



2012 Annual Report Catalan Health Institute

 Generalitat de Catalunya
Departament de Salut

 Institut Català
de la Salut

INTRODUCTION

We are pleased to present the Annual Report of the Catalan Health Institute (ICS) for 2012, a year in which we managed to balance the budget and were able to reduce the debt generated by the ICS with suppliers. This budgetary stringency, in a climate that has certainly been complex from every angle, was achieved while maintaining the levels of care quality, commitment and dedication to public service that identify this institution and the excellent professional staff who form part of it.

In 2012, we met the programme contract targets set by CatSalut and we increased major surgery activity by 4.8% with respect to the previous year, exceeding one hundred thousand surgical interventions between all the hospitals and maintaining the tendency towards growth. Furthermore, the main clinical indicators included in the ICS's Healthcare Quality Standard (EQA) improved with respect to the year 2011, achieving their best results since they were first introduced in the year 2007.

The ICS, as a basic instrument of Catalonia's public healthcare policy, must fulfil the mission entrusted to it and maintain its role as a reference organization in the healthcare, teaching and biomedical research taking place in Catalonia, just as it has done over the last 30 years. To do so, and within the context of the targets set as part of the 2011-2015 Catalonia Health Plan, this year we initiated a series of strategic projects of special importance for the entire organization.

The most renowned of all these is the project for the reformulation of this institution which, as you already know, aims to promote the progressive development of Law 8/2007 to enable the ICS to evolve and become configured as a true public company that is more expeditious, fully decentralized, efficient, sustainable, competitive, adaptable to changes and in touch with the healthcare needs of the general public. A public company that has access to the same management tools as other public companies in the sector.

This transformation, which offers opportunities for improvement that we cannot underestimate, should make it possible for the ICS to enjoy the benefits of being a large network of decentralized organizations, 100% publicly-owned, with maximum capacity for self-organization and self-management of resources, while retaining the advantages of a major group structure and maintaining as centralized policies the economies of scale and other strategic elements that add value to the whole. All this relying on the public mechanisms necessary to guarantee the transparency, financial control, and equity of the services.

As we want to preserve the ICS's leadership in the sector, this year we have also committed to deploying a collaborative model of healthcare based on networking between the professionals of the different healthcare levels and the intensive use of information systems and clinical management tools.

The creation of shared management schemes between the ICS and the public companies of Lleida and Girona as a key tool for further strengthening the management and optimization of Catalonia's healthcare resources, is another important project that has begun to bear fruit and that will allow the establishment of synergies, the sharing of healthcare protocols, teamwork, the combining of expertise, experience and knowledge, and, ultimately, improvements in the quality, outcomes and accessibility of the healthcare services of the two largest public healthcare institutions in these cities.

Another strategic initiative developed during the year was the integration of all the ICS's radiodiagnosis and nuclear medicine services into the Image Diagnostics Institute. The final aim of this integration, which will be undertaken progressively, is to achieve a comprehensive healthcare model for diagnostic imaging and nuclear medicine to give a more efficient response to the diagnostic and therapeutic needs of the general public.

All these projects and the good results obtained and reflected in this annual activity report encourage us to continue working with enthusiasm, commitment and transparency to make the ICS a people-centred organization that is geared towards responding to people's real health needs, also offering them the finest technical quality while preserving the indispensable sustainability of the institution.

Carles Constante Beitia
Chair of the Board

Joaquim Casanovas Lax
Chief Executive Officer

THROUGHOUT CATALONIA

With an executed budget in 2012 of €2.656 billion and a staff of 39,720 professionals, the Catalan Health Institute (ICS) is the largest public healthcare services company in Catalonia. It provides healthcare attention to almost six million users, a figure that represents 75% of all people with healthcare cover in Catalonia.

The ICS currently manages 288 primary healthcare teams (4 of these under shared management schemes with other organizations), which provide services at 328 primary healthcare centres and 673 local GP surgeries. Furthermore, it manages 2 clinical laboratory services; 26 diagnostic imaging services, 23 regional continuing and emergency primary healthcare units (ACUT), providing service via 162 facilities; 34 outpatient specialities centres; 28 sexual and reproductive healthcare services; 11 homecare and support-team programmes (PADES); 3 occupational health services; 7 mental-health units, 2 for infants and children and 2 for drug-dependence treatment and monitoring; 11 outpatient rehabilitation units; 7 international health units and 9 paediatric services.

Furthermore, it also manages 8 referral hospitals within the public use hospital network. These centres have a combined total of 141 operating theatres; 28 reanimation units; 24 delivery rooms; 1,222 outpatient consultation rooms; 375 day-hospital care points; three international healthcare units; 343 emergency bays; 10 clinical laboratories, 4 of which are regional and provide a service primary healthcare; 151 advanced-technology equipment items and 3,706 beds available.

Besides its healthcare activity, the ICS carries out a great deal of scientific activity through seven research institutes integrated with hospitals and primary healthcare centres. Three of these institutes – Vall d’Hebron Research Institute, Bellvitge Biomedical Research Institute and Germans Trias i Pujol Health Sciences Research Institute – have been certified by the Carlos III Health Institute since 2008. The recognition of these institutes as centres of excellence

places them in a leading position in the whole of Spain in the field of biomedical research.

In the educational sphere, the ICS trains 2,400 resident specialists in 50 different health sciences specialities at its centres each year. It also accepts over 4,500 undergraduate students in medicine, nursing, dentistry and other programmes, while working intensively to provide continuous training for all its professional groups.

A day's activity at the ICS

Primary Healthcare

75,782	family medicine appointments
14,658	paediatric appointments
48,643	nursing appointments
4,378	dentistry appointments
1,216	social work appointments
6,076	continuing care appointments
5,545	sexual and reproductive healthcare (ASSIR) appointments
320	home care and support teams (PADES) appointments

Hospital care

823	discharges
717	surgical interventions
1,909	emergencies
10,903	outpatient consultations
873	day-hospital sessions



STRUCTURAL RESOURCES

Primary healthcare

- 288 primary healthcare teams, 4 of these under shared management
- 328 primary healthcare centres
- 673 local GP surgeries
- 2 clinical laboratories
- 26 diagnostic imaging services
- 23 regional continuing and emergency healthcare units (ACUT):
 - 17 emergency primary healthcare centres (CUAP)
 - 17 isolated/mountain facilities
 - 128 continuing healthcare units (PAC)
- 34 outpatient speciality centres
- 28 sexual and reproductive healthcare services (ASSIR)
- 11 Homecare and support team programme (PADES) units
- 3 occupational health services
- 7 mental health services
- 11 rehabilitation services
- 7 international health units
- 9 paediatric lines

Hospital care

- 141 operating theatres
- 28 recovery room units
- 24 delivery rooms
- 1,222 outpatient consulting rooms (including treatment rooms)
- 375 day-hospital care points
- 3 international health units
- 343 emergency bays
- 10 clinical laboratories
- 151 high technology equipment items
- 3,706 available beds:
 - 3,115 conventional beds
 - 497 critical and semi-critical beds
 - 94 special care cots





Alt Pirineu i Aran

- 6 primary healthcare teams
- 6 primary healthcare centres
- 66 local GP surgeries
- 1 regional continuing and emergency healthcare unit (ACUT):
 - 10 isolated/mountain facilities
 - 2 continuing healthcare units (PAC)
- 1 sexual and reproductive healthcare service (ASSIR)



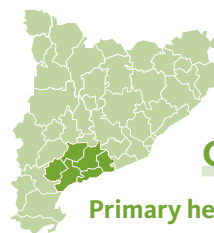
Barcelona

Primary healthcare

- 54 primary healthcare teams, 3 of them under shared management with the Hospital Clínic
- 42 primary healthcare centres
- 6 diagnostic imaging services
- 1 regional continuing and emergency healthcare unit (ACUT):
 - 3 emergency primary healthcare centres (CUAP)
 - 4 continuing healthcare units (PAC)
- 9 speciality outpatient centres
- 7 sexual and reproductive healthcare services (ASSIR)
- 1 homecare and support team programme (PADES) unit
- 4 mental health services
- 2 rehabilitation services
- 1 international health unit
- 7 paediatric lines

Vall d'Hebron University Hospital

- 45 operating theatres
- 6 recovery room units
- 6 delivery rooms
- 360 outpatient consulting rooms (including treatment rooms)
- 137 day-hospital care points
- 1 international health unit
- 38 emergency bays
- 3 laboratories
- 53 high technology equipment items
- 1,072 available beds:
 - 866 conventional beds
 - 182 critical and semi-critical beds
 - 24 special care cots



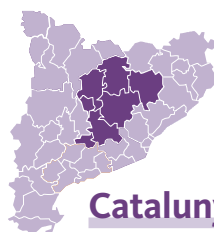
Camp de Tarragona

Primary healthcare

- 20 primary healthcare teams
- 22 primary healthcare centres
- 75 local GP surgeries
- 3 diagnostic imaging services
- 2 regional continuing and emergency healthcare units (ACUT):
 - 2 emergency primary healthcare centres (CUAP)
 - 10 continuing healthcare units (PAC)
- 2 speciality outpatient centres
- 3 sexual and reproductive healthcare services (ASSIR)
- 1 occupational health service
- 3 rehabilitation services

Joan XXIII University Hospital in Tarragona

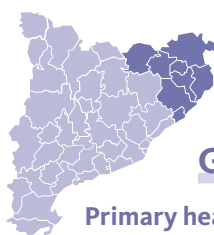
- 14 operating theatres
- 3 recovery room units
- 2 delivery rooms
- 93 outpatient consulting rooms (including treatment rooms)
- 16 day-hospital care points
- 65 emergency bays
- 1 regional laboratory
- 11 high technology equipment items
- 310 available beds:
 - 256 conventional beds
 - 35 critical and semi-critical beds
 - 19 special care cots



Catalunya Central

- 32 primary healthcare teams
- 39 primary healthcare centres
- 112 local GP surgeries
- 3 diagnostic imaging services
- 3 regional continuing and emergency healthcare units (ACUT):
 - 3 emergency primary healthcare centres (CUAP)
 - 3 isolated/mountain facilities
 - 22 continuing healthcare units (PAC)
- 4 speciality outpatient centres
- 1 sexual and reproductive healthcare services (ASSIR)
- 1 homecare and support team programme (PADES) unit
- 3 international health units

STRUCTURAL RESOURCES



Girona

Primary healthcare

- 26 primary healthcare teams
- 34 primary healthcare centres
- 115 local GP surgeries
- 1 diagnostic imaging service
- 4 regional continuing and emergency healthcare units (ACUT):
 - 1 primary healthcare emergencies centre (CUAP)
 - 22 continuing healthcare units (PAC)
- 1 outpatient specialities centres
- 1 sexual and reproductive healthcare service (ASSIR)
- 1 homecare and support team programme (PADES) unit
- 1 occupational health service
- 1 rehabilitation service

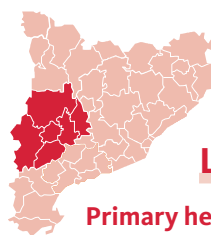
Doctor Josep Trueta University Hospital in Girona

- 11 operating theatres
- 9 recovery room units
- 2 delivery rooms
- 127 outpatient consulting rooms (including treatment rooms)
- 14 day-hospital care points
- 11 emergency bays
- 1 regional laboratory
- 17 high technology equipment items
- 403 available beds:
 - 332 conventional beds
 - 53 critical and semi-critical beds
 - 18 special care cots

Metropolitana Nord

Primary healthcare

- 64 primary healthcare teams
- 83 primary healthcare centres
- 23 local GP surgeries
- 1 clinical laboratory
- 8 diagnostic imaging services
- 5 regional continuing and emergency healthcare units (ACUT):
 - 2 emergency primary healthcare centres (CUAP)
 - 23 continuing healthcare units (PAC)
- 7 speciality outpatient centres
- 7 sexual and reproductive healthcare services (ASSIR)
- 5 homecare and support team programme (PADES) units
- 2 mental health services
- 1 rehabilitation service
- 1 international health unit



Lleida

Primary healthcare

- 21 primary healthcare teams
- 22 primary healthcare centres
- 184 local GP surgeries
- 1 diagnostic imaging service
- 3 regional continuing and emergency healthcare units (ACUT):
 - 1 primary healthcare emergencies centre (CUAP)
 - 4 isolated / mountain facilities
 - 11 continuing healthcare units (PAC)
- 1 outpatient specialities centres
- 1 sexual and reproductive healthcare service (ASSIR)
- 1 international health unit

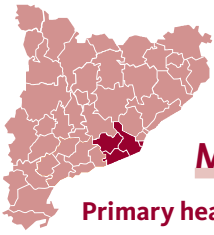
Arnau de Vilanova University Hospital in Lleida

- 14 operating theatres
- 4 delivery rooms
- 204 outpatient consulting rooms (including treatment rooms)
- 67 day-hospital attention points
- 52 emergency bays
- 1 regional laboratory
- 11 high technology equipment items
- 396 available beds:
 - 349 conventional beds
 - 31 critical and semi-critical beds
 - 16 special care cots



Germans Trias i Pujol University Hospital

- 20 operating theatres
- 4 recovery room units
- 3 delivery rooms
- 109 outpatient consulting rooms (including treatment rooms)
- 71 day-hospital care points
- 72 emergency bays
- 1 laboratory
- 22 high technology equipment items
- 498 available beds:
 - 419 conventional beds
 - 67 critical and semi-critical beds
 - 12 special care cots



Metropolitana Sud

Primary healthcare

- 54 primary healthcare teams, 1 under shared management with Castelldefels Town Council
- 59 primary healthcare centres
- 49 local GP surgeries
- 1 clinical laboratory
- 3 diagnostic imaging services
- 3 regional continuing and emergency healthcare units (ACUT):
 - 4 primary healthcare emergency centres (CUAP), 1 under shared management with Castelldefels Town Council
 - 21 continuing healthcare units (PAC)
- 9 speciality outpatient centres
- 3 sexual and reproductive healthcare services (ASSIR)
- 3 homecare and support team programme (PADES) units
- 1 occupational health service
- 1 mental health service
- 3 rehabilitation services
- 1 international health unit
- 2 paediatric lines

Bellvitge University Hospital

- 26 operating theatres
- 3 recovery room units
- 204 outpatient consulting rooms (including treatment rooms)
- 48 day-hospital care points
- 1 international health unit
- 63 emergency bays
- 1 laboratory
- 29 high technology equipment items
- 760 available beds:
 - 637 conventional beds
 - 123 critical and semi-critical beds

Viladecans Hospital

- 5 operating theatres
- 2 recovery room units
- 43 outpatient consulting rooms (including treatment rooms)
- 8 day-hospital care points
- 24 emergency bays
- 1 laboratory
- 2 high technology equipment items
- 90 available beds



Terres de l'Ebre

Primary healthcare

- 11 primary healthcare teams
- 21 primary healthcare centres
- 49 local GP surgeries
- 1 diagnostic imaging service
- 1 regional continuing and emergency healthcare unit (ACUT):
 - 1 primary healthcare emergency centre (CUAP)
 - 13 continuing healthcare units (PAC)
- 1 outpatient specialities centres
- 1 sexual and reproductive healthcare service (ASSIR)
- 1 rehabilitation service

Verge de la Cinta Hospital in Tortosa

- 6 operating theatres
- 1 recovery room unit
- 7 delivery rooms
- 82 outpatient consulting rooms (including treatment rooms)
- 14 day-hospital care points
- 1 international health unit
- 18 emergency bays
- 1 regional laboratory
- 6 high technology equipment items
- 177 available beds:
 - 166 conventional beds
 - 6 critical and semi-critical beds
 - 5 special care cots



HEALTHCARE ACTIVITY

Stratification of the assigned population treated by the ICS's primary healthcare teams during the year 2012

Clinical Risk Groups (CRGs) are a morbidity grouping system that allows patients to be classified into standardized morbidity groups based on key information such as age, gender, and health problems.

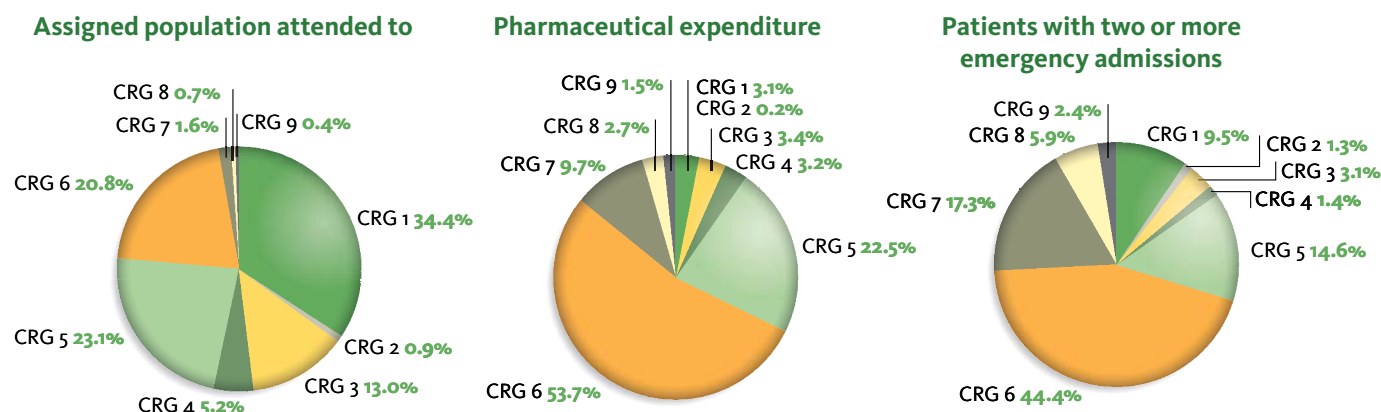
CRGs are a tool that allows the classification of patients in unique, mutually exclusive morbidity categories, based on morbidity patterns. And even when comorbidity is fixed, the CRGs determine the different levels of severity. Therefore, CRGs are more specific and elucidatory than traditional categories of age and gender for the purposes of trying to explain the variations in the morbidity burden or consumption of resources (appointments or pharma-

ceutical expenditure) between two or more patient populations.

It is important to highlight that groups 5, 6 and 7, which correspond to patients with chronic illness, represent 46% of the assigned population attended to by ICS primary healthcare during the year 2012. These patient groups generated 86% of pharmacy expenditure and, in general, are the patients that most utilize healthcare resources. For this reason, in line with the 2011-2015 Catalonia Health Plan, ICS primary healthcare has paid special attention to the monitoring of these patients.

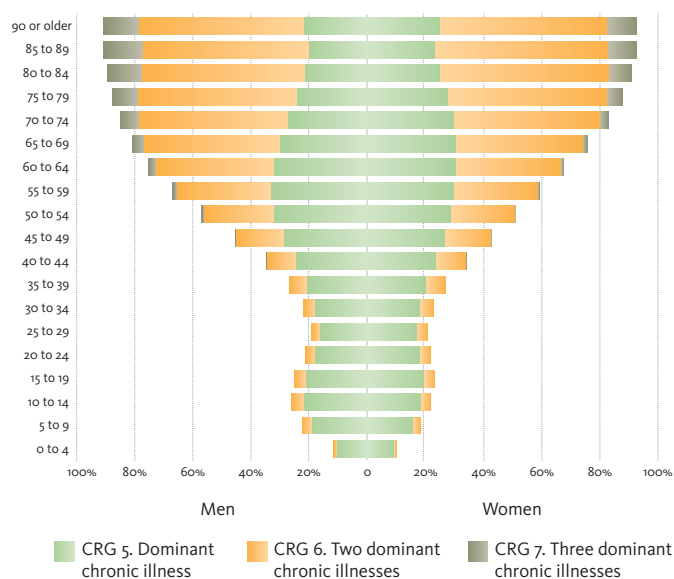
CRG	Assigned population attended to ¹		Pharmaceutical expenditure		Pharmaceutical expenditure (euros per person)	Patients with two or more emergency admissions	
1. Healthy	1,456,217	34.4%	29,273,244.40	3.1%	20.10	2,875	9.5%
2. Acute illness	36,035	0.9%	1,750,232.21	0.2%	48.57	404	1.3%
3. Minor chronic illness	548,028	13.0%	31,685,952.14	3.4%	57.82	948	3.1%
4. Numerous minor chronic illnesses	220,349	5.2%	30,398,344.40	3.2%	137.96	435	1.4%
5. Dominant chronic illness	976,920	23.1%	211,854,686.25	22.5%	216.86	4,412	14.6%
6. Two dominant chronic illnesses	879,005	20.8%	504,676,658.04	53.7%	574.15	13,436	44.4%
7. Three dominant chronic illnesses	69,730	1.6%	91,147,808.00	9.7%	1,307.15	5,232	17.3%
8. Neoplasias	28,990	0.7%	25,216,932.06	2.7%	869.85	1,775	5.9%
9. Catastrophic illnesses	15,490	0.4%	14,209,069.35	1.5%	917.31	711	2.4%
Total	4,230,764	100.0%	940,212,926.85	100.0%		30,228	100.0%

1. The population considered is the assigned population attended to that has had at least one appointment during the year with the family medicine, paediatric, or nursing services.



Source: ECAP and CatSalut.

Prevalence of chronic illnesses by age and sex



Source : ECAP.

The prevalence of chronic illnesses increases with age and has a high frequency, in males and females alike, at advanced ages. Furthermore, at these ages there is a high prevalence of chronic multi-morbidity, in other words, people with more than one chronic illness existing simultaneously.

As shown in the graph, over 80% of the population aged 70 years or over attended to at ICS centres suffer at least one important chronic illness, such as diabetes, hypertension, chronic obstructive pulmonary disease, asthma, or heart failure. In this population, it is more frequent for two or more chronic illnesses to be suffered simultaneously than one alone.

Primary healthcare activity

	Total	% variation 2012/2011
EAP appointments		
Family medicine	18,718,171	-2.82
At the centre	16,571,376	-4.89
Home visit	337,293	6.31
Telephone consultations	1,809,502	19.02
Paediatrics	3,620,446	-4.80
At the centre	3,460,396	-5.50
Home visit	1,981	66.47
Telephone consultations	158,069	12.93
Nursing	12,014,776	-1.39
At the centre	10,539,966	-2.85
Home visit	733,749	3.22
Telephone consultations	741,061	18.64
Dentistry	1,006,592	-2.92
Social work	300,247	-0.22
At the centre	178,546	-8.00
Home visit	19,847	4.63
Telephone consultations	101,854	15.92

	Total	% variation 2012/2011
Continuing and emergency care appointments	2,217,625	-12.57
At the centre	2,022,764	-13.22
Home visit	120,776	-1.43
Telephone consultations	74,085	-10.74
Appointments ASSIR¹	1,369,577	-6.14
First appointments	140,632	-44.09
Subsequent appointments	1,228,945	1.77
Mental health appointments	29,710	-7.17
First appointments	2,984	-16.37
Subsequent appointments	26,726	-6.02
PADES appointments	81,963	29.60
At the centre	33,846	18.87
Home visit	23,753	24.60
Telephone consultations	24,364	55.12
International health²		
Patients attended	31,153	
Appointments for travellers	24,830	
Appointments for imported diseases	6,323	
Vaccinations	35,165	

Source : SIAP.

