-prandial)
	Unidades	PPM	mm Hg	mm Hg	%	mg/dl	mg/dl	mg/dl
II. FRECUENCIA DE REGISTRO DE BIOMEDIDAS	Frecuencia por defecto	Diaria	Diaria	Diaria	Diaria	Diaria	Diaria	Diaria
	Registros mínimos por día por defecto	1	1	1	1	1 (Condicional a indicaciones médicas)	1 (Condicional a indicaciones médicas)	1 (Condicional a indicaciones médicas)
	Rango horario para medición por defecto	De 10 a 11 A.M.	De 10 a 11 A.M.	De 10 a 11 A.M.	De 10 a 11 A.M.	De 8 a 9 AM (Glucosa basal se toma en ayunas al levantarse)	De 12 a 13h (Glucosa preprandial se toma antes de los alimentos)	De 16:00 a 17:00h (Glucosa post-prandial 2 hrs despues de alimentos)
III. ALERTAS ACTIVADAS POR BIOMEDIDAS	Alertas asociadas a biomedidas (X, los umbrales máximo y mínimo podrán ser cambiados por los médicos)	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas	Ausencia de biomedidas en X horas
		< "valor umbral mínimo" latidos por minuto	< "valor umbral mínimo"	<"valor umbral mínimo" y >=50	< "valor umbral mínimo" % y >=90%	< "valor umbral mínimo" y >=50 mg/dl	< "valor umbral mínimo" y >=50 mg/dl	< "valor umbral mínimo" y >=50 mg/dl
		> "valor umbral máximo" y <=110 latidos por minuto	> "valor umbral máximo" y <=180	> "valor umbral máximo" y <=110	> "valor umbral máximo" %	> "valor umbral máximo" (*)	> "valor umbral máximo" (*)	> "valor umbral máximo" (*)
		> 110 latidos por minuto	> 180	< 50	< 90%	< 50 mg/dl	< 50 mg/dl	< 50 mg/dl
		< 45 latidos por minuto	> 150 (TA Sistólica) y > 100 (TA Diastólica)	> 110		> 250 mg/dl en dos determinaciones	> 250 mg/dl en dos determinaciones	> 250 mg/dl en dos determinaciones
				> 150 (TA Sistólica) y > 100 (TA Diastólica)				
	Parámetros de las alertas por defecto	X= 72 Umbral mínimo=49 Umbral máximo=90	X= 72 Umbral mínimo=89 Umbral máximo=140	X= 72 Umbral mínimo=60 Umbral máximo=90	X=72 Umbral mínimo=95 Umbral máximo=120	X=72 Umbral mínimo=70 Umbral máximo=130	X=72 Umbral mínimo=70 Umbral máximo=130	X=72 Umbral mínimo=70 Umbral máximo=180
	Actuación ante las alertas	A criterio del profesional	A criterio del profesional	A criterio del profesional	A criterio del profesional	A criterio del profesional	A criterio del profesional	A criterio del profesional