1. Exclusively includes appointments with midwives and obstetricians/gynaecologists.

2. Given the recent creation of the ICS's International Health Programme, there are no comparable systemized records available from other years.

HEALTHCARE ACTIVITY

Healthcare Quality Standard assessment indicators

The Healthcare Quality Standard (EQA) is the main tool used by the ICS to assess the quality of the healthcare provided to patients by its primary healthcare teams. During the year 2012, the main clinical indicators included in the EQA improved with respect to 2011, achieving the best results since the EQA's introduction in the year 2007. In terms of number of cases resolved, these results represent an increase in the number of patients better

treated or controlled, an increase that, compared with data from the year 2011, reaches for example over 20% in the case of patients with heart failure treated with beta-blocker therapy, over 14% of patients suffering from stroke with acceptable control of LDL-cholesterol or over 15% of patients with high-risk cardiovascular disease and good control of blood pressure values, as presented in the following table.

	Cases treated successfully	% of the total of cases	% variation 2012/2011
Control of chronic conditions			
Control of blood pressure in patients with arterial hypertension	637,990	68.85	9.89
Control of blood pressure in patients with cardiovascular disease risk	304,892	60.68	15.64
Type 2 DM < age 80 with acceptable control of HbA1C	170,555	64.42	6.64
Screening for diabetic foot in patients with DM type 2	216,965	65.63	6.84
Screening for diabetic retinopathy in patients with DM type 2	196,584	74.25	3.90
Stroke with antiplatelet therapy	77,243	93.85	5.42
Stroke with acceptable control of LDL	42,880	52.10	14.07
Ischemic heart disease with beta-blocker therapy	76,419	66.79	8.08
Ischemic heart disease with antiplatelet therapy	108,854	95.14	2.48
Ischemic heart disease with acceptable control of LDL	68,306	59.70	8.33
Atrial fibrillation / cardiac arrhythmia with adjusted antiplatelet / anticoagulant therapy	67,980	82.98	9.17
Heart failure with treatment with ACE inhibitor / angiotensin II receptor antagonist	39,781	76.97	9.25
Heart failure with beta-blocker therapy	28,978	56.07	20.03
Comprehensive assessment of homecare (ATDOM) patients	41,531	88.53	0.47
Assessment of ulcer risk in homecare (ATDOM) patients	43,719	93.19	-2.47
Preventive activities			
Systemic vaccination in children	749,113	85.03	7.99
Influenza vaccination > age 59	598,094	49.39	-2.31
Influenza vaccination, ages 15-59 with risk factors	63,510	21.11	-2.83
Influenza vaccination < age 15 with risk factors	12,255	28.41	-1.98
Tetanus vaccination in adults	2,669,630	56.02	12.74
Screening for harmful habits in teens	32,933	64.91	1.59
Screening for alcohol consumption (ages 15-79)	1,798,735	40.39	2.33
Non-smokers in population with risk pathologies	951,103	76.61	4.11
Quitting smoking in the previous 12 months	55,490	6.40	-1.40

Source: SISAP.

Hospital activity

	Total	% variation 2012/2011
Discharges	203,311	1.92
Standard discharges	155,073	-0.68
Discharges after major outpatient surgery	40,048	10.34
Emergencies of more than 24 hours	8,190	16.15
Mean weight of discharges	1.956	-0.4
Admissions	155,012	-0.66
Emergency admissions	101,882	-1.75
Scheduled admissions	53,130	1.50
Hospital stays	1.098,937	-0.51
Home hospitalization	4,818	-7.90
Surgery	177,178	6.00
Surgery with scheduled admission	43,408	3.68
Surgery with emergency admissions	18,818	-2.19
Major outpatient surgery without admission	38,661	9.86
Minor outpatient surgery	76,291	7.68
Emergencies	696,919	-2.74
Emergencies without hospitalization	601,834	-3.09
Emergencies with hospitalization	95,085	-0.44

Source: SAP-BI and CMBD. Data extracted on 2 April 2013.

1. Given the recent creation of the ICS's International Health Programme, there are no comparable systemized records available from other years.

	Total	% variation 2012/2011
Ambulatory services	2,692,958	-1.70
Hospital outpatient services	2,013,106	1.80
First appointments	534,957	-2.75
Subsequent appointments	1,478,149	3.55
Primary healthcare outpatient appointments	679,852	-10.79
First appointments	336,157	-15.51
Subsequent appointments	343,695	-5.62
Telemedicine appointments	78,633	32.82
Day-hospital sessions	215,663	1.68
International health¹		
Patients attended	12,586	
Appointments for travellers	9,299	
Appointments for imported diseases	3,287	
Vaccinations	16,368	

	Total	% variation 2012/2011
Indicators		
Average stay (Standard discharges) (days)	7.09	0.17
Occupation rate (%)	92.02	2.68
Emergency admissions (%)	65.73	-1.10
Emergencies/day	1,904.15	-3.01
Major outpatient surgery substitution rate	85.54	1.04
Re-admissions (%)	5.6	-2.6



HEALTHCARE ACTIVITY

Case mix

The eight ICS hospitals form part of the Public Hospital Network of Catalonia (XHUP). These centres act as basic general and referral hospitals for the population in their catchment areas. They are hospitals that are equipped with high-tech services and have exceptional professional experience and expertise for treating health problems that require advanced technological resources and specialized practice. Vall d'Hebron, Bellvitge and Germans Trias are also accredited as tertiary hospitals. During 2012, all the organization's hospitals maintained the volume of tertiary activity (see the more complex diagnosis-related groups [DRG] table).



Most common medical DRGs

DRG	Description	Discharges 2012	DRG Weight
541	Simple pneumonia and other respiratory disorders, except bronchitis and asthma, with major complications	6,142	2.343
373	Vaginal delivery without complications	5,400	0.580
372	Vaginal delivery with complications	3,172	0.700
127	Heart failure and shock	3,048	1.422
544	Congestive heart failure and cardiac arrhythmia with complications	2,943	3.420
187	Tooth extractions and replacements	2,207	0.747
014	Stroke and myocardial infarction	1,804	1.880
088	Chronic obstructive pulmonary disease	1,794	1.147
243	Back problems	1,478	0.785
533	Other disorders of the nervous system, except transitory ischemic attack, convulsions and headache, with major complications	1,360	4.430
557	Hepatobiliary and pancreatic disorders, with major complications	1,330	3.768
629	Neonate, weight over 2499 g, without significant surgery	1,280	0.236
125	Circulatory disorders, except acute myocardial infarction, with catheterization, without complicated diagnosis	1,220	0.882
589	Bronchitis and asthma, under age 18, with major complications	1,194	1.736
569	Disorders of the kidney and urinary tract, except renal failure, with major complications	1,166	1.735
321	Kidney and urinary tract infections, age > 17, without complications	1,092	0.682
350	Inflammation of male genitals	1,071	0.676
552	Disorders of the digestive system, except for esophagitis, gastro-enteritis and uncomplicated ulcer, with major complications	1,045	3.241
775	Bronchitis and asthma, age < 18, without complications	1,031	0.636
320	Kidney and urinary tract infections, age > 17, with complications	1,024	1.052

Source: CMBD-HA.

Most common surgical DRGs

DRG	Description	Discharges 2012	DRG Weight
039	Crystalline lens surgery with or without vitrectomy	9,544	0.917
359	Uterine and adnexal surgery due to non-malignant carcinoma <i>in situ</i> , without complications	2,040	1.098
371	Caesarean section, without complications	1,734	0.869
042	Intraocular surgery, except retina, iris and crystalline lens	1,472	1.074
055	Miscellaneous surgery of the ear, nose, mouth and throat	1,465	0.756
808	Percutaneous coronary interventions (angioplasty) with acute myocardial infarction, cardiac arrest or shock	1,416	2.701
311	Transurethral interventions, without complications	1,405	0.803
116	Other permanent cardiac pacemaker implantations	1,346	3.591
266	Skin grafting or debridement, except for skin ulcer/cellulitis, without complications	1,331	1.434
818	Hip replacement, except for complications	1,321	3.607
040	Extraocular surgery, except orbit, age 17 and older	1,315	0.818
209	Substitution of major joint, except hip, and re-implanting of lower limb, except for complications	1,310	3.279
119	Vein ligation and stripping	1,274	0.890
158	Anal surgery and enterostomy, without complications	1,269	0.659
229	Hand or wrist surgery, except major joint surgery, without complications	1,187	0.880
381	Abortion with dilation, curettage, aspiration or hysterotomy	1,182	0.587
162	Inguinal and femoral hernia surgery, age 17 and older, without complications	1,179	0.740
225	Foot surgery	1,120	1.241
494	Laparoscopic cholecystectomy, without common bile duct exploration, without complications	1,068	0.962
036	Retinal surgery	1,060	1.008

Source: CMBD-HA.



HEALTHCARE ACTIVITY

Most complex medical DRGs

DRG	Description	Discharges 2011	Discharges 2012	DRG Weight
602	Neonate, birth weight < 750 g, alive at discharge	20	22	42.401
604	Neonate, birth weight 750-999 g, alive at discharge	66	45	31.158
605	Neonate, birth weight 750-799 g, exitus	8	10	16.641
822	Extensive or full thickness burns with mechanical ventilation of 96 hours or more, without skin graft	5	14	15.812
607	Neonate, birth weight 1,000-1,499 g, without significant surgical procedure, alive at discharge	195	170	13.766
603	Neonate, birth weight < 750 g, exitus	11	13	12.937
576	Acute leukaemia with major complications	141	107	12.638
608	Neonate, birth weight 1,000-1,499 g, exitus	6	11	11.876
881	Respiratory system diagnosis with mechanical ventilation for over 96 hours	151	164	10.749
611	Neonate, birth weight 1,500-1,999 g, without significant surgical procedure, with multiple major problems or mechanical ventilation for 96 hours or more s	65	64	8.303
707	HIV with mechanical ventilation or nutritional support	22	19	6.887
782	Acute leukaemia without major surgical procedure, aged > 17, with complications	69	42	6.551
578	Lymphoma and non-acute leukaemia, with major complications	229	182	6.428
794	Diagnosis of significant multiple trauma, with major non-traumatic complications	36	48	6.099
780	Acute leukaemia, without major surgical procedure, age < 18, with complications	48	61	5.481
612	Neonate, birth weight 1,500-1,999 g, without significant surgical procedure, without multiple major problems	113	126	4.854
882	Respiratory system diagnosis, with mechanical ventilation < 96 hours	266	284	4.643
533	Other disorders of the nervous system, except transitory ischemic attack, convulsions and headache, with major complications	1,375	1,360	4.430
577	Myeloproliferative disorders and poorly differentiated neoplasms, with major complications	112	103	4.156
126	Acute and subacute endocarditis	39	52	4.156

Source: CMBD-HA.

As a selection criterion for tertiary care, the 20 most complex medical procedures with a higher DRG weight and a minimum of 10 discharges have been included. A higher DRG weight indicates the need for more healthcare resources.



Most complex surgical DRGs

DRG	Description	Discharges 2011	Discharges 2012	DRG Weight
877	Extracorporeal membrane oxygenation or tracheotomy with mechanical ventilation for more than 96 hours	533	517	48.409
103	Heart transplant or implantation of a cardiac assist system	29	19	37.910
606	Neonate, weight at birth 1,000-1,499 g, with significant surgery	29	22	34.042
795	Lung transplant	48	62	34.036
480	Liver transplant and/or intestinal transplant	111	103	31.819
878	Tracheotomy with mechanical ventilation for more than 96 hours or without main tracheotomy diagnosis	268	270	29.815
803	Allogeneic bone marrow transplant	55	57	23.649
821	Extensive or full thickness burns, with mechanical ventilation over 96 hours, with skin graft	19	15	23.018
615	Neonate, birth weight 2,000- 2,499 g, with significant surgery, with multiple major problems	8	20	17.655
804	Autologous bone marrow transplant	63	68	15.319
545	Heart valve surgery with major complications	367	314	14.133
547	Other cardiothoracic surgery, with major complications	37	36	12.733
622	Neonate, birth weight > 2,499 g, with significant surgery, with multiple major problems	76	76	11.093
530	Craniotomy with major complications	323	319	10.995
850	Defibrillator implant with cardiac catheterization, without acute myocardial infarction, cardiac arrest or shock	15	15	10.925
793	Surgery due to significant multiple trauma except craniotomy with major non-traumatic complications	88	99	10.431
302	Kidney transplant	297	283	10.337
549	Major heart surgery with major complications	407	375	10.068
851	Defibrillator implant without cardiac catheterization	100	134	9.466
546	Coronary bypass surgery with major complications	123	104	9.243

Source: CMBD-HA.

As a selection criterion for tertiary care, the 20 most complex surgical procedures with a higher DRG weight and a minimum of 10 discharges have been included. A higher DRG weight indicates the need for more healthcare resources.



HEALTHCARE ACTIVITY

Pharmacy

The ICS's strategic objectives in the pharmacy sphere are to promote the healthy and prudent prescription of medications, to encourage rational, safe and suitable use of healthcare products and medications, to promote the quality, equality of access to and efficient management of the pharmacy service, and to improve the health outcomes of the population.

According to the degree of complexity and multidisciplinary of healthcare, as well as the monitoring of the evolution of the patient's state of health, it is important to differentiate between medications with a prescription dispensed at pharmacies and outpatient medication dispensing by hospitals (MHDA), which give pharmacy services to non-admitted patients via a medical order.

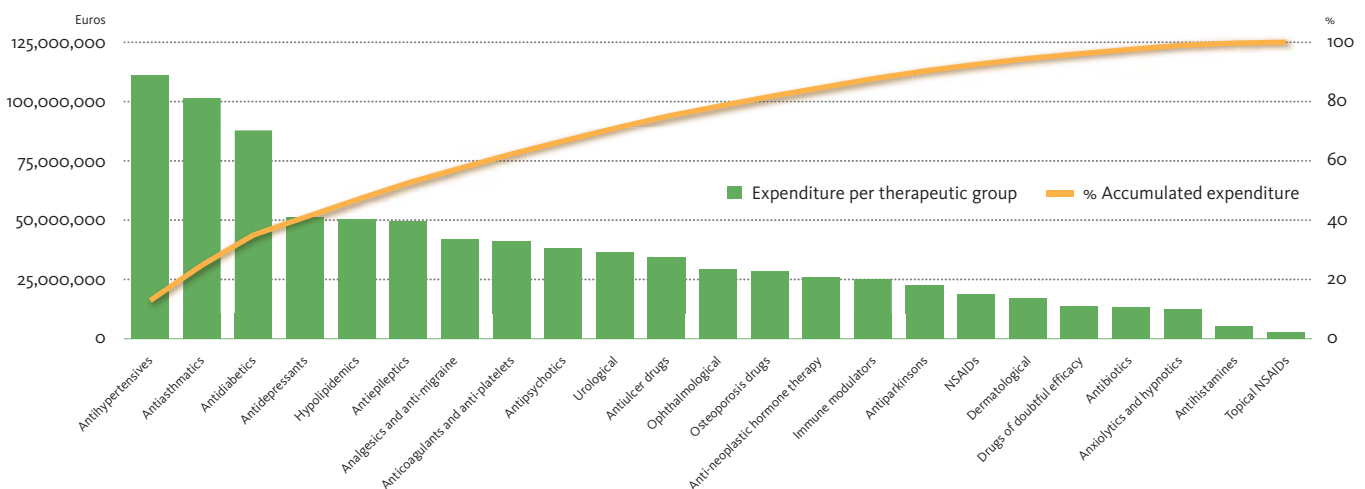
The introduction of the electronic prescription, which replaces the traditional paper prescription, represents an

important step with regard to the improvement of healthcare quality, ease and simplification of access for patients (especially when they have to collect prescriptions) and safety in the use of medications due to the possibilities it offers with respect to therapeutic monitoring and the control of duplicities and interactions. It also helps to improve the prescribing and dispensing processes and facilitates more rational consumption by the general public. In short, it favours a higher quality pharmaceutical service that is more sustainable for the entire healthcare system.

This process of progressive implementation has allowed the change to be made from paper prescriptions to therapeutic plans with all the necessary guarantees, both with respect to security in the exchange of information and to the protection and confidentiality of people's data.

Pharmaceutical prescriptions dispensed at pharmacies

Expenditure per therapeutic group



Source: CatSalut.

The consumption pattern for medications with a medical prescription is the habitual pattern. As can be observed in the graph, among the most prescribed drugs groups are antihypertensives, antiasthmatics, antidiabetics and antidepressants. In this sense, one of the objectives for the coming years will be to improve the tailoring of the prescribing of antidepressants in order to reduce their consumption.



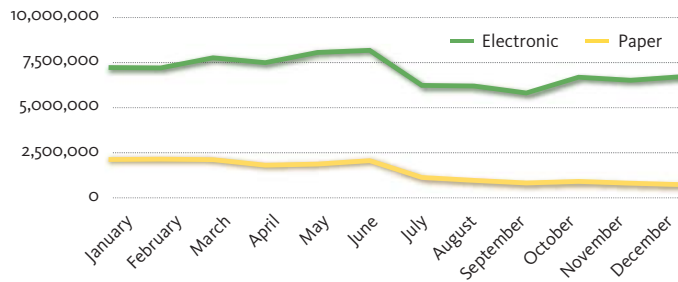
Indicators of the measure of adherence to the ICS Pharmacotherapy Guide

	Primary healthcare	Hospital care
New therapeutic alternatives ¹	1.56	1.89
Use of antihypertensives ²	39.18	56.43
Use of anti-ulcer drugs ³	89.29	78.46
Use of systemic NSAIDs ⁴	81.29	61.85
Use of non-insulin anti-diabetic agents ⁵	81.12	42.45
Use of hypolipidemic agents ⁶	68.98	31.61

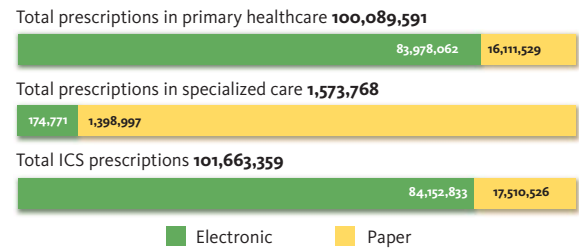
1. % medications classed by the New Medications Assessment Committee (CANM) and by the Advisory Council for Medicines in the Primary and Community Healthcare Sphere (CAMAPC) as: "non-assessable: insufficient information", "does not represent a therapeutic advance" or "more appropriate therapeutic alternatives exist" / total of pharmaceutical specialities.
2. % ARA II drugs (drugs acting on the renin-angiotensin system, except for renin inhibitors) / total (ARA II + IECA drugs).
3. % recommended anti-ulcer drugs (antacids: magnesium hydroxide, algeldrate, almagate, magaldrate; H2 receptor antagonists: ranitidine; PPIs: omeprazole; prostaglandins: misoprostol) / total of anti-ulcer drugs (total antacids and anti-ulcer drugs).
4. % NSAID drugs recommended (diclofenac, ibuprofen, naproxen) / Total NSAID drugs (non-steroidal anti-inflammatory and anti-rheumatic drugs).
5. % non-insulin anti-diabetic drugs considered as recommended first-line treatments (sulfonylureas: glibenclamide, gliclazide, glimepiride, gliquidone, biguanides: metformin) / total of non-insulin anti-diabetic drugs.
6. % recommended hypolipidemic drugs (resins: cholestyramine; fibrates: gemfibrozil; statins: lovastatin, pravastatin, simvastatin) / total hypolipidemic drugs.

Monitoring adherence to the ICS Pharmacotherapy Guide is an important objective for tailoring treatments to a correct selection of drugs. Currently the level of adherence of primary healthcare to the Guide is perceptibly higher than that of specialized care, more inclined to incorporate new therapeutic alternatives.

Monthly evolution of dispensed pharmaceutical prescriptions (packages)

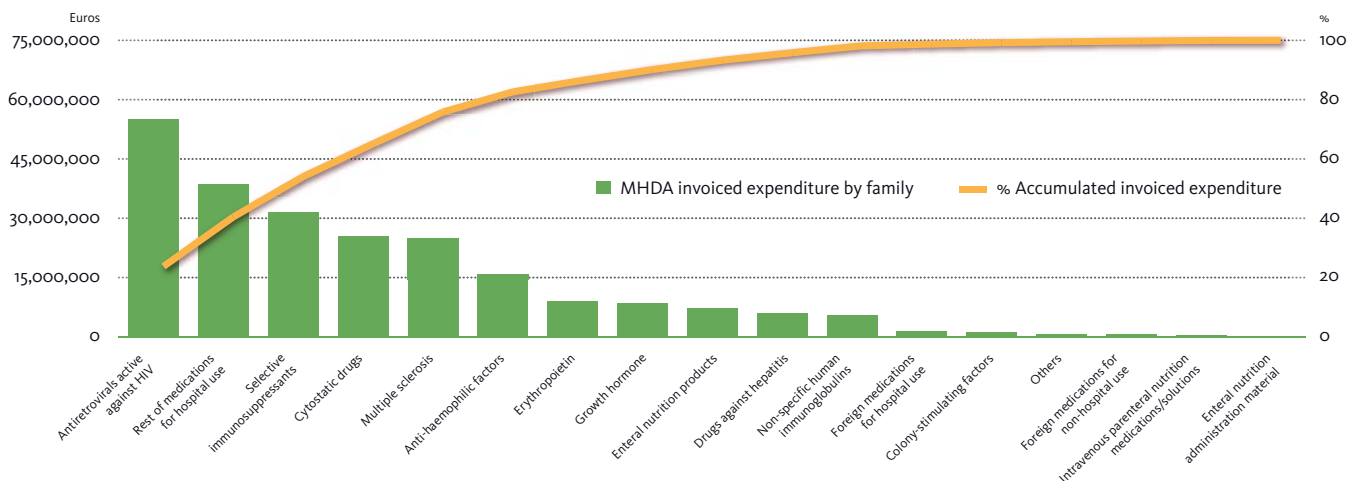


Pharmaceutical prescription dispensed by care levels (packages)



These two graphs for dispensed prescriptions show the level of use of the electronic prescription by primary healthcare teams and hospitals of the ICS. By the end of 2012, the electronic prescription had been implemented at all specialized care centres and continues evolving with fast progression towards the target of eliminating the paper prescription as soon as possible.

MHDA invoicing by families



The pattern of MHDA consumption is the usual pattern, with four main groups prominent: antiretrovirals active against HIV, selective immunosuppressants, cytostatic drugs, and treatments for multiple sclerosis. Due to the chronification of diseases that previously had fewer therapeutic possibilities, there is a particular increase in the consumption of these high-cost drugs.

STRATEGIC PROJECTS

■ The ICS Board of Directors approves commencement of the public company reformulation project

In the month of February 2012, the ICS Board of Directors gave the green light to the public company reformulation project with the aim of ensuring compliance with the principles established in Law 8/2007, of 30 July, on the Catalan Health Institute, approved with the consensus of all the parliamentary groups and implemented in a very partial way to date.

The project aims to make the ICS a true public company that is more expeditious, fully decentralized, efficient, sustainable, competitive, adaptable to changes and in touch with the healthcare needs of the general public. A public company better adapted to the Catalan healthcare model, which has the same management tools as the other public companies in the sector.

To achieve this transformation it is essential that the current organizational model evolve towards a model of decentralization that brings the management closer to the territory, facilitating strategic alliances with the rest of the healthcare centres in each healthcare region. And all this has to be undertaken while maintaining centralized economies of scale and other strategic elements that add value to the whole (such as the information systems, the logistics, the support services and the investment policies) and having access to the public mechanisms necessary to guarantee transparency, financial control and the equity of the services.

The ICS Board of Directors aims to effect a progressive transition from an ICS with the characteristics of an administrative body to an ICS Group formed by decentralized hospital subsidiary organizations and primary healthcare subsidiary organizations, which are self-managed and have their own legal personality. These organizations will be the property of the ICS, and therefore, exclusively publicly owned.

Pilot projects in Lleida and Girona

The progressive nature of this transformation process is a fundamental aspect of it, therefore the ICS Board of Directors has agreed to authorize the initiation of administrative procedures for the creation of two ICS subsidiary organizations with their own legal personality.

The hospital and the primary healthcare teams that will begin the pilot projects are Arnau de Vilanova University Hospital in Lleida and the set of 26 ICS primary healthcare teams in Girona. These centres have been chosen due to the greater ease they present for the purposes of assessing the model in terms of healthcare results and efficiency

once the situation of the environment in which they act has been assessed.

■ IDI to manage all of the ICS's radiodiagnosis and nuclear medicine services

The Institute of Diagnostic Imaging (IDI) is a CatSalut public company that for over two decades has been managing, administrating and executing part of the diagnostic imaging and nuclear medicine services for the ICS's hospitals. These services coexist with the ICS's own radiodiagnosis services.

The desire of the ICS and IDI boards of directors alike, is that the Institute of Diagnostic Imaging should be the organization that manages all radiodiagnosis and nuclear medicine services for the Catalan Health Institute, notwithstanding that it may also provide services to other organizations in the Catalan healthcare sector.

The objective is to achieve a comprehensive model for diagnostic imaging and nuclear medicine to provide a more efficient response to the diagnostic and therapeutic needs of the public. This new model must be competitive and sustainable; therefore, it must promote economies of scale and the best use of the experience and expertise of professionals and of resources alike, also allowing the expansion, renewal, and upgrading of the technological infrastructure of the ICS's hospitals and primary healthcare centres.

The new IDI will drive professional development, as it will allow all specialist staff, in both radiology and nuclear medicine, to have access to the same technology from the different care levels. It will also reinforce work in collaboration through teleradiology or second opinions from referral professionals, to make better use of the experience and expertise of the whole body of professionals.

This new configuration will also mean the adaptation of the offering in radiology and nuclear medicine to the specific needs of each region and an improvement in healthcare quality and in the service to the public.



■ Shared management, a strategic tool for managing resources from a regional perspective

The appointment of Dr. Jaume Capdevila as regional manager of the ICS in Lleida and manager of Healthcare Services Management and also of Dr. Vicenç Martínez Ibáñez as regional manager of the ICS in Girona and manager of the Healthcare Assistance Institute have marked the start of one of the institution's strategic projects for the coming years.



The project involves the setting up of shared management between the ICS and the public companies of Lleida and Girona, with the aim of creating the strategic alliances necessary to integrate the management of Arnau de Vilanova University Hospital and Santa Maria Hospital, firstly, and of Doctor Josep Trueta University Hospital and Santa Caterina Hospital, secondly, strengthening to a greater extent the management and optimization of healthcare resources from a territorial perspective. Each of the institutions maintains its own legal personality.

The desire is for this project to establish synergies, share healthcare protocols, work as a team, pool expertise and knowledge, and, in short, improve the quality, outcome, and accessibility of the healthcare services of the two largest public healthcare institutions in Lleida and Girona.

■ Electronic prescriptions now functioning at all ICS hospitals

All the hospitals and specialized care centres managed by the ICS are now using the [electronic prescription](#) module that the organization started to introduce in April 2012 with the aim of strengthening integration be-

tween healthcare services, generalizing the use of the electronic prescription and improving security in the prescribing of medication.

Vall d'Hebron Hospital was the first to complete the implementation of the module in all of its services in mid-June. In parallel, all the other hospitals (Josep Trueta, Germans Trias, Arnau de Vilanova, Verge de la Cinta, Viladecans, Joan XXIII and Bellvitge) have also progressively incorporated the electronic prescription. By 31 December 2012, a total of 182,086 new prescriptions had been generated, while 35,453 had been withdrawn and 2,837 had been modified.

The electronic prescription software that has been developed by the ICS is a shared work tool that will allow the professionals working in family medicine, paediatrics and nursing, specialists, pharmacists and other healthcare professionals involved in the healthcare process of a person to access their medication plan, which is unique to that person, and interact with it. All this, with the security measures necessary to guarantee patient confidentiality and the proper use of the data.

This electronic prescription module, integrated into the electronic case history both in primary healthcare and hospital care, shows, in real time, information on the patient's medication plan in a global manner (medications being taken, dosage, treatment duration, etc.), detects possible interactions or incompatibilities between medications and allows the modification or withdrawal of a prescription. The module also offers a messaging service between staff members that enables, for example, a family doctor to consult with a specialist or send a note to the pharmacy.

The most prominent new feature of this tool is that any change in the patient's treatment is automatically recorded in their medical history. The clinical safety offered by the electronic prescription is especially important in the case of patients presenting with various simultaneous chronic conditions who take many drugs, since they may suffer complications and require frequent changes in their medication.

This healthcare model also helps ensure that patients follow the prescribed treatment correctly, thus facilitating the prevention of new health problems, and it strengthens the coordination between healthcare professionals through networking and continuing communication between healthcare levels. In summary, it represents a very important step towards people-focused healthcare management, improving healthcare quality and contributing towards the sustainability of the system through the rational and safe use of medications.

STRATEGIC PROJECTS

This initiative, linked to the objectives of the 2011-2015 Health Plan, forms part of a much broader and more ambitious strategic project that the ICS has among its priorities: the strengthening of a collaborative model between primary healthcare – as a key player in the monitoring of the population's health processes – and specialized care based on the development and intensive use of clinical management tools.

■ 11 provider organizations of the public network now use ECAP at their primary healthcare centres

The primary healthcare clinical station (ECAP) is the computerized medical history program used by all healthcare professionals in the ICS's primary healthcare network. It is a tool that facilitates management of a patient's clinical data, offering a comprehensive view and support to clinical decision-making with a high level of safety and healthcare quality, and it provides information to professionals on the results of their activity. ECAP is integrated with Argos and with the shared medical history of Catalonia (HC3) and electronic prescription projects. Since it was set up in the year 2001, ECAP has introduced constant improvements and new functionalities that help professionals in the course of their healthcare work. During the year 2012, the Althaia Foundation has joined the other provider organizations that have already signed agreements with the ICS to implement ECAP as a work platform in the primary healthcare centres that it manages. These are the Social and Health Consortium of Catalonia (CSC Vitae), the Consortium for People Services of Vilanova i la Geltrú, the Castelldefels Health Agents Consortium, Albera Salut, the Salut Empordà Foundation, Healthcare Services Management, the paediatric line of the Primary Healthcare Consortium of the Eixample, the Healthcare Consortium of the Anoia, the Institute of Healthcare Assistance and the Sant Jaume d'Olot Hospital Private Foundation.

This represents a qualitative leap in the safety and quality of the care provided to users, since the majority of primary healthcare professionals have access to a patient's medical information, ordered and integrated in the same way, even if they are not working at an ICS centre.

Currently, nearly 19,000 healthcare professionals that work in the integrated public use healthcare system of Catalonia are making use of ECAP, which now contains over six million medical histories.

■ Rolling out of the Argos Project continues beyond the ICS hospitals

In the year 2012, the Argos Project expanded to Pere Virgili Health Park, a healthcare provider that maintains a close relationship with Vall d'Hebron Hospital. The system was successfully launched in the month of November, in line with the schedule and planned targets. With this incorporation, there are now twelve hospitals in the public network that have access to Argos: the eight centres managed by the ICS and Duran i Reynals Hospital, Santa Maria Hospital in Lleida, Pallars Regional Hospital and Pere Virgili Health Park.

The **extension of Argos** beyond the hospitals of the ICS allows the sharing of methodologies, tools and resources; favours efficient collaboration between healthcare providers and facilities; facilitates an integrated view of the patient and guarantees alignment with the Department of Health's healthcare, management and technological directives. Argos is inter-connected with ECAP and with the systems of HC3, electronic prescriptions and the central health insurance register (RCA), among others. In the specific case of Pere Virgili and Vall d'Hebron, having access to the same information system has substantially facilitated collaboration between the two centres, since sharing medical information on patients improves healthcare quality and access to integrated operating procedures has made possible efficiencies in the planning and rational assignment of healthcare resources.

■ Bellvitge and Germans Trias i Pujol hospitals launch the electronic prescription and administration of the blood bank

Furthermore, also within the framework of the Argos Project, Bellvitge University Hospital and Germans Trias i Pujol University Hospital have launched the electronic prescription and administration of the blood bank. This is a project developed together with the Blood and Tissues Bank to cover the complete management process of bags of blood, from the request for units from healthcare professionals at the different hospitals to the reception of the bags and their administration to the patient, in addition to the drawing up of the transfusion register. This functionality will be rolled out during the year 2013 to the rest of the ICS centres.

■ The ICS advances in the process of territorial unification of its clinical laboratories

This year, 2012, the ICS has continued advancing in the process of territorial unification of its clinical laboratories with the aim of optimizing the management of resources, improving economies of scale, integrating information systems and improving the efficiency of hospital and primary healthcare laboratories to enable them to be more competitive.

The project plans to reduce the number of laboratories from the current 12 to 6 territorial clinical laboratories distributed as follows

- Barcelona City: one laboratory located at Vall d'Hebron Hospital, which will group together the activity of the Hospital and that of Bon Pastor and Manso.
- Metropolitana Sud Area: one laboratory shared between two physical locations, Bellvitge Hospital (which will handle the activity of the Hospital and that of Just Oliveres) and Viladecans Hospital for emergencies.
- Metropolitana Nord Area: one laboratory shared between two physical locations, Germans Trias i Pujol Hospital and Dr. Robert.
- Tarragona and Terres de l'Ebre: one laboratory with two physical locations, at Joan XXIII Hospital and at Verge de la Cinta Hospital.
- Girona: one laboratory at Josep Trueta Hospital that handles the activity of Hospital and that of primary healthcare.



- Lleida: one laboratory at the Arnau de Vilanova Hospital that handles the activity of the Hospital and that of primary healthcare.

In the year 2012, the clinical laboratories of the ICS carried out more than 52 million analytical tests.

■ Self-management model consolidated in the ICS

In the year 2012, in addition to the eight hospitals, 205 primary healthcare teams followed the ICS self-management model. This model, which was piloted in 2009 among 10 primary healthcare teams with excellent results, has gradually increased its presence and will be implemented in 100% of primary healthcare teams and hospitals of the ICS by the end of 2013.

The model is based on professional empowerment, the decentralization of decisions, and a culture of accountability. Apart from good healthcare and financial results and the satisfaction for professionals that the model has demonstrated, its generalization is justified by its consistency with the CatSalut purchasing system and by the fact that it stands in line with the ICS reformulation project. The model's objectives focus on improving clinical results and patient satisfaction, increasing professional staff satisfaction through accountability and incentivization, attaching prestige and value to professional skills, improving the efficiency of resources and the rationalization of expenditure, adapting the organization of units to regional needs and creating a culture of capitation-based financing.

The self-management model includes tools such as an explicit management agreement and an individualized functional plan that allows greater autonomy in the management of both human and economic resources, with a detailed information system for the monitoring of clinical-healthcare and economic data updated monthly. As for the former, the possibility is envisaged of modifying the composition of the team, establishing the organization of work time, managing substitutions and formulating of the professionals' MBO targets by the unit's management. Also considered is the possibility of increasing income through invoicing of third parties or agreements and the reassigning of financial items according to expenditure needs. The possibility of enjoying a group incentive according to the results obtained in the assessment of the management agreement and the co-accountability in the management of the pharmacy budget with the assuming of risks complement the possibility for improving the results.

HEALTHCARE INNOVATIONS AND IMPROVEMENTS

■ ICS primary healthcare professionals identify patients with a higher risk of hospital admission

The ICS primary healthcare staff have access to a new support tool that allows the identification and classification of patients with chronic illnesses and a higher risk of hospital admission.

Thanks to this new application, primary healthcare professionals can carry out preventive actions with those patients presenting a higher risk of suffering two or more emergency hospitalizations. The application uses combined data from two sources. Firstly, the data provided by the Catalan Health Service (CatSalut) from the entire healthcare network of Catalonia and with which the hospital usage data of each user can be obtained according to his or her contacts with the healthcare system. And, secondly, the figures of the classification or stratification of the population based on its morbidity and severity according to the clinical risk groups (CRGs), which determine the state of health, level of seriousness and risk estimation for each user.

With the result of this statistical model, primary healthcare professionals can find out which of their patients present the greatest risk of suffering hospitalization of an emergency nature. Once each case has been analysed, the professional can initiate preventive actions of follow-up and monitoring necessary to control as accurately as possible those patients that require this. In other words, the professional has the possibility of carrying out monitoring of a preventive nature for people with a more fragile state of health.

Chronic illnesses are very much associated with the possibility of emergency hospital admissions and, in general, with a greater use of healthcare resources. In Catalonia, some 76% of patients that are urgently admitted two or

three times suffer from an important chronic condition (23,560) and the great majority suffer from more than one (some 79%, i.e. 18,375 patients).

Approximately 30,000 patients are admitted urgently twice or more in one year. Care for chronic patients aims to improve their health outcomes, satisfaction, and quality of life, and, at the same time, prevent as far as possible any emergency hospitalizations.

■ Completion of the implementation of a pioneering information system to manage the nursing care of hospitalized patients

The eight hospitals of the ICS have successfully completed the implementation of a new information system for the providing and management of nursing care for hospitalized patients, within the framework of the Argos Project for the computerization of patient medical records.

Thus, nurses and nursing auxiliary staff of all hospitalization units for short stays and of high complexity stays in the intermediate care units and the home hospitalization units of the ICS now have a computerized workstation that facilitates recording of the assessment and evolution of hospitalized patients, while giving support to the process of providing nursing care and administering medication. The benefits derived from its use are evident, since it guarantees clinical safety, continuity of care, and quality of care for the patient.

The introduction of the computer applications has been accompanied by the implementation of the Programme for the Harmonization of Care Plans at all ICS hospitals. This is a pioneering programme in Europe, and it aims to guarantee safety standards in the process of providing nursing services to hospitalized patients and to facilitate



both the adjustment of care plans to the clinical and personal situation of each patient and support for their family.

The implementation of this new information system represents an important improvement in the availability of information on care provision for ICS professionals. Doctors, pharmacists, physiotherapists, dieticians, and other healthcare agents that work in each of the hospitals have access to the consultation of data, which facilitates communication between professionals and access to the clinical information necessary at any given time.

But this new platform represents, above all, a decisive step towards comprehensive nursing care that is individualized for patients' needs and helps towards preventing the deterioration of health, promoting self-care, improving wellbeing and controlling symptoms, the prevention and early detection of infectious, nutritional, critical and psycho-emotional complications, as well as representing an advance in family-focused care models.

■ ICS hospitals set up a pre-operative virtual consultation that avoids duplication of complementary tests and face-to-face appointments

The anaesthesiology services of ICS hospitals now carry out a large part of their pre-operative consultations virtually. The introduction of new information systems has meant that all the clinical information on patients is available in a single repository and, therefore, there is better accessibility to the results of reports, analyses and complementary tests.

Thus, the service's nursing team analyses the need to perform complementary tests according to age, disorder, and type of surgery and, subsequently, decides whether the patient requires a face-to-face visit or a telephone consultation.

The first data on the activity of the new service reveal that, thanks to this new reorganization, there has been a saving of around 70% in requests for complementary tests (mainly chest x-rays, blood tests and electrocardiograms), with a reduction of 60% in face-to-face visits. This saving is due to the fact that numerous patients have already had tests carried out during recent months and, therefore, it is not necessary to repeat them.

Currently the virtual pre-op is already functioning at [Viladecans Hospital](#) for the majority of the 12,000 surgical interventions that are performed there each year (arthroscopies, inguinal hernias, bunions, septoplasties, cholecystectomies, and knee replacements, among others) and

at Bellvitge University Hospital, where it is applied for over 5,000 major outpatient surgery interventions and 8,100 endoscopies with sedation that are performed each year. In the case of the Outpatient Surgery Unit at Vall d'Hebron, located at Pere Virgili Health Park, the virtual pre-op has been functioning for the last two years. In 2012 over 5,800 virtual consultations were made (75% of the total) to carry out the pre-op assessment for all surgical interventions, except in cases where nursing staff decided that it was not appropriate or that the patients presented some kind of risk. As for Arnau de Vilanova University Hospital in Lleida, these pre-op assessments are functioning for patients who are to undergo a non-complex surgical intervention, such as minor gynaecological or traumatology surgery, breast interventions, cataract surgery or digestive explorations, and between 30 and 40% of users have benefitted from them. At Germans Trias Hospital, the Anaesthesiology and Recovery Department also launched its virtual pre-operative assessment service in 2012.

This system will start functioning in all ICS hospitals within a period of two years.

■ Over half a million users have now asked to receive information from their primary healthcare centre via SMS or email

The ICS's primary healthcare teams have incorporated the [sending of SMS](#) messages and emails into their everyday healthcare practice in order to inform users of the results of complementary tests such as analyses, cytologies, or eye fundus examination.



This messaging service, integrated into ECAP, allows professionals to communicate clinical data in a totally personalized, secure, consented, and confidential way, and it also allows mass sending of general data to inform

HEALTHCARE INNOVATIONS AND IMPROVEMENTS

people, for example, about the start of a flu vaccination campaign or other activities of interest to the general public.

Since the system was launched in late 2011, a total of 504,748 ICS users have given their consent to receive information from their primary healthcare centre via SMS or email. During this time, 11,908 SMS messages and 40,816 emails have been sent. A significant percentage of the messages have been sent from the Vallès Occidental primary healthcare teams, who were the first to introduce these new channels of communication with their users.

The ICS's aim is to generalize the use of this messaging service across the whole of Catalonia and also to send medication plans, diets, and other kinds of information that do not require a face-to-face visit and can avoid patients unnecessarily having to travel to health centres.

The idea is, in summary, to increase people's accessibility to primary healthcare services, improve the management of consultation with healthcare professionals and offer alternatives to face-to-face visits to provide a greater degree of satisfaction for users and added value to the relationship between healthcare professional and patient.

■ The sending of SMS messages with appointment reminders reduces missed outpatient appointments at ICS hospitals

In the year 2012, the ICS generalized the sending of text messages to the mobile telephones of users to remind them of the date of a scheduled appointment with hospital outpatient consultations. Thus, users who have a prior appointment receive an SMS that informs them of the hospital that they must visit, plus the date and

time of the appointment. A contact telephone number is also included in case any changes need to be made.

This SMS reminders service is carried out automatically from the clinical workstation shared by all the hospitals and allows messages to be sent to all users who have an appointment with a specialist. In the year 2012, the ICS hospitals sent nearly a million reminders, which achieved a reduction in the number of missed appointments in outpatient consultation services.

■ The ICS Pharmacotherapy Committee prioritizes 5 lines of work

With the aim of improving the information and communication of the decisions it makes and the consensus documents that it approves, the ICS's Pharmacotherapy Committee (CFT) has consolidated the circulation of the e-bulletin *TerapICS* to clinical professionals, pharmaceutical committees, hospitals, and management bodies.

During the year 2012, the committee also assessed a total of 25 new active ingredients, of which 17 have been approved for their inclusion in the ICS's *Guía farmacoterapéutica* (Pharmacotherapy Guide - GFT) under different usage criteria. A work group has also been created on safety in the use of medicines, which has been entrusted with producing a corporate proposal on safety in this sphere.

Moreover, a series of basic indicators for prescribing medicines have been produced and monitored. They measure, indirectly, adherence to the ICS's pharmacotherapy guide (GFT), improving reporting of serious and fatal adverse reactions, and promoting the implementation of the collaborative electronic prescription model in ICS hospitals. These indicators are: the recommendations of the CANM and the CAMAPC, ARA



II/(IECA+ARA II), recommended anti-ulcer drugs, recommended NSAIDs, recommended hypolipidemic agents, recommended non-insulin anti-diabetes drugs and the reporting of serious and fatal adverse reactions.

■ New advances in technological tools and prescription support systems

During the year 2012, the ICS's Medication Coordination and Strategy Unit continued paying special attention to the evolution and improvement of electronic prescription support tools, which endow ECAP with features for clinical safety, effectiveness, and efficiency. Along these lines, the PREFASEG, which acts interactively by alerting professionals about problems related with the safety of medications at the very moment they are prescribing a treatment, has generated 2.4 million safety alerts (two alerts given for every ten treatments commenced), of which 57% correspond to the detection of a possible therapeutic duplicity. The professionals accept the program's suggestions 29% of the time, including pharmacological overlap (35%) and allergies (26%).

The Self-Audit prescription module facilitates, for each doctor, the search for patients with a pharmacological problem related with the medications prescribed for them and helps the doctor change and/or suspend the medication. In the year 2012, in the safety area, there was a reduction of 36% in the number of existing therapeutic duplicities (38,814) in active patient prescriptions and there was also a 57% reduction in the number of patients with contraindicated medication that had a safety alert from the Spanish Agency for Medication and Healthcare Products. Thus, of 1,019 cases of patients that had aliskiren contraindications, 90% have been resolved, and of patients with citalopram (initial patients: 5,836) or escitalopram (initial patients: 7,791) contraindications, 55% have been resolved. In the efficiency area, Self-Audit has allowed the identification and proposal of 46,236 changes of medication for patients for whom a more economical therapeutic equivalent is available.

The Electronic Therapeutic Guide (@GT) is a tool that offers a set of standard recommended treatments based on scientific evidence for acute health problems, in both adults and paediatrics, which have been prioritized according to their complexity and/or frequency of occurrence in primary healthcare.