Definition of Integration Model

Monitoring of Variables



03

Practical Experience With Enrolled Patients

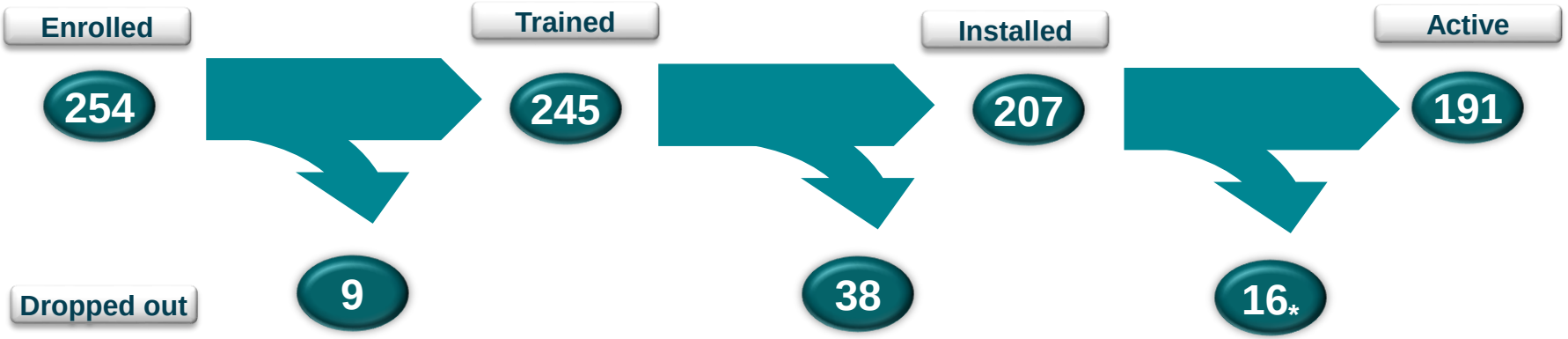
Video

04

Current Status and results

Current Status of the Project.

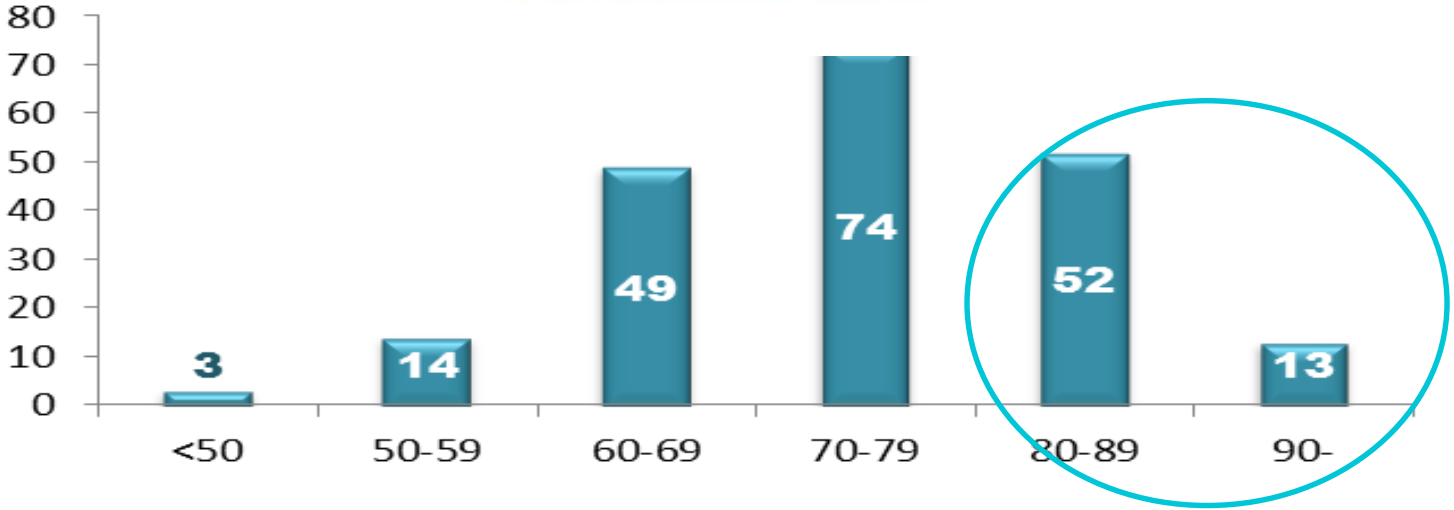
Overview



- Patients who met the inclusion criteria in terms of disease and admissions but did not meet the criteria regarding social aspects (no caregiver, social problems).
- Patients who met the inclusion criteria but did not agree to take part in the program.
- Patients who agreed to take part in the program and attended training but refused to take part in the program when called for installation of the equipment.
- Neoplasia and other complications
- Death.
- Patients who moved outside the region.

Current Status of the Project.