During the healthcare appointment, the doctor accesses the @GT, identifies the health problem and chooses the specific scenario of the disorder, while the tool, for its part, contextualizes the treatment in line with the patient's characteristics. Automatically, the prescription

is sent to the Integrated Electronic Prescription System (SIRE) and the health problem is recorded at the clinical workstation. During the year 2012, the @GT was accessed 201,899 times, and in 18% of these accesses, a prescription was produced.

■ Clinical reminders for primary healthcare professionals improve control of chronic patients by 20%

The ICS's ECAP has incorporated a new reminders tool to improve the control of chronic patients. The project, developed by the Primary Healthcare Services Information System (SISAP), also assesses its impact on the improvement of healthcare quality. From February to July 2012, the SISAP carried out a pilot test to analyse the efficacy of this system. The clinical trial involved the participation of some 7,000 healthcare professionals from 272 ICS primary healthcare teams, generating nearly a million reminders relating to some 700,000 patients. After five months, the study showed an increase of 20% in preventive and therapeutic actions in the study group that was already receiving these alerts.



Due to the good results obtained, this new ECAP application has now been active in all ICS EAPs since the summer. The clinical reminders appear in the patient's medical history coinciding with his or her appointment at the centre, and aid the healthcare professional in implementing actions that offer more accurate control of people with one or more illnesses, such as heart failure, ischemic cardiomyopathy, ischemic cerebrovascular disease, diabetes mellitus type 2, and arterial hypertension. For example, the family medicine or nursing professional can receive an alert to activate the taking of a medicine or to request a diagnostic test. Along the same lines, the system pays special attention to the implementation of preventive activities such as quitting smoking or certain vaccinations.

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The SISAP information system provides detailed information on healthcare activity in over 60 clinical processes and lists of patients where it detects healthcare actions that are pending. The success of the setting up of the clinical alerts service shows the potential that lies in making clinical information easily accessible to professionals and reinforces the need to evaluate information technologies as a key element in healthcare quality.

This initiative has received an award as an innovative experience at the 5th Conference on Innovation in Primary Healthcare, organized by La Unió (Association of Healthcare and Social Organizations) and the Health and Social Consortium of Catalonia, within the category of Best Innovative Experiences.

■ The ICS International Health Programme is launched

The ICS has launched its International Health Programme (PROSICS) with the aim of integrating the units already existing in Catalonia and their expertise in the fields of the healthcare and vaccination of the international traveller and of the treatment of imported diseases.

In an environment of constant and growing international exchanges and movements of people, whether they are travellers, aid workers or immigrants, the implications derived from this phenomenon in the health area have made it advisable to apply specific preventive measures and set up and reinforce specialized units that, when necessary, deal with imported diseases.

PROSICS has ten international health units distributed around the region: Drassanes and Vall d'Hebron in Barcelona; Anoia, Bages-Berguedà and Osona in Catalunya Central; Eixample in Lleida; Santa Coloma de Gramenet in the Metropolitana Nord Area; Camps Blancs and Bellvitge in the Metropolitana Sud Area and Verge de la Cinta Hospital in Terres de l'Ebre. In addition to their healthcare activity, all these units have carried out numerous teaching and research activities.

■ The postnatal monitoring programme is extended via the Internet to the whole of Catalonia

The ICS has started to offer monitoring during the postnatal period via videoconferencing (using Skype) at all the ASSIRs. This initiative has been very well received in a pilot test conducted with over 1,500 women who had recently given birth. The project is led by midwives, who are responsible for offering an accessible service from

Monday to Friday in both the morning and the afternoon.

One of the strong points of this system is that, thanks to the videoconferencing service, women who have recently become mothers avoid having to travel to the healthcare centre due to any queries that they have that do not require a face-to-face visit, such as those related with breastfeeding, the baby's behaviour and postnatal discomfort.

The implementation plan began at four centres in the Vallès Occidental and Vallès Oriental (Sabadell, Cerdanyola, Granollers and Mollet), thirteen centres in Barcelona City and one centre in Catalunya Central. With this expansion of the programme, the ICS puts the service within reach of some 12,000 women treated in the Vallès Occidental and Vallès Oriental, 6,800 women in Barcelona City and over 300 in Berguedà.

The procedure for accessing this service is very simple: when a user wants to contact the midwife, she advises her via Skype. If the midwife is available, she will get in touch immediately to attend to the consultation, and if it is not possible to establish communication, the midwife sends a message, also through Skype, to agree the time of the videoconference. The user, if she prefers, can also contact immediately with the duty midwife.

■ Germans Trias, Vall d'Hebron and Bellvitge create a single rota system to treat stroke

Vall d'Hebron, Bellvitge, and Germans Trias hospitals are the ICS tertiary centres that perform highly specialized treatment for stroke patients. The three have angiography units open 24 hours a day that allow the treatment of strokes caused by blood clots through the introduction of catheters that re-establish the permeability of the cerebral arteries. They are, together with the rest of the organization's hospitals, the referral centres for 30 hospitals in their catchment areas and cover the healthcare needs of 70% of the population of Catalonia.

In the year 2012, following the guidelines established by the Health Department's Master Plan for Cerebral Vascular Disease, the three centres have come to an agreement to create a **shared and coordinated rota system** during nights and weekends. Thanks to the new system, on every duty shift, there are two interventional neuroradiologists, and two neurologists ready to attend patients with acute ischemic strokes at any of these three centres. Furthermore, they work in coordination with the district hospitals and with the rest of the ICS hospitals with

respect to the referral of patients and Teleictus, which consists of using ICT connections for the distance assessment of patients.

All this constitutes an alliance that will make possible the assessment of some 500 patients per year and the treatment of some 200 using catheterization with the ultimate aim of cutting down on the time it takes to treat them and integrating the human and technical resources necessary so that each patient receives the best treatment possible regardless of his or her location.

■ **Joan XXIII, Josep Trueta, and Arnau de Vilanova extend the timetables of their haemodynamics units**

Since 15 October 2012, the hospitals Joan XXIII in Tarragona, Josep Trueta in Girona and Arnau de Vilanova in Lleida have extended the timetables of their haemodynamics units and provide primary angioplasty services 12 hours per day, seven days a week. The aim of this expansion is to improve accessibility to primary angioplasty with a shorter timer interval.

Heart attack is an important cause of mortality/morbidity. In Catalonia, there are some 6,500 cases per year and it is calculated that close to 40% of these (some 2,900 per year) are acute myocardial infarctions with ST-segment elevation (IAMEST). This type of heart attack is characterized by causing a total obstruction of the blood flow and is responsible, therefore, for a very important part of the global mortality attributed to heart attack. Thus, prompt medical action as quickly as possible by administering a reperfusion treatment to the blocked vessel is

vital for survival and to minimize the sequelae of affected patients. In order to optimize the healthcare circuits for emergency treatment of IAMEST, on 1 June 2009 the Heart Attack Code was launched in Catalonia.

The Heart Attack Code is an emergency action protocol for the treatment of IAMEST that includes the organized and coordinated activation of a series of healthcare mechanisms that allow emergency treatment during the acute phase of the illness when it is suspected that a patient may be suffering a heart attack and is a candidate for immediate reperfusion. In patients with IAMEST, the ideal treatment according to clinical practice guides is primary angioplasty. Through the programme, any patient alerting the healthcare system (112/SEM, emergency services of district or tertiary hospitals, CAPs or CUAPs) due to precordial chest pain and diagnosed with IAMEST is treated.

Since the introduction of the Heart Attack Code, the proportion of patients with heart attacks that have received some kind of reperfusion treatment has increased, especially with respect to optimum treatment (primary angioplasty). According to preliminary data from the Heart Attack Code Register and the 30-Day Mortality Survey, there has been an obvious reduction in the related mortality rate.

■ **Primary healthcare teams incorporate ultrasound machines for consultations**

The ICS remains committed to increasing the resolution capacity of primary healthcare teams and providing better care for patients. Thus, 20 primary healthcare



centres now have an ultrasound machine that allows them to improve their diagnostic capacity in low-complexity processes such as renal or hepatic colic.

Ultrasound scanning is a diagnostic test that is totally harmless for the patient, since it emits no radiation, and it has a high resolution capacity. The first studies carried out at the primary healthcare centres have been, above all, for abdominal and renal conditions. Primary healthcare professionals can also carry out virtual consultations with radiologists and other specialists if any doubts arise.

To be able to use the ultrasound machines with maximum precision, family doctors that use them have followed a specific regulated training course and application of ultrasound scans at the primary healthcare level, which improves the diagnostic capacity in the more habitual cases that present at patient appointments.

The incorporation of ultrasound machines into the primary healthcare network, which will gradually be expanded, responds to the targets set by the 2011-2015 Catalonia Health Plan, since it affords this healthcare level a greater capacity for case resolution and improves, at the same time, diagnostic accessibility for users. All this means an increase in satisfaction for users, who avoid unnecessary travel and have greater access to diagnostic tests, plus greater professional development for family doctors through the learning of a new diagnostic technique, as well as an improvement in the efficiency of radiologists' time, which can be allocated to more specific and complex tests.

■ Telemedicine is extended to Catalunya Central

Catalunya Central is continuing, with the collaboration of district hospitals from the region, with the rolling out of telemedicine through the services of [teledermatology](#), [teleophthalmology](#), [telepulmonology](#), [teleulcers](#), and [telemonitoring](#).

The year 2012 saw completion of the rolling out of the [teledermatology](#) service in the entire territory of Anoia, Bages (nearly 30% of appointments have been effected virtually, as opposed to 5.5% in 2011) and Berguedà. In the case of the SAP Bages-Berguedà, it has been possible to eliminate the waiting lists for this speciality. With respect to [teleophthalmology](#), at the CAP Anoia and the CAP Berga, periodic exploration of the fundus of the eye has begun for diabetic patients using the reading of the non-mydratic fundus camera.

For its part, [telepulmonology](#) has been rolled out in Bages-Solsonès with the aim of primary healthcare pro-

fessionals being able to request assessment of chest x-rays and spirometry results by the specialist, as well as being able to make consultations on any aspect of the management of respiratory diseases. Consultations are made via the Bages-Solsonès Capitative Platform, which allows spirometry results to be included along with access to the x-ray images of patients.

The year 2012 also saw the commencement of the first works in [telemonitoring](#), a pilot programme for managing chronic diseases, while the [teleulcers](#) service is used to send images of ulcerous lesions to the vascular surgeon via ECAP.

All the telemedicines follow an agreed circuit for each region and its referral hospital: the images, which are attached to each patient's medical history, are sent, and a distance appointment is programmed with the specialist consultant, who responds to the primary healthcare professional with the diagnosis and the treatment. In urgent cases, consultation via email is used.

■ The ICS in the Metropolitana Nord Area implements a plan to improve healthcare attention to users of geriatric residences

The Metropolitana Nord Area Primary Healthcare Regional Management has set up the [GeriatrICS Project](#), the aim of which is to offer, from the public health system, comprehensive and quality healthcare to residents at geriatric centres. The project reorganizes the care and pharmaceutical service model of the 198 geriatric residences in Vallès Oriental, Vallès Occidental and Barcelonès Nord - Maresme with the aim of managing to attend to 9,000 geriatric patients in this zone in a comprehensive way that focuses on their needs, through the adaptation of treatments in accordance with criteria of safety, efficacy and efficiency that this group of patients requires.

GeriatrICS aims to achieve greater speed in treating exacerbations of illnesses in elderly people; to improve the capacity for treatment of decompensations; to strengthen nursing skills for treating chronic patients; to offer, as a complement, distance communication; to improve the response of all primary healthcare mechanisms to the health needs of patients admitted to hospital and to lead the medication plan from primary healthcare, in a coordinated way with the residences. It also envisages establishing connection terminals at the residences so that their healthcare teams can use them to consult the electronic medical history, which constitutes an evident improvement in patient safety.

■ The Programme of structured monitoring for patients with heart failure and/or COPD reaches 52 EAPs in Barcelona

The Programme of structured monitoring for patients with heart failure and/or COPD has been introduced at 52 primary healthcare teams in Barcelona City. For this, 204 professionals have been trained, and they are in turn responsible for training the rest of the professionals of their reference EAP. This programme focuses on people who suffer one of these diseases or both, contributes towards improving the monitoring of the chronically ill patient and towards standardising it in the EAPs of the territory, and modulates the demand for healthcare by offering more contact with fewer appointments, while at the same time giving more accessibility to the user.

According to the Health Survey of Catalonia 2010, some 62% of Catalan people aged over 65 years suffer from at least one chronic illness, they cause 80% of appointments in primary healthcare and 60% of hospital admissions and consume 70% of the healthcare spend. In the Primary Healthcare Sphere in Barcelona City, nearly 50% of the assigned population served has at least one important chronic illness.

With the implementation of this programme, the Barcelona Sphere aims to assess the effectiveness of structured monitoring in patients with heart failure and/or COPD and observe its impact on the self-management and self-care of their illness (patient or carer), the perceived quality of life and the use of resources (primary healthcare and emergency services and hospitalizations).

The objective of the first level of intervention is to work on the capacity for self-care and self-management by the person (or carer) with relation to their health problem. The second level of intervention also proposes reducing



episodes of decompensation with hospital admission, by being proactive in the early detection of complications and being able to respond to any that arise.

The monitoring of patients is oriented and structured with the recording and support tools integrated into ECAP: monitoring sheets, new computerized clinical practice guides, and care plans. The objective consists of being able to respond to the patient's clinical state (clinical variables), what the patient is doing to improve the control and management of his or her illness (variables being education, adherence or compliance) and how the patient feels (quality of life).

■ Bellvitge practices an innovative incision-free endoscopic intervention

Bellvitge University Hospital has performed for the first time in Spain a new surgical intervention that allows a reduction of obesity and control of diabetes. It is called an endoluminal endoscopic bypass, which consists of placing a device like an interior coating in the small intestine through an endoscopic intervention that lasts no longer than thirty minutes. It is a procedure indicated for obese patients who are also diabetic, above all those who present moderate obesity type 1 or diabetes mellitus type 2 with difficult glycaemic control.

The duration of the treatment is one year and at the end of that year patients have experienced an improvement in glycaemic and haemoglobin A_{1c} levels with a weight reduction of up to 20% according to existing experience. At the end of the twelve months, the device is removed via endoscopy and the patient is discharged the same day. Since this is an endoscopic procedure, no incisions or wounds in the abdomen are required.

From the first intervention, Bellvitge Hospital set up a programme for the regular performing of this kind of procedure. It has a very low complication rate, therefore it is a safe and reliable technique.

■ Vall d'Hebron Hospital successfully separates conjoined twins joined at the abdomen and liver

A multidisciplinary team at Vall d'Hebron University Hospital in Barcelona has successfully separated conjoined twin girls aged seven months who were born joined at the abdomen and shared a liver. The operation, which was performed on 27 February 2012, lasted under seven hours and the girls were able to go home just a week later.

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Núria and Marta were born on 10 August 2011 at 32 weeks' gestation. The malformation had been diagnosed at 12 weeks in the ultrasound scans habitually carried out during pregnancy. It was decided to carry out a planned caesarean section to guarantee the survival of the fetuses and avoid the foreseeable complications during delivery for the mother.

After their birth, and despite being joined at the abdomen, their evolution during the neonatal period was very favourable. After a first detailed study of the case and after checking that they could feed and grow normally, they went home to await the best time to perform the separation surgery, to ensure the utmost minimization of risks during the procedure.

During this time, morphological and clinical studies of both girls were carried out that determined that the only vital organ that they shared was their liver, although this was not an absolute certainty until the operation itself. The same studies were carried out for other organs, such as, for example, the intestines. The surgeons knew in advance that the girls each had their own digestive system, but despite having highly detailed radiology tests, it could not be totally guaranteed that the root of the intestine was not shared. Once on the operating table, the intervention went smoothly without any unexpected complications.

Before operating on the girls, the specialists in paediatric plastic surgery defined precisely the best place to make the incision, an important concern since at the same time that the incision was made in the best place to perform the subsequent separation of the viscera and a hepatectomy (dividing of the liver), it also needed to make available a sufficient amount of skin of high quality to achieve cutaneous closure and closure of the abdominal wall of the girls without the need to use artificial implants.



Once separated, just two hours after the start of the operation, Núria remained in the same operating theatre and Marta was transferred to the adjoining operating theatre. The group of four paediatric surgeons split into two to carry out the muscular and cutaneous closure of both girls separately.

Vall d'Hebron University Hospital in Barcelona has had a multidisciplinary foetal surgery programme for ten years. It is co-directed by a paediatric surgeon and an obstetrician, and through it, a large number of congenital foetal malformations are diagnosed and subsequently treated following weekly debate by a committee formed by specialists in obstetrics, paediatric surgery, neonatology, genetics, radiology, pharmacology, and epidemiology.

■ HUVH achieves a reduction of 75% in premature births in high-risk pregnancies with the use of a simple pessary

The pessary is a simple and economical silicon ring that is non-invasive and easy to place and remove. It is inserted, via the vagina, to sit around the cervix, without surgery. Some 95% of women who have used a pessary would recommend it to other at-risk pregnant women.

Prematurity is the leading cause of death in the first month of a baby's life, so a premature baby has a probability of dying 180 times greater than that of a foetus that has been carried to full term. The prematurity rate in Spain is 8%. A study led by Vall d'Hebron and published in *The Lancet* is a crucial step towards reducing premature births and their sequelae.

This study has demonstrated a significant reduction in premature birth (almost 30% in women who had a pessary versus a 6% reduction among those not using one) before 34 weeks of gestation.

■ Barcelona's primary healthcare reviews polymedication of elderly patients

In mid-2012, the Medication area of the Primary Healthcare Sphere of Barcelona City, in coordination with the physicians at primary healthcare centres, began a project addressing the problem of polymedication in the elderly population. The data show that 3% of the population, i.e. 30,000 residents in the city of Barcelona, takes more than ten daily drugs.

The prescription reduction methodology, based on the epidemiology of the problems related with medication, is individualized and based on clinical criteria. It consists

of a standardized and planned withdrawal of chronic medication to avoid poly medication associated with adverse side effects.

This initiative has two components, the first targeting four classes of drugs: hypolipidemic agents (cholesterol treatment) in patients over 85 years; bisphosphonates (for osteoporosis treatment) after five years of treatment; omeprazole in people with no risk of bleeding, and cholinesterase inhibitors (for the treatment of dementia) for a period exceeding two years in patients with advanced disease.

The second component, focused on the primary healthcare services of Litoral-Esquerri in Barcelona, is aimed at patients aged over 65 who take more than ten drugs per day. In this case, a survey with different concepts was designed in which each healthcare professional individually reviewed his or her patients' medication plans: reason, duration, and effects of the medication. The main objective of this intervention is that elderly and poly medicated patients are properly reviewed and their medication updated, thus helping to improve the primary healthcare outcome.

■ Joan XXIII Hospital applies a new non-surgical treatment to relieve hand contracture

The Trauma Service at Joan XXIII University Hospital in Tarragona has begun to treat the inflammatory process involving fibrosis of the palm and known as Dupuytren's contracture through the use of *Clostridium histolyticum* collagenase injections, which degrade the collagen cord

that causes rigidity of the palm and fingers. This disease causes progressive contracture of the palm until it leads to retraction of the fingers, i.e. deformation of the palm tissue responsible for protecting the nerves and tendons.

This treatment has several advantages, as it does not require surgery and recovery is quicker since no wound dressing is required, which means that return to work is also faster. During 2012, a total of 36 treatments were performed.

■ Verge de la Cinta Hospital in Tortosa expands its portfolio of services with paediatric surgery

The ICS in Camp de Tarragona and Terres de l'Ebre has worked in collaboration and with coordination between Joan XXIII University Hospital in Tarragona, Verge de la Cinta Hospital in Tortosa and Sant Joan Hospital in Reus to improve access to surgery for children. The Tarragona hospital's paediatric surgeons travel to Terres de l'Ebre and Reus in order to expand the portfolio of services at both hospitals with the paediatric surgery speciality aimed at children aged between 2 and 15 years.

The paediatric surgeons from Tarragona coordinate with professionals in paediatrics, nursing, anaesthesia, and general surgery at Verge de la Cinta Hospital and Sant Joan Hospital in Reus in order to prepare the surgical interventions and carry out preoperative and follow-up appointments, which take place in the outpatient department.



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■ ICS centres promote new strategic alliances with other organizations

In 2012, Institut Guttmann – Hospital for Neurorehabilitation and Germans Trias i Pujol University Hospital signed an agreement for the creation of two functional units: one for neurourology and other for paediatric neurorehabilitation. Thus, patients at Institut Guttmann are visited, when necessary, by urologists and paediatricians from Germans Trias who travel to the neighbouring centre, or, where applicable, they are referred to the Hospital. This strategic partnership offers benefits to patients, who receive treatment of a higher quality that is more efficient, and to professionals as it enables them to share knowledge, expertise, and complementary skills in order to provide highly specialized clinical services.

For its part, Vall d'Hebron University Hospital, Vall d'Hebron Research Institute (VHIR) and Cedars-Sinai Medical Center are collaborating in the areas of technology transfer and innovation thanks to an agreement signed between representatives of both institutions. Cedars-Sinai Medical Center has developed a successful technology transfer programme with standard policies, processes and documents to identify, detect, assess, protect and commercialize advances developed by its researchers. Cedars-Sinai Medical Center will assist VHIR in intellectual property protection and the commercialization of this centre's technologies.

In Terres de l'Ebre, Verge de la Cinta Hospital in Tortosa (HTVC) has signed an agreement with Santa Creu de Jesús Hospital (HSCJ) which represents an improvement for patients with acute and chronic renal failure admitted to HTVC. The HSCJ's Nephrology Service was the referral service in Terres de l'Ebre for this condition and patients requiring haemodialysis had to travel there, but since September, it is the HSCJ's nephrologists who travel to the Intensive Medicine Unit at HTVC to perform haemodialysis sessions for high-risk patients or those who may present complications when being transferred.

The ICS in Girona and the Sant Jaume Hospital Foundation in Olot have created a single paediatric team to provide a service for all children aged 0-14 years in the Garrotxa region. The new Garrotxa Regional Paediatric Team (EPT) provides attention through primary healthcare and the Hospital alike, improving the continuity of patient care and bringing treatment closer to children's natural environment, their community. This EPT serves the catchment population of the basic health areas of Sant Joan les Fonts and Vall d'en Bas, managed by the Sant Jaume Hospital Foundation of Olot, and the Olot and Besalú

basic health areas (ABS), managed by the ICS, in addition to the regional hospital.

In 2012, an agreement was also established for joint action in the emergency healthcare process between the EAP of La Seu d'Urgell and the Emergencies Department of the Sant Hospital Foundation (FSH). The aim of this collaboration is interaction between the area's reference points to ensure continuity of care for users, according to their needs, with emergency care at the most appropriate level depending on the complexity, the morbidity, and the resources available at each centre.

■ EAP Les Corts joins the Primary Healthcare Consortium of the Eixample

In 2012, the Les Corts Primary Healthcare Team joined the EAP Casanovas and EAP Comte Borrell. The result of this union, the Primary Healthcare Consortium of the Eixample (CAPSE) now has a total of 230 professionals and covers a population of 100,000 inhabitants.

One of the contributions of EAP Les Corts, which will be extended to the rest of the EAPs, is the incentivized professional self-management programme, based on the application of a new method of professional self-management in the primary healthcare setting. The success of this project, launched in February 2009, has led to improved efficiency and customer service, increasing both patient satisfaction and that of healthcare professionals.

■ The Castelldefels Health Agents Consortium improves diagnostic and therapeutic resources

With the aim of improving accessibility and outcomes in order to respond to the needs of the people of Can Bou and, in general, of the entire town of Castelldefels, the CASAP has maintained and improved its diagnostic and therapeutic resources.

Thus, firstly the CUAP Castelldefels has acquired haematology, biochemistry, and troponin tests equipment that will allow an improvement in the diagnosis and assessment of the state of exacerbation of chronically ill patients and automatically transfer this information to ECAP. In this area, 260 patients were treated.

Secondly, the CAP Can Bou has expanded its minor surgery and allergy studies activities, attending to 281 new patients and performing 142 checks.



■ The ICS expands its presence to the social media networks

In late 2010, the ICS made a strategic commitment to build an institutional presence on social media networks and new channels for communication that connect quickly and directly with the public and with healthcare professionals. Today, the organization is fully immersed in these spaces for communication, connectivity, participation, and knowledge sharing that are provided by the social media networks and by December 2012 it had ten Facebook pages, 15 Twitter accounts, and 16 thematic and territorial blogs.

By late 2012, the ICS corporate profiles had thousands of followers: over 2,600 on [Facebook](#) and more than 4,000 on [Twitter](#). The ICS also has channels on [Youtube](#), [Slideshare](#) and [Flickr](#).

All of the accounts and pages opened follow the recommendations of the *ICS Usage Guide and Recommendations on Social Networks*, available to all ICS healthcare professionals and already in its third edition. This document describes the main features of each of the selected social networks, the most appropriate communication guidelines and criteria for managing content, resources for optimizing channels, information on author copyright and, ultimately, all the recommendations and good practices necessary for a successful institutional presence on the social media. Some research institutes linked to ICS hospitals and primary healthcare centres are also present on the social networks. Thus, the Institute of

Biomedical Research of Bellvitge and Vall d'Hebron Research Institute both have profiles on Facebook and Twitter (@idibell_cat and @VHIR_) while the Germans Trias i Pujol Institute for Research in Health Sciences and the Jordi Gol Primary Healthcare Research Institute have accounts on Twitter (@gtrecerca and @idiapjordigol)

■ Launch of Diagnosticat, a new website providing information in real time on infectious diseases

The ICS has launched [Diagnosticat](#), a new website that allows weekly monitoring of the evolution of the main infectious diseases detected at health centres, such as influenza, chlamydia infection, enteritis and diarrhoea, scarlet fever, genital herpes, papillomavirus and chick-enpox, among others.

The data available for consultation on Diagnosticat refer to a population of nearly six million users and correspond to records on health problems collected by ECAP, the computerized medical record system used by all ICS primary healthcare teams and other provider organizations. Currently, 80% of the population of Catalonia is assigned a primary healthcare team that works with ECAP.

The information offered is separated by health regions and, in some cases, by basic health areas. It can also be consulted by age or globally.

In the case of influenza, Diagnosticat allows visualization of data through epidemic curves with weekly rates and population pyramids. Furthermore, during the flu season, the website has a specific space that includes vaccination coverage and the daily evolution of diagnoses.

Diagnosticat is an open data project aimed at both the general public and at health professionals, managers, epidemiologists, and researchers. The former are allowed access to transparent information linked to health outcomes, both in the context of Catalonia and for each basic healthcare area in particular, and the latter are offered a tool for quick and immediate management of epidemiological information that enables more careful organization of resources and improved activity planning.

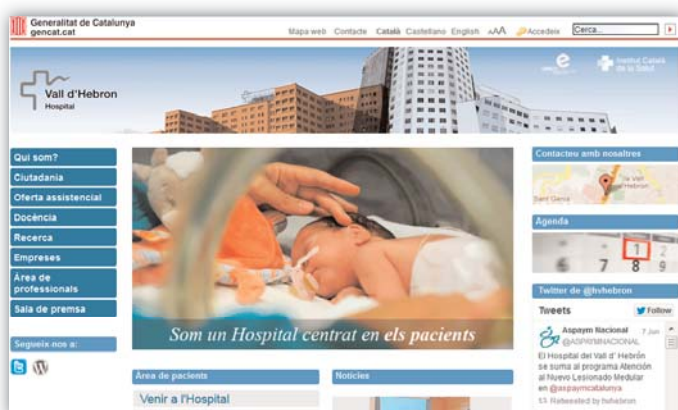
The data calculation shown by Diagnosticat is based on automated and anonymous processes, with data protection guaranteed as at no time is access given to any personal information.

■ Vall d'Hebron launches its new website

With the aim of providing faster and more modern channels for communication to healthcare professionals and the public, Vall d'Hebron Hospital set up a new website (www.vhebron.net) in mid-July. Between July and December, it received 724,193 visitors who viewed over 1.5 million pages.

From the point of view of communication with the general public, it is worth noting that Vall d'Hebron has received 1,250 inquiries and suggestions via the web, most of them from the hospital's patients as well as from people who wanted to access the job vacancies section and those interested in educational topics.

The new website is not only aimed at professionals and the public in the hospital's catchment area, but it holds interest beyond the Catalan sphere, since of the 724,193 visitors, 18,033 were from outside Catalonia and 13,489 from outside Spain.



■ Barcelona's primary healthcare professionals promote virtual communities for the most prevalent disorders

During 2012, the Dreta and Litoral primary healthcare teams of Barcelona consolidated the use of virtual communities in a collaborative work environment involving professionals from different healthcare levels.

The online communication tool between primary healthcare and referral hospital (ECOPIH), which already has 456 members and 33 specialties, has implemented a virtual platform with web 2.0 technology that allows fast and flexible interaction and communication between primary healthcare and specialist care professionals, while simultaneously enabling queries to be made regarding clinical cases and the sharing of knowledge.

ECOPIH was launched in 2010 at the Badalona-Sant Adrià de Besòs primary healthcare service and in the last quarter of 2011 it was launched at the SAP Dreta in Barcelona, where it now has 170 members and 15 specialties. Its participants are 13 primary healthcare centres, each with their own respective specialists and referral centres. A year after its launch, 100 cases have been consulted using the tool and 30 documents have been shared.

Each specialty has a group with access to various tools: a forum (to consult about cases without identifying the patient), repositories of documents or images, and a blog. A consultant specialist responds regarding the case, although all members can participate in discussions, share documents, and participate in the blog.

■ Pedia_Trias, new virtual work community for the paediatricians of Germans Trias and its catchment area

The paediatricians of Germans Trias Hospital have created a new virtual community, called Pedia_Trias, open to all doctors working in the paediatrics speciality at hospitals and primary healthcare centres in Barcelonès Nord and Maresme. With it, the Hospital's paediatrics team aims to concentrate expertise and experience in a single platform to share knowledge and coordinate work with the professionals of the other centres. On Pedia_Trias, contents are entered from clinical sessions held at the hospital and knowledge and opinions concerning cases can be exchanged, while always preserving patient confidentiality. Under this initiative, in 2012, monthly sessions started with the title "Paediatrics Live" involving paediatricians and paediatric nurses from the primary healthcare and hospitals of Barcelonès Nord and Maresme.

■ The Sexe Joves website becomes part of Canal Salut

During 2012, the sex and relationships website *Sexe Joves*, aimed at young people aged 14-24 years, became a part of the Canal Salut health channel. In this new phase, the ICS continues managing the updating of contents and the organization of and attention to virtual consultations via email and chat. The email virtual consultation is staffed by 57 ASSIR professionals (midwives, psychologists, nurses and gynaecologists), 365 days a year, while four midwives look after the chat section six days a week (Monday to Saturday). The website has an editorial board made up of professionals from the Department of Health, the Catalan Youth Agency, Casal Lambda, and the ICS.

■ The ICS centres participate in the implementation of the Health Department's patient safety plan

The culmination of this project is the implementation of a reporting system for adverse events in order to reduce preventable healthcare errors and to analyse and plan relevant improvement actions to avoid any recurrence.

During 2012, the ICS primary healthcare teams have identified all projects to improve the safety of patients that are underway, have responded to the MOSPS questionnaire on the patient safety culture and have cascade-trained the majority of healthcare and non-healthcare staff. Complementing all these actions, the EAPs have assessed and implemented improvement actions in relation to the 33 mandatory compliance standards in patient safety that a group of experts, led by the Department of Health, have identified and approved by consensus based on a self-assessment tool, the Health Department's Accreditation Model (MADS).

Since July, and in line with the objective of implementing the patient safety culture as an essential prerequisite for quality care, ECAP has incorporated messages in this respect that change every month.

As regards hospital care, quality managers at the centres and services quality managers have been trained in patient safety in order to proceed to change the system of adverse event reporting. Throughout this process, the hospitals have made an assessment using the EFQM model and based on this they have developed a patient safety programme to be rolled out in 2013.

It is also important to highlight that all ICS hospitals have conducted a self-assessment, with excellent results, using the Health Department's accreditation tool in order to prepare for the reaccreditation of acute hospitals that will be carried out in 2013.



■ The ICS achieves 3 new ISO 9001 quality certifications

In 2012, three diagnostic imaging services (SPDI) were accredited in Barcelona City: Sant Antoni M. Claret, Sant Andreu, and Numància. These centres received a quality certification that evaluates equipment safety and different organizational and management aspects.

Hospital services that received ISO 9001 accreditation this year were the Trueta Hospital Pharmacy Service, the Bellvitge Hospital Suggestions and Complaints Unit and the Lleida Regional Clinical Laboratory.

These accreditations increase the number of ICS ISO quality certifications, making the ICS the healthcare services provider with that greatest number of certifications in primary and hospital healthcare alike, in all its lines of activity.

■ The Montornès/Montmeló Primary Healthcare Team obtains the best score for its standard of healthcare quality

In 2012, the EAP that obtained the highest EQA score was the EAP Montornès/Montmeló, with a total of 941 points out of a possible 1,000. It was followed by EAP Nord (922), EAP Viladecans-2 (916), EAP Sant Boi-3 (906), EAP Sant Boi-4 (903), EAP Can Vidalet (899), EAP Canovelles (896), EAP Concòrdia (895), EAP Florida Nord (893), and EAP Badia (885).

■ The Breast Unit of Arnau de Vilanova University Hospital, accredited as a unit of excellence

The Breast Unit of Arnau de Vilanova Hospital is the referral centre for the province of Lleida that attends to all women and men who are diagnosed with breast cancer or disorders that require specialized attention. Currently the Unit is formed by eighteen professionals from different specialities that work in the diagnosis and treatment areas. The Spanish Society for Senology and Breast Disease (SESPM) demands compliance with ten quality standards corresponding to international societies of prestige (European Society of Mastology, Program of Breast Cancer Centers Accreditation in the United States and the Senology International Society) and the offering of high-level healthcare services in order to award unit of excellence certification.

■ The Government awards the ICS a Josep Trueta plaque

In 2012, the Catalan Government agreed to recognize fourteen individuals and six organizations with Josep Trueta medals and plaques for their significant contribution to the advancement and improvement of healthcare. These awards were created by the Government in 1997, coinciding with the centenary of the birth of the renowned Catalan physician and scientist.

On this occasion, the ICS received a plaque in recognition of its institutional record of accomplishment and Dr. Joan Viñas, chair of the Board of Directors, collected the award at a ceremony held at the Palace of the Generalitat.

Among the recipients of the Josep Trueta medal are two ICS professionals: neurologist Mercè Boada Rovira, head of the Neurology Department at Vall d'Hebron Hospital, and Internal Medicine and Infectious Diseases specialist and Doctor in Medical Sciences, Bonaventura Clotet Sala, head of the HIV Unit at Germans Trias Hospital and director of Irsicaixa.

■ 5 ICS experiences honoured at the 2nd Conference on the 2011-2015 Health Plan

One year on from the adoption of the 2011-2015 Health Plan, the Health Department organized the **2nd Conference on the Health Plan** in Sitges, in order to present the results obtained during the year 2012, set the targets for 2013 and consolidate a space for debate and reflection on the progress of those projects initiated. Care of chronic patients, organizational improvement of the system in order to achieve better integration and outcomes and the reorganization of highly specialized procedures were the main areas of action.

The Conference, which brought together a thousand professionals, offered information on over 550 professional experiences presented by the staff of the various provider organizations. Five of these experiences, all led by the ICS, received a distinction:

- Complex chronic patient with heart failure. Penedès-Garraf-Llobregat Nord Primary Healthcare Service and Alt Penedès District Hospital.



- New comprehensive care model for back pain in the Vallès Oriental. Hospital Asil de Granollers Private Foundation and Vallès Oriental Primary Healthcare Service.
- Deprescription of primary healthcare in Barcelona City. Medicines Department of the Barcelona City Primary Healthcare Sphere.
- ICS tertiary shared shift duty in complex acute ischemic stroke. Germans Trias Hospital, Bellvitge Hospital and Vall d'Hebron Hospital.
- Teledermatology: telemedicine to improve accessibility, outcome, and waiting lists. Bages-Berguedà-Solsona Primary Healthcare Service and Althaia.

■ FAD Prizes for Germans Trias and Vall d'Hebron hospitals

Coinciding with the Healthcare New Year Concert, held at the Palau de la Música Catalana, Germans Trias Hospital received the highest award among the Avedis Donabedian Awards Foundation for quality in health, in the category of Healthcare Excellence.

This prize was awarded for the track record of continuous improvement that began in 1985 and has involved 42% of the workforce. As tools for improving the quality of the centre, highlighted were its quality accreditations, error alerts, and a strategic management that is complemented by a steering committee of professionals with executive capacity. However, the key to achieving this was the involvement of staff professionals from all areas of the centre and its excellent clinical management.

Vall d'Hebron Hospital, meanwhile, received the FAD Prize for the Best Website for a healthcare and social institution.

■ The Atlante Occupational Health and Safety Awards honour the ICS

The ICS was honoured at the 6th edition of the Atlante Awards for Occupational Health and Safety awarded by Foment del Treball, within the category of Measures for the Incorporation of Occupational Health and Safety in the Large Corporations modality.

The award recognizes the set of actions for the prevention of occupational hazards included in the new Strategic Plan and implemented in the field of the public company. The jury and the technical committee placed particular value on the creation of technical committees for health and safety management that involve the management team in decision-making and in monitoring actions carried out in the field of occupational health and safety.

The Atlante Awards, held every two years, were first organized by Foment del Treball in 2002 in order to stimulate, promote, and positively incentivize the work carried out by companies in Catalonia in the effective implementation of occupational health and safety measures.

■ 3 ICS hospitals, recognized with TOP 20 Hospitals awards

The Bellvitge, Arnau de Vilanova and Verge de la Cinta hospitals have received awards from the TOP 20 Hospitals Programme 2012, which rewards centres that have achieved a better result in the assessment rates established by the organizers of this event. IASIST, a healthcare information services provider, rewards centres that achieve better results in quality and efficiency ratios. This year's winners are those that presented the best results for several indicators such as quality of care, functioning and economic sustainability in clinical practice. This year more than 166 centres from all over Spain took part, with 132 from the public healthcare network and 34 from private healthcare.

Bellvitge Hospital won an award in the category of Major Regional and National Referral Hospitals for its hospital management, as well as in the category of Benchmarks in the kidney and urinary tract area.

Arnau de Vilanova Hospital in Lleida, meanwhile, received an award for its hospital management in the category of Hospitals with Referral Specialities. And finally, Verge de la Cinta Hospital in Tortosa was awarded a prize in the category of Direct Management Hospitals.

The 20 hospitals recognized in this edition have a productivity rate 26% higher than other hospitals analysed, better management of hospital stays and a higher percentage in outpatient surgical procedures (+15%).

■ Bellvitge Hospital, distinguished with one of the Profesor Barea 2012 Healthcare Management Awards

The study *Major Outpatient Surgery and Alternatives to Conventional Hospitalization as a Solution for the Shortage of Beds for Hospital Stays* by Bellvitge University Hospital received one of the Profesor Barea 2012 Awards in the modality of Global management of healthcare centres as services companies.

The project assesses a collaboration effort in management between clinics and managers that has managed to reduce both hospital stays and the waiting time until admission of patients from the Emergencies Department.

Since 2000, and through the implementation of healthcare units that responded to major outpatient medicine criteria, only 10% of patients entering the Emergency Service are ultimately admitted, the average hospital stay length has been greatly reduced and the centre has reached a highly satisfactory quality index, measured in terms of stays, mortality, complications, and readmissions.

With these awards, the Signo Foundation aims to highlight and recognize the work of public and private institutions towards improving healthcare management and the development of new initiatives aimed at optimizing healthcare services.



■ The ICS receives five *Diario Médico* prizes for The Best Ideas

Bellvitge University Hospital received an award in the Management section for: "The Efficient Hospital: demand planning through centralized management of the waiting list and the surgery block."

Vall d'Hebron University Hospital and VHIR were selected in the Management section, for having coordinated the largest study in Spain on the use of hypothermia in treating stroke.

Development of the Diagnostic Kit: Clart CMA KRAS BRAF P13K, from Vall d'Hebron University Hospital and Genòmica SAU, received an award in the Research and Pharmacology section.

The Vall d'Hebron University Hospital project that has achieved a reduction of 75% of premature births in high-risk pregnant women with the use of a simple pessary was recognized in the Research and Pharmacology section.

The *DM_AP eControl Study*, the diabetes control study of the widest reach carried out on a European level, by the Public Health Agency of Catalonia, the Catalan Health Institute and the Jordi Gol Institute for Research in Primary Healthcare (IDIAP), with the participation of Sanofi, was chosen in the section on Research and Pharmacology.

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■ A hundred researchers meet up at the 5th Research Conference

The 5th ICS Research Conference, attended by professionals from the seven research institutes linked to ICS hospitals and primary healthcare centres, offered a chance to present the most relevant studies that are currently underway.

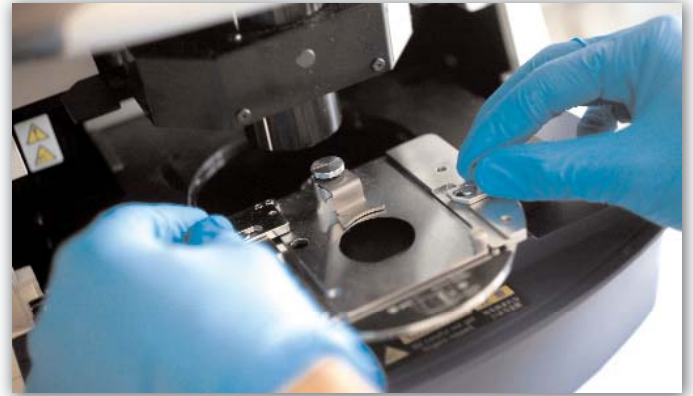
Presentations were made at the conference on research and physical activity in primary healthcare, validation of imaging biomarkers in medicine, the relationship between myelin and psychosis, as well as on the intestinal microbiota as an organ. Other papers showed the direct application of research to the provision of care in three fields: oxidative stress and ageing, bio-prostheses for cardiac regeneration and translational research in kidney transplantation. The discussion table focused on the prevention of scientific fraud, with speakers debating on whether institutions and professionals are working in the right direction to reduce this phenomenon.

The Award for Track Record in Research at the ICS went to David Garcia-Dorado, director of the Laboratory of Experimental Cardiology based at Vall d'Hebron Hospital Research Institute, which studies the mechanisms of myocardial damage in acute coronary syndrome. The purpose of this award is to encourage high quality biomedical research, both preclinical and clinical in nature, in the institution.

■ Support from La Marató 2011 for research projects on transplants by 11 ICS researchers

The TV3 Marathon Foundation distributed over eight million euros from the 2011 edition of La Marató to 56 researchers who will work on 29 projects on the regeneration and transplantation of organs and tissues, 11 of which are led or co-led by researchers conducting activity at ICS centres and research institutes linked to it. In total, these professionals have received three million euros for specialized research in different areas such as cardiac regeneration, regeneration of neurons in Parkinson's disease, research into new therapies in multiple sclerosis, the transplant of insulin-producing cells and stem cell migration in stroke recovery.

The projects were selected by the Information, Assessment, and Quality in Health Agency from a total of 209 entries that were assessed in terms of quality, methodology and relevance by 105 experts from 18 countries.



■ The IDIAP brings research closer to primary healthcare

The Jordi Gol Institute for Research in Primary Healthcare (IDIAP) currently has 26 active research groups in several lines of research (lifestyles, cardiovascular risk factors, respiratory diseases, diabetes, ageing, services research, pharmacoepidemiology, musculoskeletal diseases, mental health, etc.). Today it has 232 active projects, 51 of which were begun in 2012. This important research activity meant that in 2012, eight staff contracts were managed that were chargeable to projects. A total of seven theses were also read.

And, as in previous years, IDIAP's desire to promote research at the primary care level has been clearly demonstrated by the results of the different IDIAP grant announcements: six grants to support completion of doctorates, four grants for intensifying research, one grant for a research stay at the Hospital del Mar Medical Research Institute (IMIM) and four mobility grants for stays abroad. Of the grant applications for projects, two were awarded prizes: *Challenges in healthcare for immigrants*, *Perception of primary care professionals and basics for the design of strategies for improvement*, with Isabel Plaza Espuña, of the Unit for Assessment, Information Systems and Quality (BASIQ), as principal investigator, and *Prospective cohort study of neonates to analyse the relationship between the presence of ankyloglossia and duration of breastfeeding*, with Alejandro Allepuz Palau, of the SAP Alt Penedès-Garraf, as principal investigator. Moreover, the IDIAP is consolidating the SIDIAP platform with 15 projects during 2012. SIDIAP is a database developed jointly by the ICS and the IDIAP from ECAP data and other information sources to provide support for researchers. In late 2012, it entered a European network of databases, the EU-ADR-Alliance. In addition, the Agency for the Management of Clinical Research in Primary Healthcare (AGICAP), a network of family medicine and nursing professionals specially trained to run

clinical trials, participated in 27 clinical trials during 2012, of which 30% were on diabetes mellitus and 15% on infectious diseases and respiratory diseases.

■ **The widest-ranging study on the control of diabetes in Europe concludes that the level of glycaemic control lies below the SNS target**

The *eControl Study on Diabetes Mellitus in Primary Healthcare*, produced by IDIAP Jordi Gol, the Public Health Agency and the ICS, in collaboration with Sanofi, has been developed in the area of Catalonia with a total of 286,791 patients with type 2 diabetes *mellitus* (7.6% of the population), based on a population of 3,755,038 people aged over 30 years. The conclusion was that there is adequate glycaemic control in 56.1% of type 2 diabetics in Catalonia, a figure above the target set in the strategy for diabetes of the National Health System, although there is still room for improvement.