Distribution by Age and Sex

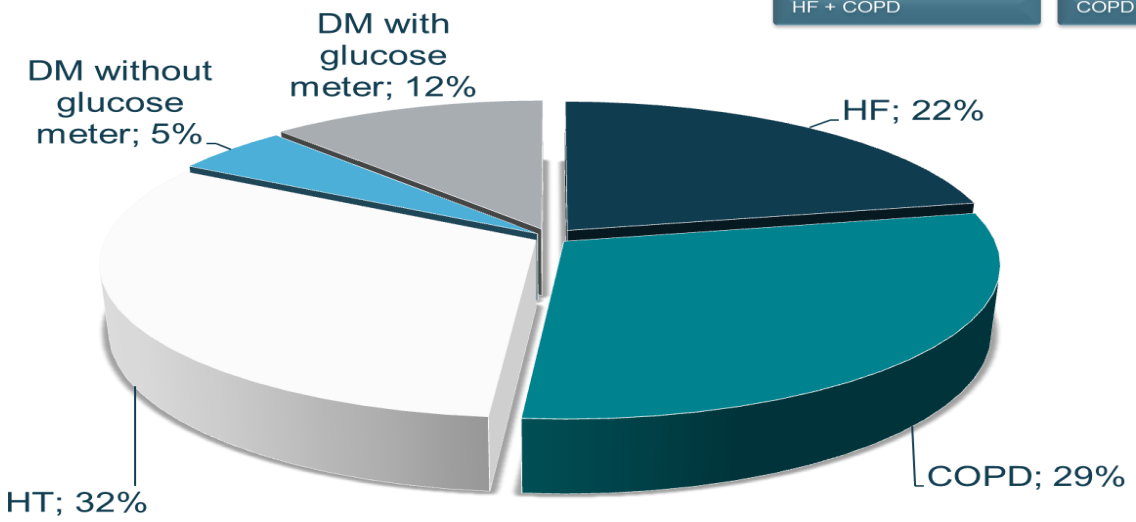


Current Status of the Project.

Distribution by Disease

SUBPROGRAMS

HF	HF + HT + DM	COPD + HT
HF + HT	HF + HT + COPD	COPD + DM
HF + DM	HF + COPD + DM	COPD + HT + DM
HF + COPD	COPD	COPD + HF + HT + DM



Current Status of the Project.

Alerts

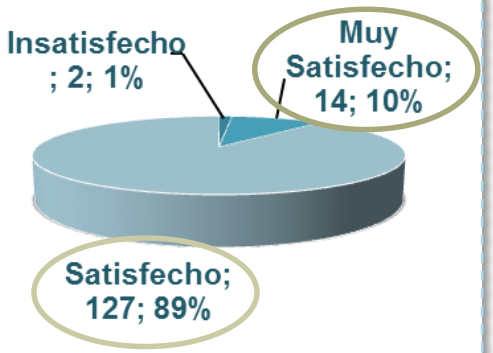
- 97.07% of patients generated yellow alerts
- 77.07% of patients generated red alerts
  - 53 patients generated 194 alerts due to weight variation

	Número de alertas por paciente			
ROJA	Entre 14/01/2013 y 13/02/2014	Pacientes (alerta)/día		Pacientes (que han participado)/día
Pulso Muy Bajo:	*538*	*(46)*	*0,03*	*0,01*
Saturación Muy Baja:	*516*	*(83)*	*0,02*	*0,01*
Pulso Muy Alto:	*380*	*(57)*	*0,02*	*0,00*
Variación Peso	*194*	*(53)*	*0,01*	*0,00*
Diástole Muy Bajo:	*166*	*(48)*	*0,01*	*0,00*
Sístole y Diástole:	*114*	*(29)*	*0,01*	*0,00*
Sístole Muy Alto:	*92*	*(14)*	*0,02*	*0,00*
Regla control Saturación Oxigeno:	*54*	*(5)*	*0,03*	*0,00*
Diástole Muy Alta:	*46*	*(15)*	*0,01*	*0,00*
Glucosa Basal Muy Baja:	*23*	*(7)*	*0,01*	*0,00*
Diástole Muy Alto:	*13*	*(10)*	*0,00*	*0,00*
Glucosa Pre Prandial Muy Baja:	*9*	*(4)*	*0,01*	*0,00*
Regla control Pulso:	*8*	*(2)*	*0,01*	*0,00*
Glucosa Post Prandial Muy Baja:	*5*	*(3)*	*0,00*	*0,00*
Glucosa Pre Prandial Muy Alta:	*1*	*(1)*	*0,00*	*0,00*