This is a cross-sectional study developed by exploiting the SIDIAP database, created from data collected from the computerized medical record (ECAP), which includes demographic data, appointments, health problems, clinical variables, prescriptions, immunizations and referrals.

The *eControl Study on Diabetes Mellitus in Primary Healthcare* is a huge qualitative leap in terms of awareness of the characteristics of patients affected by diabetes *mellitus* type 2, since the analysed data will be used to monitor the quality of diabetes care in Catalonia and to enable the creation of working hypotheses for future studies of interventions aimed at improving the health of patients with type 2 diabetes *mellitus*.

This study has become the most comprehensive on a European level, since it is the first that it been carried out on the total of patients with type 2 diabetes *mellitus* in a given population and, consequently, it has much greater relevance than those carried out previously in our area using different sample population sizes and methodologies.

■ **Team patents guiding system for virtual bronchoscopy as an aid in diagnosing lung cancer**

A team of researchers from the Institute of Industrial Systems Organization and Control (IOC) of the Polytechnic University of Catalonia-BarcelonaTech (UPC) and IDIBELL's Pulmonology Research Group has designed and patented

a new system to improve endoscopic examination of peripheral lung lesions based on improved virtual bronchoscopy.

The system, which is expected to improve lung cancer diagnosis, enables medical professionals to decide with greater confidence whether real bronchoscopy may be useful or not, thus avoiding risks and patient discomfort.

In the usual medical procedures for detecting lung cancer, virtual bronchoscopy allows the exploration of lung lesions based on tracheobronchial tree reconstruction in 3D. Once the radiological examination has been performed, the doctor plans the real bronchoscopy, which is performed using a flexible bronchoscope.

With the system devised by the UPC team, based on the images that provide a virtual bronchoscopy from 2D CT images, the doctor can virtually navigate the airways. Using a tactile device, the pulmonologist can simulate the movements that will be made subsequently with a flexible bronchoscope and, therefore, can very realistically plan the most viable route for entering from the trachea to access the most peripheral area of the lung showing a lesion. It also allows determination of whether the end of the bronchoscope will make contact with the lesion and, if not, what distance will remain and what technique should be used to obtain the biopsy. If, in the planning, it is determined that access to obtain lung tissue is not possible, the exploration is not performed, thus unnecessary surgical interventions are avoided.

■ **IDIBELL tests method to reduce hospital stays for patients with pneumonia**

IDIBELL Researchers have discovered a new, safe, and effective method to reduce the duration of intravenous antibiotic therapy and length of hospital stay for patients with community-acquired pneumonia. This strategy should help to optimize the care process for patients hospitalized with pneumonia and reduce hospital costs. The first-named author of the study is Jordi Carratalà, Head of Infectious Diseases at Bellvitge Hospital and head of the IDIBELL Group for Respiratory Infections and Immunocompromised Hosts.

In Europe, pneumonia is responsible for annual expenditure exceeding eight billion euros, of which over half corresponds to hospital care. Patients with community-acquired pneumonia require longer hospitalization than the average for inpatients. The length of stay in hospital is the most important component of the disease's cost



and it also increases the risk of complications such as phlebitis, pulmonary embolism and hospital-acquired infections. Researchers have noted considerable variations in the length of hospital stay for patients with pneumonia, which suggests that physicians are not using a uniform strategy when making the decision to discharge patients from hospital.

Frequently, patients with pneumonia remain in hospital despite being clinically stable because they have to complete intravenous antibiotic treatment. The authors of the study note that changing from intravenous to oral therapy once patients are clinically stable may help shorten and reduce the length of stay and the associated costs.

The researchers have designed a trial to test a new method that is more effective and economical than the usual care. The new procedure is able to reduce the duration of intravenous antibiotic therapy and the length of hospital stay for patients. The method assessed includes early mobilization and use of objective criteria for switching to oral antibiotic therapy, which would allow discharge to be brought forward. The study, published in *Archives of Internal Medicine*, was conducted with 401 randomly selected adult patients who required hospitalization for pneumonia.

■ Vall d'Hebron to coordinate in Spain the largest ever study on the use of hypothermia in the treatment of stroke

The Neurovascular Diseases Research Group at Vall d'Hebron Research Institute (VHIR) and the Stroke Unit of Vall d'Hebron University Hospital are heading up two working groups of a large-scale and unprecedented study on the treatment of stroke. The project, recently launched by the EU, has received funding of nearly 11 million euros

and is the largest phase III clinical trial on the effects of hypothermia as protection against brain damage following a stroke or cerebrovascular accident. Cooling the brain during the six hours immediately following a stroke, to temperatures around 33-34° C, could be vital in reducing the extent of brain damage. The results will benefit hundreds of thousands of patients per year. Vall d'Hebron will also be the centre that coordinates the study in Spain, as well as the headquarters of the biobank where samples from all patients that will be included in the European study will be stored.

Therapeutic hypothermia is already used effectively in reducing ischemic brain damage after cardiac arrest, brain damage caused at birth and even post-traumatic brain damage. The effectiveness of hypothermia has been demonstrated in all the pilot studies carried out so far and it is hoped that this will be confirmed, with the support of 60 universities and hospitals participating in 25 different countries, after studying 1,500 stroke patients. Hypothermia acts by inducing a kind of hibernation in the brain that minimizes the need for oxygen and thus prevents further damage. The technique is also being followed with interest by the European Space Agency due to its possible applications in the future for long distance travel in space.



■ VHIR researchers describe for the first time biological alterations in irritable bowel syndrome

A team from the VHIR Group for Research into Digestive Physiology and Pathophysiology has described, for the first time, molecular alterations in irritable bowel syndrome. This discovery radically changes the view held to date that this was a functional disease with no biological translation to that of an entity involving underlying biological abnormalities in the intestine.

This initial description of an organic alteration in irritable bowel syndrome may represent, initially, a foundation on which to identify specific diagnostic and therapeutic targets for the disease and, thus, to develop useful markers for positive diagnosis and new tools for treatment directed at the heart of the problem. In the medium term, this finding will represent a great step forward with respect to the symptomatic treatments up to now. The results of this study, published in the *American Journal of Gastroenterology* and now featured in *Nature Reviews Gastroenterology & Hepatology* due to the implications and paradigm shift it represents for this disease, focus on the following aspects: distinctive alterations of normality in the profile of genes expressed in the intestine; greater activation of immune cells, such as mast cells, and abnormal signalling between cells in the small intestine (specifically the jejunum) of these patients, alterations which are associated with the severity of symptoms.

■ **Germans Trias strengthens its retention of talented professionals through the announcement of pioneering research grants**

Germans Trias Hospital and the Germans Trias Research Institute, together with the CatalunyaCaixa Foundation, have announced for the first time a series of grants to enable the continuation of the employment relationship with professionals who have completed their period of specialization and have shown outstanding talent. To qualify for the grants, it was necessary to submit a research project with the goal of producing a doctoral thesis. The professionals chosen, most of whom will remain linked to providing healthcare at the hospital, are eight female doctors, a male doctor, a female pharmacist and a midwife. The grants have been named Germans Trias Talents and they initiated the new Talents Programme of the CatalunyaCaixa Foundation.

■ **Germans Trias biobank extends its facilities and acquires new equipment**

The IGTP - HUGTP Biobank is a public infrastructure to support biomedical research that contains thousands of biological samples and clinical data under strict ethical and scientific control. Other samples (blood, urine, tissues, etc.) are donations of material left over from tests performed to diagnose patients at Germans Trias i Pujol University Hospital, material no longer useful for patient diagnosis or treatment. All the samples are valuable for research, but the tissue from biopsies allows

scientific advances in the understanding and treatment of diseases to be a reality. The objective of the Biobank is to facilitate the access of the scientific community to all this material.

In 2012, the IGTP – HUGTP Biobank expanded its facilities and acquired new equipment that will allow the automation of processes by connecting to a modern and sophisticated computer program that guarantees the traceability and confidentiality of samples at all times. The Biobank has an information management system connected with other information systems at the Hospital, which allows the automatic dumping of clinical data and the coding of samples received. The IGTP – HUGTP Biobank belongs to the Spanish state network of biobanks and is the fourth in Catalonia approved by the Department of Health. This has involved the creation of a Scientific Committee that assesses and authorizes the storage of samples and the production of several documents: internal rules of operation; a strategic and economic viability plan, with an analytical accounting system that bills the processes necessary for the circuits followed by incoming or outgoing samples; a quality management plan and a biosecurity plan.

■ **Researchers from the Pere Virgili Health Research Institute organize symposium on nutrition and paediatrics**

Researchers from the Unit for Research into Paediatrics, Nutrition and Human Development of the Pere Virgili Health Research Institute (IISPV) and the Rovira i Virgili University (URV) organized the symposium Nutritional Programming, From Theory to Practice, held in Reus in the month April 2012.

The symposium had two main goals: to present and discuss the early effect of nutrition on the development of the metabolic and nervous systems, principally focusing on body composition, obesity and mental performance, and to provide knowledge and education regarding good clinical practice in the nutrition of premature babies, nutritional support in different situations related to neurocognitive impairment and nutritional advice for people with obesity.

This all had its roots in the European project titled EU Childhood Obesity Programme, which initiated the study of the effect of protein digestion during the first year of life and the effect this has on later obesity.

The hypothesis established is that excess protein consumption during the first months of life conditions an

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increase in growth in the early years and, as a result, long-term problems.

The symposium sessions provided details on the fieldwork methodology and on the sample of 1,500 children from all over Europe divided into three groups according to their diet: the first and second groups received an infant formula with different protein contents and the third group were breastfed. The project will study these children until age 11.

■ IRBLleida shows that SUMO protein is essential for proper chromosome segregation

A study conducted by researchers from the Institute of Biomedical Research of Lleida (IRBLleida) and the University of Lleida (UdL), shows that SUMO protein is required for proper chromosome segregation. Specifically, the results of this research have enabled discovery of some of the mechanisms that allow cells to pass a single copy of each chromosome to daughter cells.

Alterations in the number of chromosomes are common in different types of cancer, so one of the main problems faced by cells during division is how to ensure that each of the two daughter cells receives a single copy of the 46 chromosomes that the human species possesses.

To make this possible, the chromosomes, once duplicated, remain firmly attached through a class of proteins known as cohesins. These unions allow the cell, which is blind, to “view” the two chromosomes as identical and, therefore, send a copy to each of the daughter cells.

The research, led by the Cellular Cycle Group, established that during the process of generation of daughter cells a third factor is necessary, a protein known as SUMO, so that the cohesins correctly join each pair of duplicated chromosomes.

The researchers showed that SUMO protein temporarily joins cohesin during replication of the chromosomes, when these are paired. The work also shows that, in the absence of SUMO, the cohesin is not able to attach to a pair of duplicated chromosomes.

In this situation, the duplicated chromosomes remain free within the cell, independent of each other, and the cell fails to “view” them as identical pairs of chromosomes. The result of the loss of SUMO is an incorrect distribution of chromosomes between daughter cells.

The study, published in the journal *Current Biology* in September 2012, opens new avenues for understanding the mechanisms that allow cells to transmit to their offspring the correct number of chromosomes. In the study

a much simpler organism than mammals was used: bread yeast, because it uses molecular mechanisms very similar to those of human cells to duplicate and segregate its chromosomes.



■ The Trueta takes part in a multi-centre study on a marker of neurological deterioration in patients with brain haemorrhage

The Department of Neurology at Dr. Josep Trueta University Hospital of Girona has participated in a major prospective study, led by the University of Calgary, demonstrating for the first time that the presence of contrast extravasation in patients with brain haemorrhage is a marker that evidences a high risk of neurological deterioration due to haematoma growth.

The patient survives in only 50% of brain haemorrhage cases. Recent neurological studies have investigated which patients will develop growth of the brain haemorrhage. The diagnostic technique is the realization, within six hours of the onset of cerebral haemorrhage, of a CT

scan of the skull and CT angiography to check for contrast extravasation. The study confirmed that the presence of contrast extravasation in patients with brain haemorrhage is a marker for subsequent growth of the haematoma and also for a poor prognosis for the patient. This study allows more detailed information on the evolution of the condition to be given to the families of patients who have suffered a brain haemorrhage and, in the future, will enable assessment of the efficacy of drugs used to try and prevent haematoma growth.

The study *Prediction of haematoma growth and outcome in patients with intracerebral haemorrhage using the CT-angiography spot sign (PREDICT): a prospective observational study* was published in the prestigious scientific journal *Lancet Neurology*.

■ Knowledge of patients' bowel habits avoids the repetition of colonoscopies

A knowledge of patients' bowel habits prevents the re-programming of 10% of colonoscopies. This is the conclusion of a study carried out by the nursing staff of the Digestive Endoscopy Unit at Viladecans Hospital. In patients with chronic constipation, endoscopies require more intensive preparation and it is often necessary to repeat the test. Advance determination of the degree of colon cleansing required would facilitate the realization of the colonoscopy procedure avoiding the need for repetition. The study results were presented and received an award at the National Congress of Digestive Endoscopy held in Madrid in November 2012.

■ Nursing professionals from Verge de la Cinta Hospital in Tortosa participate in the international research project 800 Hospitals

A total of 30 conventional hospitalization and home care nurses from Verge de la Cinta Hospital in Tortosa, along with professionals from nine Spanish hospitals, took part in the international project 800 Hospitals led by the Joanna Briggs Institute (JBI). This project aims to promote and improve the implementation of good practices in the insertion and management of indwelling urethral catheters in adult patients.

The JBI is an international research and development organization of the Faculty of Health Sciences at the University of Adelaide, Australia, which promotes care based on scientific evidence and its implementation and evaluation in clinical practice.

After an initial phase of gathering data from a survey provided by the JBI and submission of the results of the sample, through the corresponding PACES software of the Hospital, an initial assessment has been received that has allowed the nursing team to analyse the results, review and update protocols and implement improvement measures.

The nursing group places great value on the team's involvement, and considers that participation in the study has facilitated its review of the literature and its research, and that it offers a good method for performing systematic evaluation of best practices that, ultimately, ensure the safety and quality of care for patients.

■ Scientific production of the research institutes

	Articles published in indexed journals	Total impact factor
Biomedical Research Institute of Bellvitge (IDIBELL) ¹	933	4,440.58
Vall d'Hebron Research Institute (VHIR)	698	3,696.99
Germans Trias i Pujol Health Sciences Research Institute (IGTP)	528	2,264.73
Pere Virgili Healthcare Research Institute (IISPV) ²	348	1,275
Biomedical Research Institute of Lleida (IRBLleida)	214	1,067.89
Dr. Josep Trueta Biomedical Research Institute of Girona (IDIBGi)	94	465.91
Jordi Gol Institute of Primary Healthcare Research (IDIAP)	256	414.24

Data provided by the research institutes. Some publications may have been counted by more than one centre.

1. Includes the scientific activity of Viladecans Hospital.

2. Includes the scientific activity of the Verge de la Cinta Hospital in Tortosa.

TEACHING

Teaching and training across the entire range of health sciences, from vocational training to ongoing training and including university and specialized teaching, is a fundamental part of the activity carried out by the ICS centres. In the year 2012, over 4,500 college and university students took part in work experiences at university hospitals and primary healthcare centres. Most of them were from the seven universities and ten colleges with which the ICS has agreements. They were studying for degrees or other qualifications in such speciality areas as Medicine, Nursing, Pharmacy, Dentistry, Biomedicine, Physiotherapy, Nutrition and Dietetics, Occupational Therapy and Social Work.

■ The ICS maintains its commitment to the training of specialists in Catalonia

The aim of the ICS, which every year takes in some 2,400 resident practitioners, is to train professional practitioners prepared to create knowledge, tackle the new challenges of the healthcare system, and respond to the healthcare needs of the inhabitants of Catalonia.

The offering of places, which represents approximately half of the hospital places and 75% of the primary healthcare places in Catalonia, is distributed as follows:

Hospitals	Accredited places	Places offered	Specialities
Vall d'Hebron	165	137	47
Bellvitge	97	86	42
Germans Trias	67	60	36
Arnau de Vilanova	40	40	27
Josep Trueta	37	33	24
Joan XXIII	37	35	23
Verge de la Cinta	11	11	9
Viladecans	1	1	1
Total	460	409	

Atenció primària	Accredited places	Places offered	Specialities
Costa de Ponent	69	58	2
Barcelona Ciutat	60	51	1
Metropolitana Nord	40	36	1
Girona	27	24	2
Tarragona	23	18	1
Catalunya Central	21	18	1
Lleida	14	13	1
Tortosa	12	8	1
Total	266	226	

Each year the training offered is adapted to the need for healthcare professionals and the teaching capacity of each of the centres. It is important to highlight the collaboration between hospitals from different regional territories, which complement each other in some of the higher complexity training areas.

The training of specialist practitioners in Medicine, Nursing, Pharmacy, Psychology, Biology, Chemistry, and Physics has been the backbone of the teaching mission of the ICS centres since the inception of the MIR programme over 30 years ago. This excellence in training is evident in the high level of attraction of the organization's centres. Thus, in 2012, some 40% of all new residents came from the rest of Spain or from Latin American countries, where the ICS's centres are highly valued in terms of the training they offer.

■ 6th ICS Specialized Healthcare Training Conference

The ICS's specialized healthcare training sessions (FSE) are a sign of the vitality of specialized teaching within the organization. In 2012, it was decided to combine the holding of the 6th ICS FSE Conference with the 14th Conference of the Network of Teaching Committees of Catalonia, organized jointly by the Teaching Committees of Metropolitana Sud (Bellvitge and Viladecans Hospitals and AFiC Teaching Unit) and the Institute of Health Studies. It was held at the Bellvitge Hospital and focused on learning methodologies, portfolio and problem-based learning, as well as the current status of specialized healthcare training: multidisciplinary training units and core subject focus.

■ New teaching units in Obstetric and Gynaecological Nursing

2012 was a year of change in the management of training for midwives. The Teaching Unit of Catalonia, attached to the University of Barcelona, has given way to teaching units attached to the healthcare centres. The teaching units in obstetrics and gynaecology at the hospitals have become multidisciplinary teaching units which from now on will provide training in two specializations from two different professions: Obstetrics and gynaecology and Midwifery. The new teaching units integrate hospital services and the ASSIRs (sexual and reproductive healthcare services) to cover all training needs. Places for midwives are split between Vall d'Hebron, Germans Trias, Dr. Trueta and Joan XXIII (four each) and Arnau de Vilanova and Verge de la Cinta (three each).

At the same time, theoretical training for midwives has been centralized for the whole of Catalonia at the Institute of Health Studies, with the support of the tutors of the residents.

■ ICS teaching units continue with their training work

Barcelona City Family and Community Medicine Teaching Unit (UDMFIC)

The Barcelona City UDMFiC is one of the largest in Catalonia, with 60 places and 16 accredited primary healthcare teams (15 attached to the ICS and one managed by the PAMEM), which also collaborate in the training of specialists in paediatrics, paediatric nursing and students of medicine and nursing. Also participating in the teaching are five hospitals, five sexual and reproductive healthcare centres and 12 mental health centres.

A total of 17 courses were organized for residents, with 408 participants, and 13 for tutors, with 154 teachers.

At the 4th Research Conference for Residents, with 130 delegates, 12 papers were presented by fourth-year residents.

A rural placement of a month's duration is compulsory for residents and was completed by 21 residents this year. There were nine applications for external placements and 37 for elective placements. A total of 19 residents undertook rotations through this UDMFiC: four from elsewhere in Spain and 15 from other countries.

Catalunya Central Family and Community Medicine Teaching Unit

The Catalunya Central UDMFiC began its process of reaccreditation as a Family and Community Healthcare Mul-

ti-professional Teaching Unit to start the training of specialist nurses. It has also increased its teaching resources with the EAP Igualada Urbà and maintains among its facilities five rural medicine centres.

Among the training activities, highlights include the 1st Research Conference for Resident Doctors and Midwives of the Regional Management with the aim of facilitating the presentation of the research projects that these residents have produced upon completion of their training period.

Costa de Ponent Family and Community Healthcare Teaching Unit

The Costa de Ponent UDAFiC has also initiated the process of reaccreditation as a Family and Community Healthcare Multi-professional Teaching Unit. It is formed by 15 ICS EAPs, Bellvitge and Viladecans Hospitals and five from the XHUP, with 121 accredited tutors of Medicine and four of Nursing in family and community healthcare, along with healthcare technicians who have the cooperation of the training and research support units.

In 2012, a total of 155 doctors and seven nurses in this speciality were trained, with training offered in primary healthcare for Internal Medicine residents and from the multi-professional teaching units of Paediatrics and Gynaecology at the XHUP hospitals in the area.

Girona Family and Community Healthcare Teaching Unit

The Girona UDAFiC conducted 27 training courses for Family and Community Healthcare residents corresponding to the complementary speciality training programmes. Eight of them were conducted virtually.

It also organized the 2nd Workshop on Teaching Methodology for tutors, which allowed an in-depth approach to



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subjects such as tutor training in times of crisis, how to improve research in the teaching unit and the adaptation of medical simulation to postgraduate training and to the training of tutors in Family and Community Health-care.

As in previous years, residents had the opportunity to learn how to present their research in public at the research conference for residents of the Girona teaching units.



Lleida Family and Community Medicine Teaching Unit

The Lleida UDMFiC has six accredited health centres and trains 43 Family and Community Medicine residents, with a total teaching capacity of 56 places. The EAP Primer de Maig was accredited in 2012 in the Lleida UDMFiC with a training offer for two residents per year and four accredited tutors. It has a network of eight local GP surgeries recognized by the IES (Health Studies Institute) and establishes specific collaborations with centres in the Lleida Pyrenees for training placement stays in the rural medicine discipline (six residents from Lleida and six from the rest of Catalonia).

Apart from the theoretical training programme with 100 hours per year, it also organized the 2nd Research Conference, during which the residency completion projects and third year resident's projects were presented, and the 10th UD Conference, with the theme "Adapting to New Horizons", which covered work on different contents: portfolio in Moodle format, roundtable on career opportunities, ultrasound workshop for residents and a working group to analyse training placements. The self-audit of the residents' portfolio, which concludes that there is a high level of task performance and that it is necessary to strengthen and complement the competencies guide, was completed and presented.

Metropolitana Nord Family and Community Medicine Teaching Unit

This UDMFiC has 13 teaching centres, 74 accredited tutors, and 112 residents. It has conducted various training activities for residents, including the presentation session for 10 research papers by fourth-year residents at Mataró Hospital.

In undergraduate teaching, the UDMFiC has a cooperation agreement with the Autonomous University of Barcelona (UAB) relating to medicine students and practicums, and with various nursing schools, representing a total of 280 students and 167 practicums in Medicine, 80 vocational training students in Clinical Documentation and 19 Social Work students.