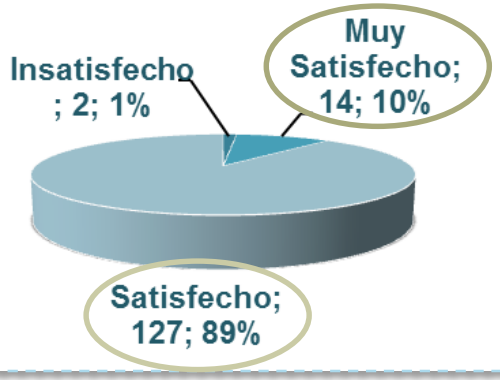
Some results

Satisfaction

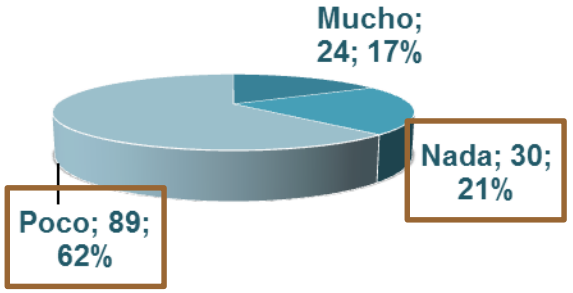
Program's general satisfaction



With the information received about the program by your nurse / doctor before starting the program



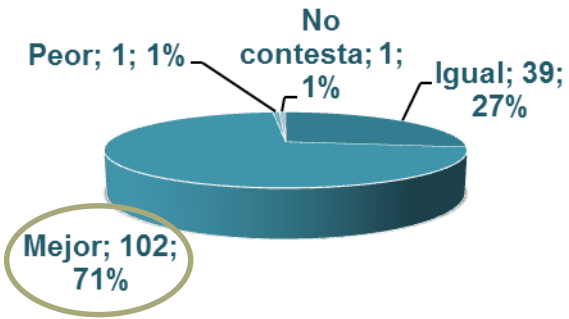
I'm used to ICT



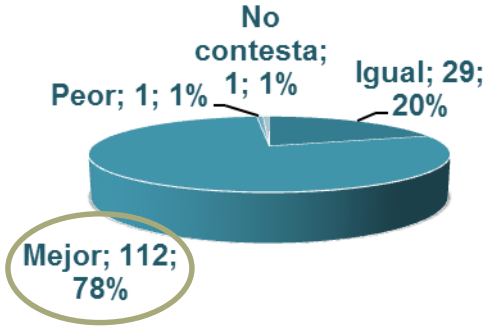
Some results

Satisfaction

Understanding of their disease



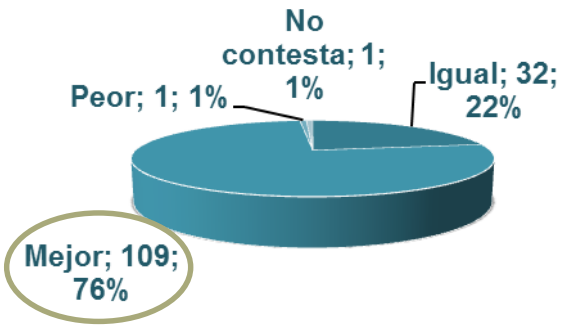
In its own control and monitoring of their disease



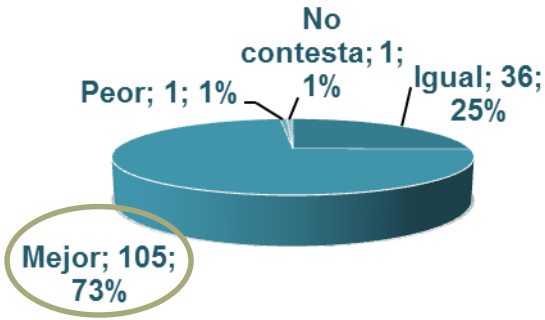
Some results

Satisfaction

In the control and monitoring of their disease by health professionals in their health center



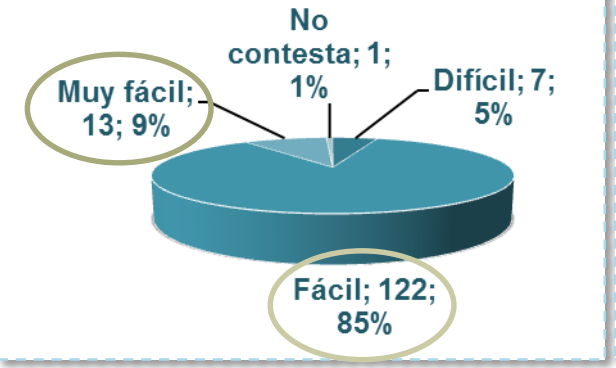
Improvement in quality of life



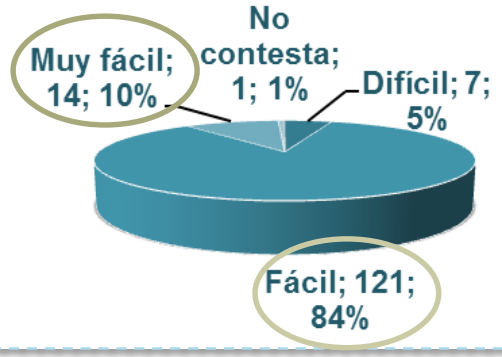
Some results

Satisfaction

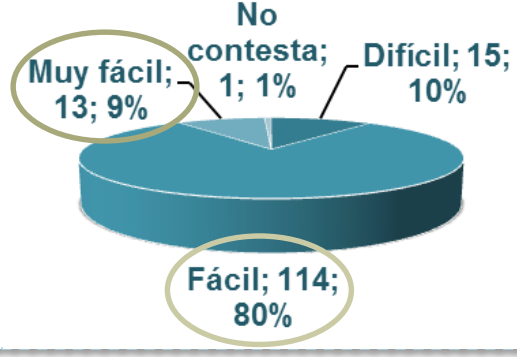
measurements with wireless devices



Aswering questionaries



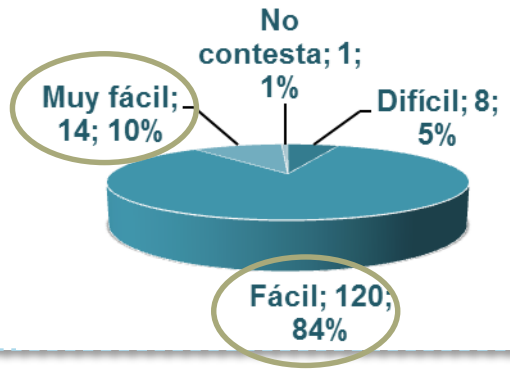