There were also collaborations with different institutes providing training to the 80 vocational training students in Clinical Documentation, three technicians in Radiology and 18 in other specialties. With respect to postgraduate teaching, a total of two doctoral theses were presented.

Tarragona Family and Community Medicine Teaching Unit

The Tarragona UDMFiC has 67 residents and access to six EAPs, three hospitals and other teaching facilities: Pere Mata Institute, Public Health Agency, SEMSA and Management and Provision of Healthcare Services (GIPSS).

It has 67 residents who receive complementary training in occupational health and safety, nosocomial infections, trauma, general and paediatric emergencies, developing a portfolio, searching for literature, evidence-based medicine, community-oriented primary healthcare, family healthcare, healthcare communication, clinical reasoning, bioethics, research in health sciences, CPR, biostatistics, critical reading of articles, clinical interviews, occupational health, analysis of data and validation of questionnaires.

The training programme applies methodologies including video recordings, use of dummies, structured observations of clinical practice, participation in community projects, conducting of self-audits, critical incident analysis, computer case-analysis, presentation of sessions, as well as carrying out work in continuous improvement and research.

Tortosa Family and Community Medicine Teaching Unit

The Tortosa UDMFiC is formed by the EAP Tortosa Est-CAP Temple and EAP Deltebre teaching centres. Its referral hospital is Verge de la Cinta and other teaching facilities include Pere Mata Terres de l'Ebre Mental Health Centre (CSM TE), CASS and the Geriatric and PADES services of Hospital de Jesús.

It has 12 accredited tutors and 26 Family and Community Medicine residents and conducts training for tutors and residents. It organized the 2nd Teaching Conference and different sessions, participating in seminars and conferences locally and nationally, as well as taking part in community activities.

Vall d'Hebron University Hospital

In the year 2012, residents in midwifery were incorporated into the Hospital's Teaching Committee as part of the new Multidisciplinary Teaching Unit in Obstetrics and Gynaecology, which increased the accredited specialist training places to 165 in 47 different specialties.

A total of 535 residents in training were supervised by 138 tutors, in addition to 49 permanent residents from external training units (Family and Community Medicine, Occupational Medicine and Midwifery). A total of 373 rotations of external residents were also accepted from over 90 centres around Spain, approximately half of all the placement rotations in Catalonia this year.

Following the process of rolling out the 2nd Strategic Plan for Teaching, during the year 2012 new versions were approved of the guide for residents' tutors, guides for producing training itineraries and the guide for resident assessment, and the simulation area was expanded.

From the Vall d'Hebron Learning Centre, support was given to various training courses, both face-to-face and virtual, on teaching methodology aimed at tutors and on the Immersion Programme for New Residents, with 150 residents, 141 teaching staff, 19 training actions, and 5,800 hours of training.

Moreover, in the field of continuing education generated by the institution's professionals, the Hospital obtained accreditation from the Catalan Council for Continuing Education in the Healthcare Professions for 115 training activities.

Germans Trias i Pujol University Hospital

In 2012, Germans Trias Hospital incorporated the 28th promotion of residents who, added to their colleagues from previous years, made a total of 231 residents in training. Moreover, the Germans Trias faculty at the Autonomous University of Barcelona has continued training students of Medicine and, for the second year running, students of the Biomedical Sciences degree. These number 276 and 22 students, respectively. Furthermore, it also had over 500 clinical placements in nursing.

Also in 2012, over 70 people attended the second Germans Trias Open Day, in which residents in all the Hospital's specialties explained how they learn and work in each department. The audience were students, mainly of Med-

icine, who completed their residency in 2012 and had reached the point of choosing a place. Germans Trias, like other hospitals, offers them this open day so that they are able to make a more informed choice.

Bellvitge University Hospital

Bellvitge University Hospital is accredited for specialized healthcare training in 42 specialties, with the collaboration of its 98 tutors.

In 2012, a total of 343 doctors were trained residents, while 163 stays in service commission by these residents were organized, and 131 stays by residents from other hospitals were authorized along with 57 training stays by foreign doctors.

The training and research activities of Bellvitge Hospital included the organization of the 6th Specialized Healthcare Training Conference and the 14th Conference of the Network of Teaching Committees of Catalonia, courses for tutors, the presentation of the paper "Implementation of the Teaching Quality Management Plan (PGCD) in specialized medical training" at the 30th Congress of the Spanish Society for Quality in Healthcare and participation in the research project: The Impact of Communicative Events in Constructing New Masculinities.

On 11 and 12 December, the Hospital underwent a general teaching audit carried out by the Ministry of Health, Social Services and Equality. In the interim oral report, the audit team noted many strong points in all the areas analysed and proposed to include as good practice documents at the Ministry both the Protocol for supervision and levels of responsibility in emergencies and the Protocol for the detection and monitoring of resident physicians with knowledge deficits and / or inadequate attitudes, which constitutes an important recognition of the work done.

Dr. Josep Trueta University Hospital in Girona

Dr. Josep Trueta Hospital in Girona has 23 accredited teaching units of specialized training, which train 126 residents (including internal medicine, physiotherapy, and midwifery residents). In addition, the Hospital provides support to the training of 24 Family and Community Healthcare Medicine and Nursing residents of Girona UDAFiC, and to residents from other teaching units in Catalonia, the rest of Spain and even abroad.

To host and organize the training programme of the different specialties there are 39 hospital tutors (37 for medical specialties and two for the CIRs) and two hospital coordinators for Family and Community Medicine. These tutors accompany residents during their training phase at the healthcare centre.

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There have been training courses conducted for both residents and tutors. Moreover, in 2012, the Hospital organized its first ever open day.

Arnau de Vilanova University Hospital in Lleida

During 2012, the Hospital developed an Integration Plan for undergraduate, postgraduate, and continuing training and it accredited its specialized training in Neurology.

Collaboration agreements were set up with Santa Maria Hospital and Sant Joan de Déu Hospital in Lleida for the rotation of residents in the teaching units of Psychiatry, Psychology, and Paediatrics.

The Teaching Committee has organized courses taught by tutors and teaching supervisors, on assessment of residents and cross-disciplinary training for residents. Furthermore, sessions were organized for residents related with general subjects with the participation of various departments in order to encourage a multi-disciplinary approach.

Joan XXIII University Hospital in Tarragona

Joan XXIII University Hospital in Tarragona conducts undergraduate training in Medicine as a teaching unit of the Faculty of Medicine of Rovira i Virgili University, and has offered specialized medical training since 1973. Of the Hospital's 36 wards, 23 are accredited for specialist training. It currently trains 138 residents (MIR, FIR and CIR), supervised by 35 tutors.

After the 5th ICS Conference on Specialist Healthcare Training, organized by the teaching committees of Camp de Tarragona and focusing on virtual learning environments, the Hospital decided to back training in the e-learning and mixed mode along with the strengthening of simulation as a teaching tool among residents. A training programme was initiated for 33 tutors on e-learning.

In 2012, the Anaesthesiology Department conducted a high-fidelity simulation session, which was attended by all residents of this specialty from the province of Tarragona. The CPR course was also conducted three times. Meanwhile, the implementation of the skills workshop at the Rovira i Virgili University provided impetus for the training of the centre's professionals in simulation techniques.

Verge de la Cinta Hospital in Tortosa

The Hospital, accredited for teaching since 1979, has gradually incorporated different teaching units up to the current total of nine. It has 14 tutors who oversee training and ensure compliance with the educational objectives of Internal Medicine, Trauma and Orthopaedic Surgery, Clinical Testing, Paediatrics, Obstetrics and Gynaecology, Anaes-

thesiology and Reanimation, Radiology, Intensive Care Medicine and Obstetric and Gynaecological Nursing.

In addition, residents of the Family and Community Medicine Unit of Tortosa and residents of Geriatrics at Santa Creu de Jesús Hospital of Tortosa do part of their training at the Hospital, which also has teaching agreements with Vall d'Hebron, Bellvitge and Joan XXIII hospitals for residents to undertake different rotations provided in the training programmes.

With respect to undergraduate training, it collaborates with the Rovira i Virgili University with four associate professors on placements for Nursing students and rotations in Medicine.

Viladecans Hospital

Since 1993, the Hospital has formed part of the Multi-professional Teaching Unit of MFiC Costa de Ponent. And since 2005, it has been accredited for teaching Internal Medicine with one resident per year. It shares training with Bellvitge Hospital during the first three years with rotation for the specialities of ICU, Cardiac Care Unit, Infectious Diseases, Nephrology, Clinical Haematology and other medical specialties, with a subsequent rotation through Systemic Autoimmune Diseases at Vall d'Hebron Hospital.

Viladecans Hospital also receives residents from Bellvitge Hospital so that they undertake structured rotations at a district hospital in General and Digestive Surgery (R-1), Cardiac Surgery (R-1), Urology (R-1 and R-3), Ear, Nose and Throat (R-2 and R-3), Gynaecology (R-2) and Neurology (R-4).



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Human Resources¹

	Women	Men	Total
Primary healthcare	14,206	5,040	19,246
Physicians	3,591	2,531	6,122
Nursing and other healthcare professions	6,393	654	7,047
Residents	491	240	731
Management and services	3,731	1,615	5,347
Hospitals	15,036	5,052	20,088
Physicians	1,527	1,751	3,278
Nursing and other healthcare professions	9,952	1,016	10,968
Residents	1,044	523	1,568
Management and services	2,512	1,762	4,274
Corporate centre²	245	140	385
Total health professionals	29,488	10,231	39,720

1. Workforce equivalent to full-time for the year 2013. Includes permanent, casual, temporary and substitute workers.

2. Includes the staff assigned to external non-healthcare centres (Department of Health, CatSalut, Public Health Agency of Catalonia and Agency for Health Information, Assessment and Quality).

■ Human Resources Management Plan 2012-2015 comes into force

The Human Resources Management Plan (PORH), which was negotiated by the Health Industry Sectorial Negotiation Committee and approved by the ICS Board of Directors, affects all staff employed at the institution's centres and in its services.

The PORH establishes five key lines of action that form the framework where the ICS's actions should focus in matters of people management and enable determination of where efforts will be concentrated while the Plan remains in force. These lines are specified as: improving processes and productivity, developing leadership skills and clinical management, promoting professional development, reviewing and improving systems of human resource management and promoting measures related to the application of the Strategic Plan for Corporate Social Responsibility 2010-2014.

The different specific actions arising from it should allow management to be adapted to new needs arising in the healthcare environment and help achieve the objectives of the organization.

Those aspects that may affect working conditions that are established are incorporated into the Plan as an annex, such as extension of retirement age, transfer applications (voluntary relocation), or the categorization of recruitment processes.

It is a flexible plan that during its lifetime can incorporate new annexes previously negotiated by the Health Industry Sectorial Negotiation Committee and also approved, where applicable, by the Board of Directors.

■ The ICS covers close to 1,000 positions through recruitment processes with entrance exams

During the year 2012, eleven open examination recruitment processes to cover 828 posts in different categories of healthcare professions and management and services were resolved, with 16,173 participants. Furthermore, there were four announcements of multiple posts for physicians in different specialties at our hospitals, with 253 applicants to fill 134 jobs.



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To manage the recruitment processes, the use of ICTs was reinforced (one of the objects of the ICS's Human Resources Management Plan), by applying the corporate computer system for human resources management (HRMS), which meant a step forward in the automation of the scale-based assessment process (more than 828,000 merits scale-assessed in 2012) and a significant improvement in accessibility and information to candidates and transparency of the selection process.

Furthermore, it is noteworthy that all the permanent regulated staff appointments for the vacancies mentioned have been made by the territorial management and destined for a primary care service or hospital.

■ The ICS launches its virtual campus

With the aim of improving learning processes for its professionals in virtual environments, the ICS has set up a virtual campus with the most suitable educational designs and teaching media for training activities in this environment. With this new platform, professionals



can find the courses in virtual format that are specified in the training plan under which they are registered. Progressively, they can also have access to resources and links of interest related with the virtual learning.

All people who work in the ICS have access to the Virtual Campus from the main menu of the SGRH, therefore they do not require a specific user name nor a password to access it. It is a good idea for professionals to enter the campus and, using the operating guide they will find there, familiarize themselves with it before starting their first training activity.

This space, as well as offering ongoing training activities, will also be at the service of teaching units for specialized training of residents in the Health Sciences.

■ Over 28,000 professionals have received continuing training courses

In 2012, some 67% of all ICS professionals took at least one continuing training course. This percentage does not include residents or substitutes. Total hours offered reached nearly 817,000, representing an average of 23 hours per employee.

With respect to distribution by subject areas, 54% of hours were devoted to the healthcare area, 5% for management and services, and 41% for themes of a cross-disciplinary nature, divided mainly between occupational health and safety (29%), information technology (22%), interpersonal communication (19%) and quality and continuous improvement (9%).

■ Launch of road safety awareness campaign for professionals

Commuter accidents, i.e. accidents that occur on the way to or from work, account for over 13% of all occupational accidents suffered by ICS employees.

There are different types of commuter accidents: while walking (42%), car (34%), motorcycle (14%), and public transport (less than 5%). The consequences result in an average sick leave of around 40 days, while in accidents due to other causes, sick leave is some 26 days.

With the aim of raising awareness among professionals and strengthening road safety education training, the Department of Occupational Health and Safety has published an information leaflet which offers the key factors in developing proper road safety and includes a number of tips on preventing traffic accidents and minimizing their effects, especially with regard to people's life and health.

■ New objectives included in the signing of EAP management agreements

A highlight of 2012, within the section on organizational improvement, was the incorporation into management agreements for primary healthcare teams of a target related to improving those standards of the accreditation system of the Department of Health directly related to patient safety and a target linked to e-consent. This tool allows recording in the medical history of each patient of his or her consent for administrative and/or healthcare data to be sent via email or SMS. This is an essential requirement for enhancing healthcare professional-patient communication and resolving requests without the need to meet face-to-face.

Other elements with greater consolidation in the EAP management agreement are the EQA, the Pharmaceutical Prescription Quality Standard (EQPF) and safety in the use of medication, which in 2012 focused on reducing polymedication, prescription duplicities, and the communication of medication-related alerts.

The most important results were excellent economic performance with a positive financial balance between revenue and expenditure at 100% of the EAPs and the achieving of the maximum permissible spend (DMA) in pharmaceutical billing by 55% of the EAPs. There was good performance in clinical-healthcare targets, with achievement of the EQA maximum target by 60% of EAPs and the EQPF maximum target by 40%. Finally, there was a very good response to the goals of organizational improvement with achievement of the maximum fulfilment targets for e-consent and shared management of demand by 70% of the EAPs and achieving of maximum targets in quality management and patient safety at 98% of EAPs.

■ Joan Viñas, named chair of the ICS Board of Directors

On 10 July 2012, the Government approved the replacement of Josep Prat Domènech as chair of the Board of Directors of the ICS. In accordance with the proposal of the Department of Health, and pursuant to Article 6.4 of Decree 13/2009 of 3 February, approving the ICS articles of incorporation, the vacant chair position was occupied by its oldest member, Dr. Joan Viñas Sala.

Joan Viñas (Mataró, 1950) is a graduate and doctor in Medicine and Surgery from the University of Barcelona. Since 1977, he has worked at Arnau de Vilanova University Hospital in Lleida where he has held various positions. Currently, he is chief of the Surgery Section at the

Hospital. Since 1999, he has been chair professor of surgery at the University of Lleida, where he was also vice-chancellor for eight years.

Dr. Viñas is a member of the Bioethics Committee of Catalonia, a member of the Institute of Catalan Studies and chair of the Royal Academy of Medicine of Catalonia and the Balearic Islands. He was chair of the Board of Directors of the ICS until 16 April 2013.

■ The Legal Advisory Service continues defending the interests of the ICS and its professionals

The Legal Advisory Service's activity is divided into four areas of activity: the Affairs Advisory Department, which prepares reports on collaboration agreements and legal advice and represents the institution in proceedings regarding appeals relating to late payment interest and contracting; the Labour Affairs Department, which legally represents in proceedings instigated by workers against the ICS in both litigious and social spheres: the Asset Liability Claims Department which handles administrative liability proceedings and represents the institution in legal disputes, and the Department of Criminal Affairs, which provides legal advice and represents the ICS in criminal proceedings.

It is important to highlight that during 2012, with respect to personnel matters, out of nearly 1,000 cases filed against the ICS, 302 were resolved with sentences un-



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favourable to the plaintiff, in other words, the ICS won the cases, while 546 ended due to withdrawal by the claimants and only 82 cases were lost. Furthermore, the ICS won 148 of the 178 asset claims lodged. As for criminal matters, the ICS Legal Advisory Service won 107 cases and lost 29.

■ The COMB awards prizes to 19 ICS professionals

Once more, the Barcelona Medical Association (COMB) released the list of those medical professionals who were winners of the Professional Excellence Awards 2012, awarded in the fields of hospital medicine, primary healthcare, public and mental health, health and social care, biomedical research, medical education and medical humanities. Of the 42 professionals honoured, a total of 19 ICS medics were among the winners on individual merits, along with two professional teams: the EAP Gòtic and the Pneumology Service at Vall d'Hebron University Hospital.

The winners, who perform work in both primary healthcare and at the Vall d'Hebron, Viladecans and Germans Trias hospitals, were Albert Sueiras Fechtenburg, Alícia Melero Mascaray, Carme Batalla Martínez, Carme Tamayo Ojeda, Enriqueta Felip Font, Ernest Vinyoles Bargalló, Eugeni Bruguera Cortada, Francesc Xavier Mezquiriz Ferrero, Josep Espinasa Rifà, Josep Sánchez de Toledo Codina, Judith Parcet Solsona, Llorenç Caballeria Rovira, Manuel Puig Domingo, Margarita Admetlla Falgueras, Marta Carrera Plans, Miquel Reguant Fosas, Pere-Joan Cardona Iglesias, Pere Reig Calpe and Xavier Montalbán Gairin.

■ CIMS Project for joint work between ICS and IAS professionals launched in Girona

In November, a presentation was made to professionals of the ICS in Girona and the Healthcare Institute (IAS) of the project set to govern the future of both institutions: the so-called CIMS project, which aims to efficiently bring the two healthcare organizations closer together while maintaining their legal independence. The project aim is To Grow, Innovate and Improve in Health through Accumulated Knowledge, People Involvement and Seeking the Necessary Synergies. The ultimate goal is to improve healthcare for people in the region.

The basis of the project is the talent of the professionals and the certainty that this combined effort will allow Girona to be more competitive in attracting resources and the impact that this will have on patients, who are

the backbone and *raison d'être* of the CIMS project. The participation of professionals, a key point for the CIMS project, will materialize as work teams made up of staff from both institutions tackle issues such as citizen participation, healthcare continuity, innovation, research and transfer, saving and investment measures, teaching and continuing training or visibility of excellence with the aim of defining potential improvements in each area.

Another group of professionals will work on improving key processes in healthcare institutions such as the surgical suite, hospitalization, or chronic care. These groups will be independent for each institution. The project also seeks consensus on healthcare processes and protocols. In short, a common way of working for professionals of the same service that highlights the good points of each of the companies under a single leadership and seeks maximum benefit for patients and the system's sustainability. This will be the third block of work groups.

The starting point was the reorganization of the management team, which envisages a unified structure for both institutions.

■ The 5th Healthcare Administration Staff Conference highlights the best teamwork experiences

Nearly a thousand ICS administration and customer service professionals participated in the ICS Administrative Conference, held at Bellvitge University Hospital. On this occasion, the conference organizers prioritized the sharing of initiatives that improve the synergies of work teams, help streamline procedures and facilitate communication with users.

For the first time, the Conference has been followed online from different connection points established by each regional management. Its format allowed the exhibition of initiatives driven forward by the management and services staff of the institution's primary healthcare services and hospitals. Professionals talked about their role in the fast-track pathway for diagnosing cancer, the digitalization of procedures, the management of confidential documents, and the registration of advance care directive documents, among many other issues.

The Conference enjoyed the attendance of Professor Sebastian Serrano, chair professor of General Linguistics and Theory of Communication, who talked about the link between good communication methods and quality of life.

■ Satisfaction surveys

Ascertaining the level of satisfaction of the people served every day by the ICS is a priority objective, as this information allows knowledge of their opinion on the services offered and what their demands are, in order to be able to introduce specific improvement plans.

The views and satisfaction of users of ICS hospitals are included in the PLAENSA-CatSalut© User Satisfaction

Surveys Plan, which contains two satisfaction indicators: one on the degree of global satisfaction and the other on user loyalty, obtained with the question “Will you carry on coming here?” In 2012, the people surveyed were aged over 15 years and had been users of both primary healthcare centres and hospitals as well as mental health centres.

Primary healthcare satisfaction indicators

	Lleida	Tarragona	Barcelona	Girona	Costa de Ponent	Metropol. Nord	Catalunya Central	Alt Pirineu i Aran	Terres de l'Ebre
Global satisfaction level	8.0	7.9	7.9	8.0	7.8	7.8	8.0	8.0	8.0
Loyalty (%)	90.6	90.0	91.3	91.0	90.1	89.7	92.5	88.9	89.7

Hospital care satisfaction indicators

	Germans Trias i Pujol Hospital	Bellvitge Hospital	Vall d'Hebron Hospital	Arnau de Vilanova Hospital	Doctor Josep Trueta Hospital	Joan XXIII Hospital	Verge de la Cinta Hospital	Viladecans Hospital
Global satisfaction level	8.80	8.15	8.06	8.17	8.55	8.31	8.19	8.34
Loyalty (%)	94.3	95.3	87.2	95.3	95.0	90.0	91.6	87.5

Mental health centres satisfaction indicators

	Sant Martí Nord USM	L'Hospitalet CSMA	La Mina CSMA	Badia CSMA	Maragall CSMA
Global satisfaction level	7.53	7.32	8.33	7.38	8.08
Loyalty (%)	79.5	65.0	85.5	77.9	83.5

■ User complaints fall by 24%

In 2012, the ICS primary healthcare centres and hospitals received a total of 16,948 complaints, significantly fewer than in 2011 when the number presented, managed and answered totalled 22,371. This decrease of 24.2% in user complaints is linked, firstly, to the improvements implemented in the health centres and, secondly, to a more rational use of health services currently being made by the population. The complaints were related to organization and procedures, 10,252 (-19.1% compared to 2011); care, 3,475 (-23%), unsatisfactory treatment/attitude, 1,377 (-25.5%), information, 812 (-57.1%), catering, patient facilities and comfort, 563 (-29.6%) and documentation, 392 (-25.5%). With respect to positive feedback reports, figures showed a positive trend, meaning that in 2012 the centres received

20.2% more than in 2011. ICS users expressed their thanks, mainly, regarding the way they were treated and the care they were given. This trend is evidence of the confidence members of the public have in the institution and in the professionals treating them.