View ideos and educatoonal information



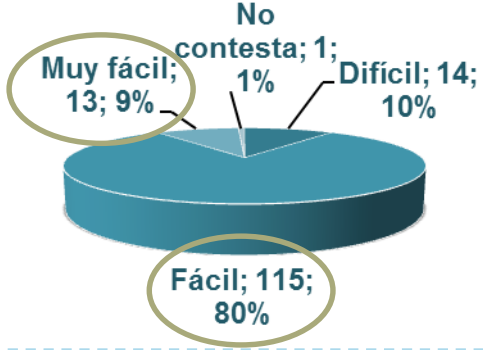
Some results

Satisfaction

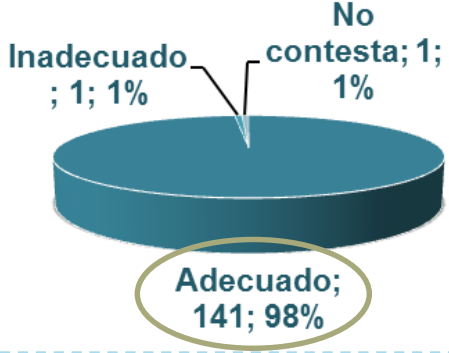
Daily tasks



Consultation of previous measures



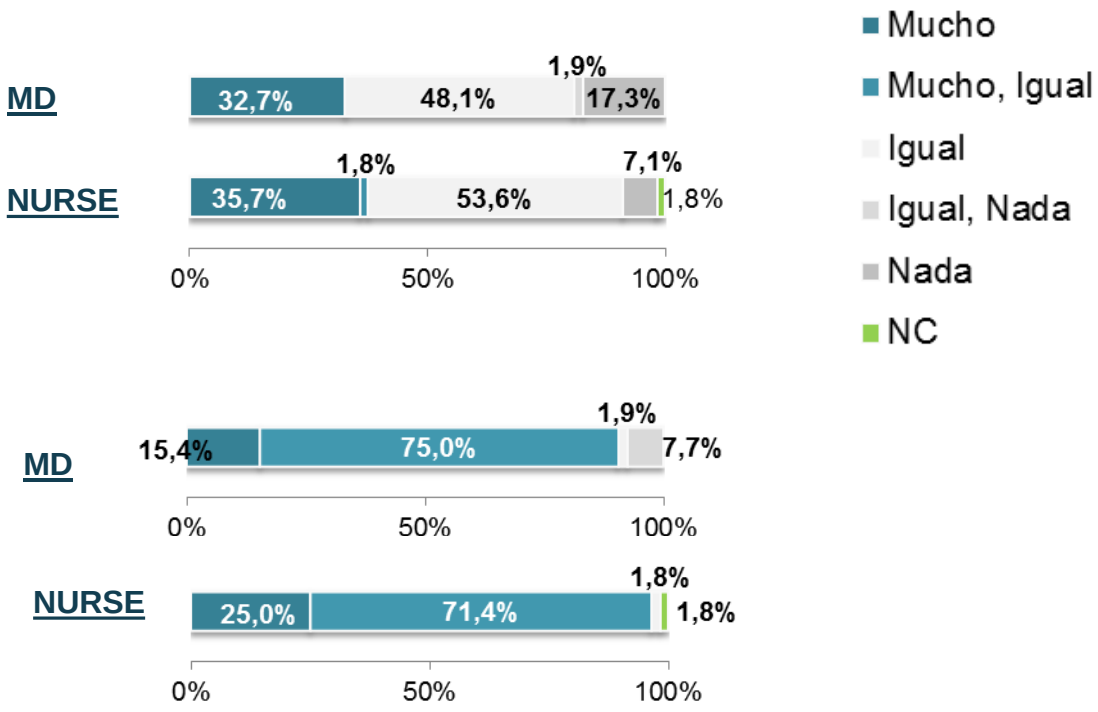
Do you consider the technology suitable?



Some results

Professionals

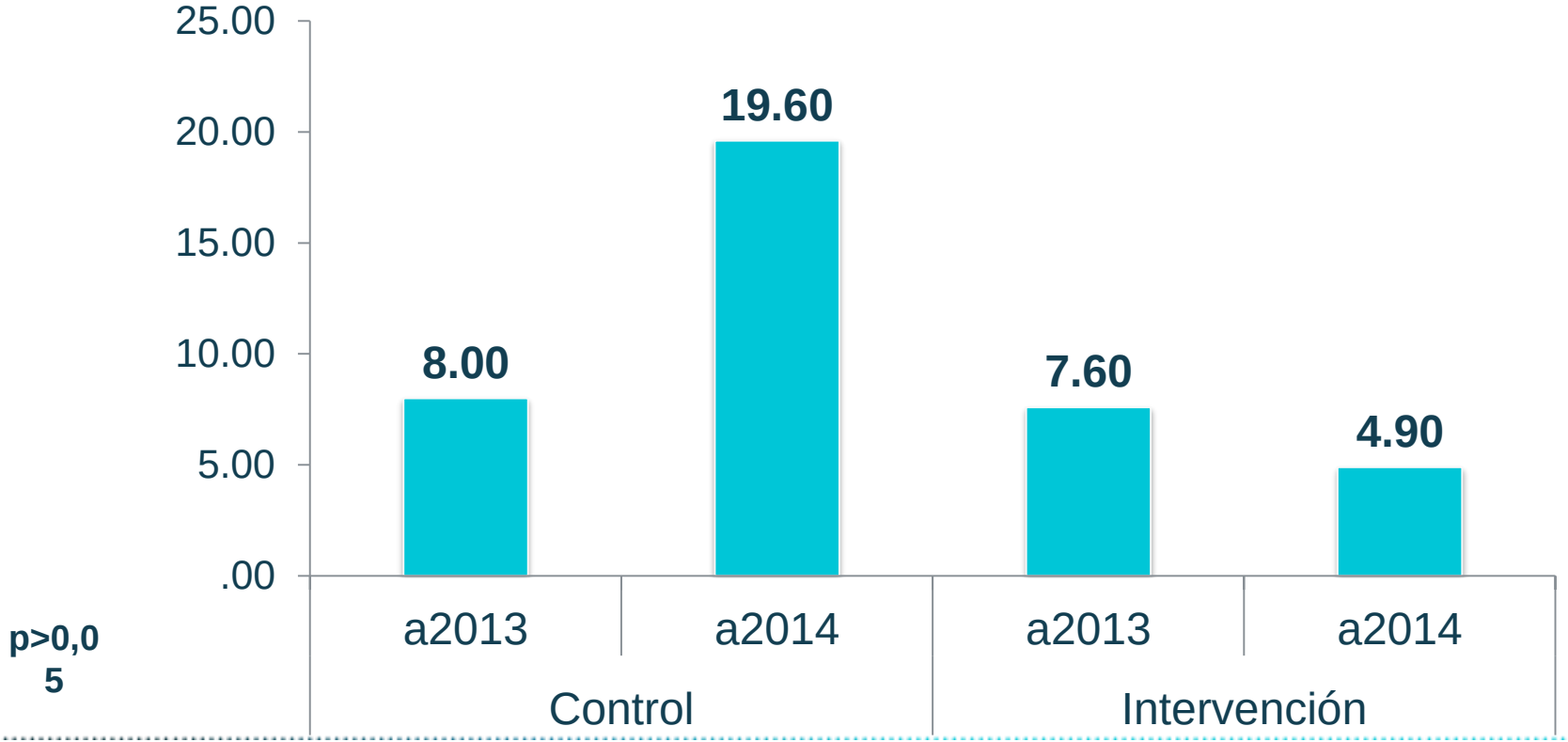
- Does the program helps with the patient management?



- Monitoring of Variables and implementation

Some results

Hospital admissions



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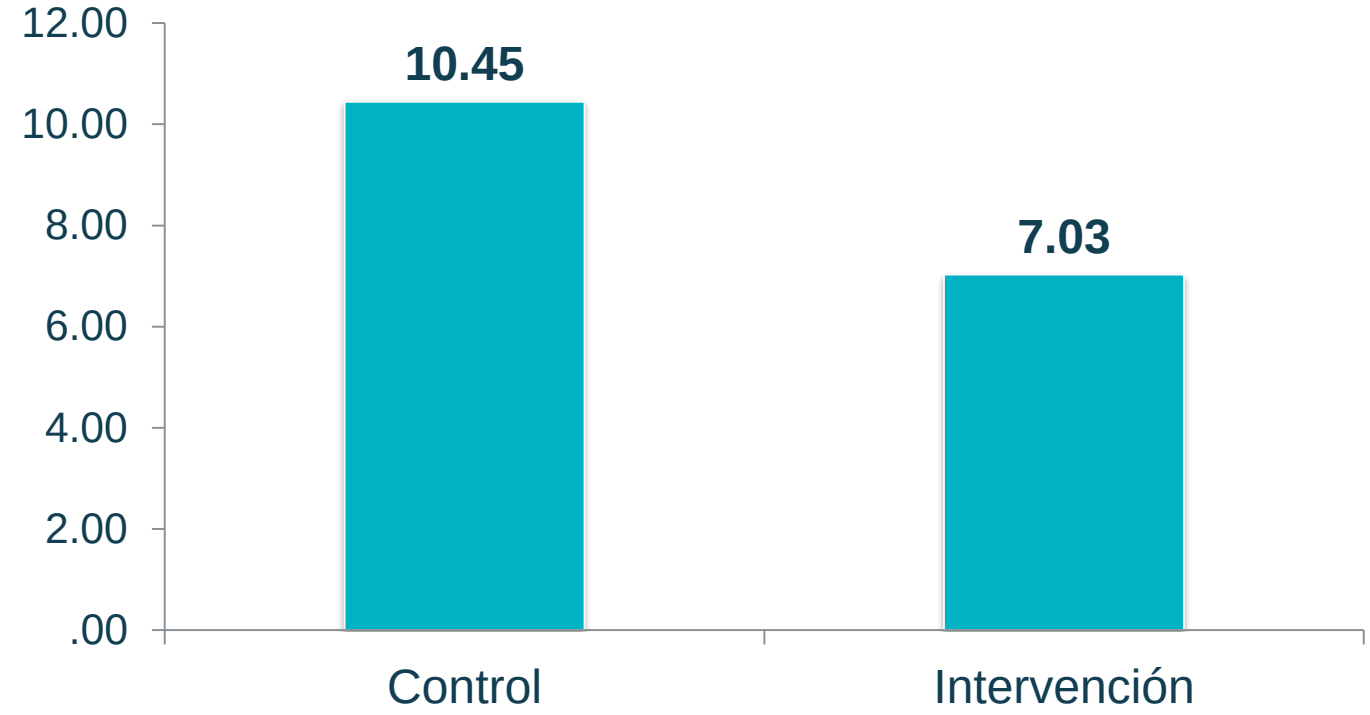
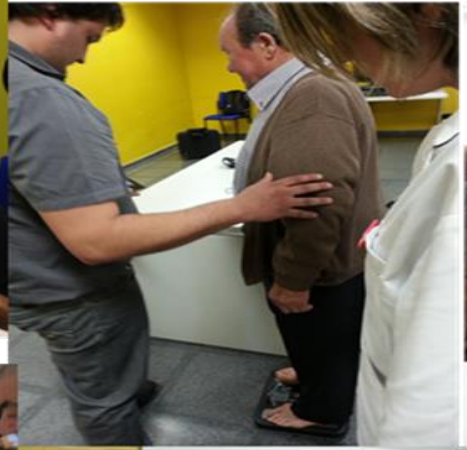
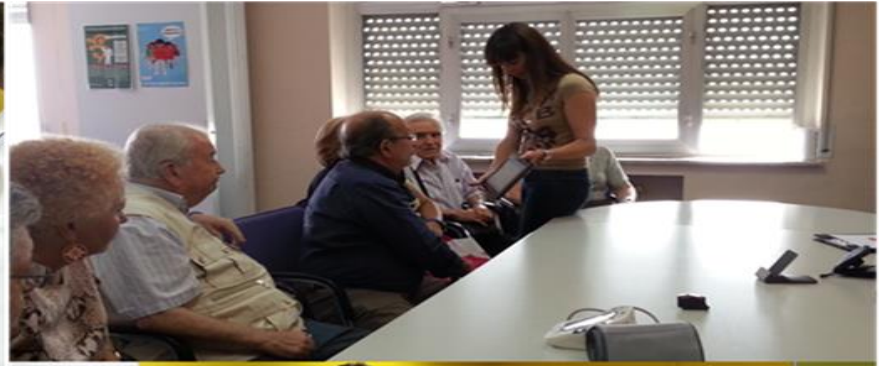
Some results

Mortality rate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