■ The ICS activates a new telephone line for arranging appointments at primary healthcare centres

Since 1 December 2012, the telephone scheduling service for ICS primary healthcare appointments has been offered via two telephone numbers: 902 111 444 and 93 326 89 01. Therefore, all ICS users who previously scheduled a family medicine, paediatrics, nursing, dentistry or social work appointment by dialling 902 111 444 can now also

do so by calling 93 326 89 01. This change does not apply to centres with their own call management mechanisms, which maintain their appointments number.

Activation of this new number, which covers over four million users throughout Catalonia, means everyone who pays a flat rate can arrange an appointment at their CAP at no cost.

It is important to remember that users can also book appointments online via the [ICS website](#). Both the online appointments booking service and the telephone appointments service are available 24 hours a day, 365 days a year.

In 2012, the ICS primary healthcare teams have attended to 35.7 million scheduled appointments, mainly booked in person at the centre itself. The aim of the organization is to promote alternatives to in-person booking of appointments to save people unnecessary trips to healthcare centres.

■ Online appointment-booking is consolidated on the ICS website

The [booking of appointments](#) for family medicine, paediatrics, nursing, dentistry, and social work services is the most visited page on the ICS website and has become consolidated as one of the ways most used to book a primary healthcare appointment. Thus, 2,218,926 appointments were booked this way, which represents an increase of 26.3% on the previous year.

Moreover, users also use online procedures to change primary healthcare centre (2,217 people) and primary healthcare team within the same centre (9,313 people).

■ Over 750 patients take part in the Expert Patient Catalonia Programme

In 2012, from the ICS a total of 63 EAPs, two specialized primary healthcare units and one hospital unit took part in the [Expert Patient Catalonia Programme®](#). During the year a total of 754 patients participated in the different groups organized, 67 of them as expert patients. A total of 70 groups were set up: five for heart failure, 25 for oral anticoagulant therapy, 16 for chronic obstructive pulmonary disease (COPD), 15 for diabetes mellitus type 2, two for quitting smoking, five for fibromyalgia, and one for Chagas disease in the chronic phase.

Expert patients are people affected by a chronic disease who are capable of taking responsibility for their own illness and of taking care of themselves, identifying the symptoms, responding to them, and acquiring tools to manage the physical, emotional, and social impact of their condition. The groups they lead aim to promote lifestyle changes that improve patients' quality of life through exchanging and transferring knowledge and experience between expert patients and other patients. This complicity is motivated in large part by the use of a common language and having experienced similar situations due to the same disease in a particularly intense, empathetic and fruitful way. The healthcare professional acts as an observer and intervenes only when necessary. The analysis of the results shows a high level of participation and participant satisfaction, and simultaneously shows significant improvements with respect to knowledge, habits, lifestyles, self-care, and quality of life between the beginning, the end, and the six and twelve months following completion of the intervention in the participants of the different groups set up. Furthermore, comparing the year prior to the start of the sessions with the year following the end of them shows a reduction in resources consumption in the form of primary healthcare appointments, visits to accident and emergency, and hospital admissions due to decompensation of the disease.

■ Circulation of news through the media, a key channel for informing the public about institutional projects

Maintaining ongoing contact with the media and proactively reporting on the healthcare projects and activities, teaching and research taking place daily at the ICS centres is a corporate strategic objective to ensure that all citizens are aware of what the institution does.

To this end, during the year 2012, over 350 press releases have been disseminated, both from the Corporate Centre and from hospitals, primary healthcare centres, and research institutes linked to the ICS. At the same time, there have also been over 4,500 requests from the media, both print media, and others such as radio, television and digital media.

CORPORATE SOCIAL RESPONSIBILITY

■ Temperature control in ICS operating theatres means a saving of 4,000 euros per room

A new HVAC system operating in the ICS's 141 operating theatres are allowing a saving of around 4,000 euros per year for each room, depending on the size of the facility. From the measurement and collection of a variety of data, it is possible to establish two types of functioning, depending on whether the operating theatre is active or not. When one of these facilities is functioning it requires very specific temperature and humidity conditions, therefore during the hours that most operating theatres are not active (between five in the afternoon and seven in the morning) it is possible to reduce the energy costs considerably.

During 2012, this control system was being used in 15 operating theatres located in the Vall d'Hebron, Viladecans, and Verge de la Cinta hospitals and the aim is to progressively implement it in the other ICS hospitals.

Temperature regulation and control are measures developed within the ICS's Energy Saving Plan, which since 2011 has also included other measures such as the purchase of energy from the Pool (the wholesale electricity market) which has achieved a reduction of 14% in the organization's electricity bill.

■ The ICS invests 4.9 million euros in building a new energy cogeneration plant at Vall d'Hebron Hospital

The Catalan Health Institute has invested 4.9 million euros in the construction of a new cogeneration plant at Vall d'Hebron University Hospital. This was made possible thanks to the collaboration agreement signed with the Institute for the Diversification and Saving of Energy (IDEA), a public company attached to the Ministry of Industry, Energy and Tourism, which is financing 100% of the cost of the operation. Monitoring of the process will be carried out by the Catalan Energy Institute (ICAEN).

This new cogeneration plant, which will replace existing equipment at the Barcelona hospital that was damaged in the fire of 2007, will allow annual savings of 1.2 million euros in the Hospital's electricity bills.

Vall d'Hebron Hospital is a healthcare centre with a long tradition in the field of cogeneration and in 1991, the first electric power station with this system was built there. The largest hospital in Catalonia generates a total energy bill of about 6.6 million euros per year, of which 2 million are natural gas. With the launch of this new cogeneration plant, the annual saving will be 1.2 million euros.



CORPORATE SOCIAL RESPONSIBILITY



When we talk about cogeneration, we are referring to burning a fossil fuel (natural gas) only once to obtain two different levels of energy. Firstly, the process generates electricity that is for the Hospital's own consumption, and secondly the useful heat is used to produce steam for sterilization, heating and running hot water. In addition, the heat surplus will be used to produce cold through the absorption system, which will prevent the consumption of electricity normally used for air conditioning through the electric compression system.

The benefits of this new cogeneration plant reside not only in the primary energy savings, but also in the great value it offers to improve the power supply quality. Cogeneration allows the Hospital to remain in isolation; therefore, it is not affected by electrical network disturbances, for example, possible power outages. Thus, the plant is never without supply even when the electric current is cut off for some reason.

Ultimately, cogeneration represents a major step forward for Vall d'Hebron Hospital to ensure its energy supply, increase foreign independence (decrease imports) and preserve the environment. Other ICS centres, such as Joan XXIII Hospital in Tarragona, Doctor Josep Trueta Hospital in Girona and Arnau de Vilanova Hospital in Lleida, will develop similar projects in the near future.

■ Measures put in place to optimize lighting and heating

The ICS has also established other optimization measures for lighting, heating, and temperature regulation of workspaces that use air conditioning or heating. Some of these measures rely on shared responsibility with professionals, such as encouraging the use of clothing

adapted to the workplace temperature, turning off the sink or shower taps when the water is not being used for a useful purpose and turning off computers, printers and lights when the workday ends, etc.

■ The ICS continues to ensure equality

The ICS has published its *Procedure for the prevention, action and resolution of psychological harassment, sexual, gender-based and other discrimination in the workplace*. This protocol brings together in one document those actions designed to prevent, detect, and resolve situations of psychological, sexual, gender-based or sexual orientation-based harassment and other discrimination that may occur in the ICS. It also constitutes an institutional commitment to the total eradication of such conduct and guaranteeing the health of people who have experienced these situations. The overall objective of the protocol is to define the framework for action in relation to harassment cases and, above all, it aims to be a guide for the prevention, detection, and resolution of these cases.



MAJOR INVESTMENTS AND FACILITIES

■ Main investments in building work and replacement equipment

Building work

- Continuation of work on the second phase at Bellvitge Hospital (bridging building to the existing hospital). Amount: 9,261,439 euros.
- Start of reconstruction work of the power plant at Vall d'Hebron Hospital, with installation of a 4,196 kW natural gas turbo generator of Amount: 5,900,000 euros
- CAP Horts de Miró. Amount: 5,111,214 euros.
- Outpatient Building at Dr. Josep Trueta Hospital. Amount: 4,225,580 euros.
- Completion of the second phase of Emergency Department at Germans Trias i Pujol Hospital. Amount: 3,306,111 euros.
- CAP L'Aldea. Amount: 2,434,891 euros.
- Area of Obstetrics and Paediatrics at Arnau de Vilanova Hospital in Lleida. Amount: 1,799,284 euros.
- Continuation of the work on the surgical suite and critical care ward of Vall d'Hebron Hospital. Amount: 1,319,724 euros.
- Completion, commissioning and equipping of the second phase of Cemcat. Amount: 878,604 euros.
- Rehabilitation of facades at the Corporate Centre (funded entirely by advertising revenue from the canvas facade wrap). Amount: 200,976 euros.

Equipment

- First part of the equipment for the surgical suite at Vall d'Hebron Hospital. Two hybrid operating theatres for vascular surgery and neurosurgery. Amount: 2,099,578 euros.
- Various equipment for Viladecans Hospital. Amount: 740,085 euros.
- Various equipment for primary healthcare. Amount: 564,749 euros.
- Various equipment for CAP Bages. Amount: 462,029 euros.
- Surgical suite and critical care ward at Vall d'Hebron Hospital. Amount: 204,000 euros.
- Various Equipment for the High Resolution Centre in Balaguer. Amount: 99,106 euros.

■ Diagnostic imaging Institute incorporates new state-of-the-art radiodiagnosis equipment at 4 ICS hospitals

This year the IDI invested more than six million euros in a range of state-of-the-art equipment for Vall d'Hebron University Hospital, Arnau de Vilanova Hospital in Lleida, Joan XXIII in Tarragona and Dr. Josep Trueta in Girona. The set of devices represents a qualitative leap in the use of diagnostic imaging.

The new Vall d'Hebron equipment, a positron emission tomography scanner with a computed tomography scanner (PET-CT), incorporates the latest technological advances in molecular imaging. It performs multiple tests and they all concentrate on the molecular appearance of diseases. The PET-CT mainly focuses on diagnostic testing and monitoring of cancer, but will also be used for addressing neurological and cardiovascular diseases. It is expected to be used for between 4,000 and 5,000 tests per year, depending on case complexity. This is a high-precision device, already in operation, that provides metabolic and anatomical information together, since it presents, in a combined image, information from the high-resolution PET-CT scan. Therefore, the spatial and contrast result allows images to be obtained that translate with the utmost fidelity those biological processes taking place inside the body. This PET-CT scanner, with a cost of 1.9 million euros plus installation work costs, improves the performance of existing radiodiagnosis equipment in Catalonia and becomes one of the units with the greatest precision and quality of results among those of this type available in Spain.

Furthermore, the apparatus installed at the Arnau de Vilanova and Joan XXIII university hospitals also represent a qualitative leap for diagnostic imaging studies in the two respective territories. This hybrid equipment, a dual-head, variable-angle gamma camera combined with a CAT scanner, allows the merging of the gammagraph image with the radiological imaging, thus offering a more precise image that improves the diagnostic accuracy of the technique. The device, which costs half a million euros, will perform 4,500 tests per year for the diagnosis of cardiovascular, endocrine, oncology, kidney and urinary tract diseases and in the detection and location of the sentinel node in breast disease and malignant melanoma.

At Dr. Josep Trueta University Hospital, the changes in high-technology equipment have materialized in the renewal of two CT scanners and a magnetic resonance (MRI) scanner. The cost of renewal is three million euros.

MAJOR INVESTMENTS AND FACILITIES

■ New accident and emergency areas inaugurated at Germans Trias Hospital

On March 1, 2012, new Accident and Emergency areas were inaugurated at Germans Trias i Pujol University Hospital, incorporating all of the centre's emergency care except for gynaecology and obstetrics. These areas have allowed the medical-surgical care points to be increased from 30 to 40, paediatric care points to be doubled up to 14 and a care room for trauma patients to be added. Above all, with these it has been possible to improve healthcare efficiency and patient comfort, as well as patient privacy and safety.

The bays in the new accident and emergency areas are individual, but can accommodate two beds in emergency situations or during periods of high levels of activity. In addition, two bays have been added for high-risk patients, along with an operating theatre for performing minor interventions and multipurpose care rooms. Spaces for patients with multiple trauma injuries and heart attacks, as well as the radiology equipment, have improved and continue to consolidate the Hospital's role as a centre for high complexity care in Barcelonès Nord and Maresme. Thanks to all this, the service has been able to improve its organization, and, in 2012, complaints fell by 14%. In addition, 98% of people treated state that they would return to the Germans Trias Accident and Emergency Department.



The refurbishment project began in 2008 and will end in 2013 with the completion of the third phase, which will add to the new spaces the refurbishment of the Short Stays Unit, the ambulances area and an area for attending to less serious patients.

■ Vall d'Hebron Hospital is fitted with new equipment

During 2012, work was completed on buildings and equipment notable for their healthcare importance at Vall d'Hebron Hospital, such as the Cemcat, a three-storey building, covering over 2,000 m² and with a functional design that facilitates the activity of the new Comprehensive Treatment Centre for Multiple Sclerosis, the product of a partnership collaboration between the Multiple Sclerosis Foundation and Vall d'Hebron Hospital. Also important was the completion of the work on the Central Unit for Clinical Research and Clinical Trials (UCICAC), linked to the VHIR and devoted to clinical trials and studies, with a space measuring over 900 m² located on the 13th floor in the Mother and Baby Department.

The Hospital is also equipped with a haemodynamics room with high-tech equipment donated by the Cellex Foundation and it has incorporated integration systems and surgical procedure lamps in all the operating theatres in the new General Area surgery suite.

■ Dr. Trueta Hospital opens its new outpatients building

The new outpatient building at Dr. Josep Trueta University Hospital in Girona was commissioned in January 2012. It is a construction built with industrialized modules that consists of consisting of 86 outpatient consulting areas, two administration areas for 15 by professionals from the Catalan Institute of Oncology.

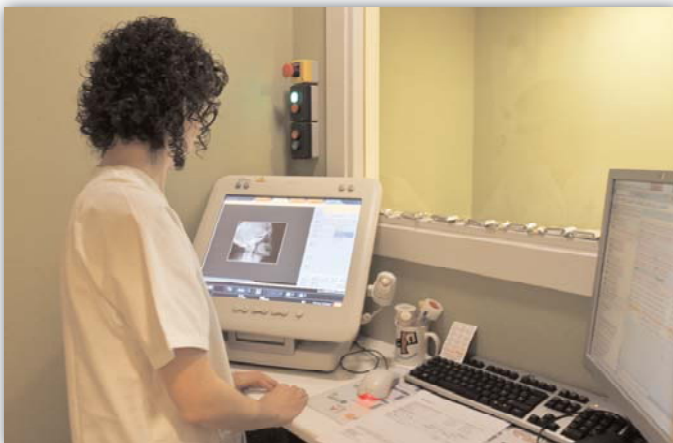
The commissioning of the new building has allowed outpatient consultations to be reorganized with the aim of reunifying services, which is an improvement for both the users and the running of the Hospital's activity. Thus, all outpatient consulting activities for a service will be located in one place and not, as previously, divided between the Güell Specialties Centre and Dr. Josep Trueta Hospital.

The new building has two floors and a total floor area of 3,202 m². The work was carried out using a construction system based on the manufacture of concrete modules fully finished and equipped at the factory that can be stacked and connected together. This sustainable building system offers a time reduction of 75% compared to traditional construction systems, a reduction in CO₂ emissions of 33% and a good level of comfort, quality, and finishes.

■ The new Horta primary healthcare emergencies centre starts operating

In the month of January 2012, the CUAP Horta started operating. The new centre is open 24 hours a day, every day of the year, and gives cover to a population of over 134,000 inhabitants from the Horta and northern Nou Barris districts in Barcelona.

The CUAP Horta is designed to provide immediate medical and nursing care aimed at case resolution, therefore it is equipped with technically advanced equipment such as a conventional digital direct x-ray service and an immediate blood-testing service, a cardiac resuscitation room, a minor surgery room for dealing with sutures, wound dressings and burns, and three observation bays, three immediate care bays, an emergencies bay and a surgery and trauma bay. This new centre will mean improvements in case resolution capacity and accessibility as well as greater comfort for users.



■ The new CAP L'Aldea starts operating

The Primary healthcare centre of L'Aldea, a new construction, provides coverage for a population of 10,618 inhabitants. The new facility provides services in general medicine, paediatrics, dentistry, social work, health education, continuing care, teaching and sexual and reproductive healthcare.

The facilities consist of a general medicine area with three consulting rooms, three nurse's offices, and a waiting room; a paediatrics area formed by two consulting rooms, two more nurse's offices and a waiting room; a multipurpose area with a dentistry consulting room, a dentistry work room, two multipurpose rooms and a waiting room: a continuing care area with one consulting room, a treatments room, three multipurpose bays and a room for taking samples; a healthcare education area; a staff area; a storage area and a facilities area.

■ New Horts de Miró primary healthcare centre in Reus opens its doors

In the month of September 2012, the Horts de Miró primary healthcare centre in Reus opened its doors. This new CAP has allowed the transfer of many of the professionals from Reus Basic Health Area 4, who previously provided services from the CAP Llibertat building. With the opening of a health centre in the Horts de Miró district, with an assigned population of 22,494 inhabitants, care for elderly people is strengthened by taking the health services closer to an area with a large number of people aged over 65 years.

The new centre maintains the portfolio of healthcare services for adults (treatment at the health centre, community activity, and chronic and spontaneous home care). Paediatric activity will continue at the CAP Llibertat.

■ Balaguer inaugurates a high-resolution centre

In 2012, the doors opened of the new High Resolution Centre (CAR) in Balaguer, which was launched with the objective of offering primary healthcare and integrated speciality treatment to the catchment population. The CAR is the result of a strategic alliance between ICS and Healthcare Services Management, which has allowed the work of the professionals of both organizations to be integrated.

The new building consists of five floors with 32 consulting rooms of a multipurpose nature used by the different healthcare professionals working there. In addition, this new infrastructure has a single point of contact for the public for both primary and specialized healthcare in order to share and streamline administration procedures, avoid duplications and facilitate attention to the public.

The CAR of Balaguer also offers a radiology service and rehabilitation, thus avoiding users having to travel outside of the region.

FINANCIAL MANAGEMENT

Income

The main source of income for the ICS comes from transfers received from the Catalan Health Service as consideration for its programme contract. A much smaller

contribution to its budget is the income from healthcare services provided to third parties that are subject to payment and transfers for non-healthcare services.

	2012	2011	Variation 2012/2011	% variation 2012/2011
Revenue from healthcare services	2,620,591,604.21	2,741,375,142.88	-120,783,538.67	-4.41
Payable by the Catalan Health Service. CatSalut	2,586,666,964.04	2,711,892,577.91	-125,225,613.87	-4.62
Payable by third parties subject to payment	33,924,640.17	29,482,564.97	4,442,075.20	15.07
Revenues and transfers for other services	35,288,112.32	65,758,389.03	-30,470,276.71	-46.34
Total income	2,655,879,716.53	2,807,133,531.91	-151,253,815.38	-5.39

Indicators

Thanks to a major management effort by its professionals, the ICS has been able to maintain a quality service to the public, responding to declining revenue by improving productivity and efficiency. In 2012, ICS hospitals increased their output per healthcare staff member by over 3%, as reflected by healthcare activity in the ICS's basic standard

measurement units (UME). This increase in productivity was also accompanied by other actions that allowed the increase in efficiency to exceed 5.5%, in terms of reduction of operating expenses per unit of output. This improvement in productivity was achieved mainly through a significant increase in surgical activity.

Hospital Care	Productivity		Efficiency	
	UME / healthcare workforce*	% variation 2012/2011	CAP I+II (without MHDA) / UME	% variation 2012/2011
Hospital level I	30.23	-4.9	2,265.09	-2.4
Viladecans	30.23	-4.9	2,265.09	-2.4
Hospitals level II	26.83	3.33	3,031.40	-4.81
Verge de la Cinta	28.06	6.64	2,876.75	-7.55
Arnau de Vilanova	28.55	-3.82	2,837.00	2.18
Joan XXIII	26.93	7.14	3,002.41	-8.76
Dr. Trueta	24.39	7.04	3,379.49	-7.59
Hospitals level III	22.72	3.42	3,683.45	-6.02
Germans Trias	26.41	6.65	3,156.62	-4.39
Bellvitge	23.37	2.99	3,528.13	-6.16
Vall d'Hebron	21.00	2.41	4,025.20	-6.48
Total hospitals	24.19	3.25	3,416.99	-5.52

* Does not include non-medical staff.

In the area of primary healthcare, the result of the efforts of professionals is even more visible both in containment of pharmacy expenditure and in the operating costs per weighted population served. The con-

tainment of pharmacy spending reflects a significant effort by professionals to adapt the prescriptions of patients according to criteria of safety, clinical effectiveness, and efficiency.

Primary healthcare	Net pharmacy spend per capita / weighted population served (age)			Running costs* of primary healthcare per capita / weighted population served (age)		
	2011	2012	% variation 2012/2011	2011	2012	% variation 2012/2011
Alt Pirineu i Aran	284.02 €	250.25 €	-11.89	210.38 €	179.61 €	-14.63
Barcelona Ciutat	318.12 €	262.52 €	-17.48	164.81 €	148.77 €	-9.73
Camp de Tarragona	265.38 €	226.91 €	-14.50	162.33 €	140.22 €	-13.62
Catalunya Central	276.46 €	226.41 €	-18.10	157.68 €	138.22 €	-12.34
Costa de Ponent	282.36 €	233.79 €	-17.20	141.51 €	122.62 €	-13.35
Girona	239.72 €	204.37 €	-14.75	147.32 €	127.87 €	-13.21
Lleida	275.86 €	242.04 €	-12.26	148.70 €	133.29 €	-10.36
Metropolitana Nord	269.53 €	223.02 €	-17.25	143.70 €	122.41 €	-14.82
Terres de l'Ebre	286.72 €	246.02 €	-14.20	142.87 €	124.86 €	-12.61
Total primary healthcare	280.65 €	234.22 €	-16.54	150.91 €	131.81 €	-12.66

* Includes staff costs, intermediate products, reagent strips, and supplies.

■ Expenditure

The evolution of the expenditure budget close shows how the most important containment effort corresponds to operating expenses (expenditure on personnel and on current assets), although there is an increase in pharmaceutical expenditure and healthcare material. While the increase in pharmaceutical expenditure shows an increase in the number of patients treated with outpatient dispensed hospital medication and an increase in the average cost per patient, increased spending on medical equipment is justified by factors such as increased surgical activity and the rise affecting reduced VAT,

which has affected medical supplies. In 2012, the ICS managed to increase investment significantly. This spending has a significant impact on services as it allows renewal of some obsolete equipment and adapting of the space to the new needs of the services.

Overall, the ICS has managed to amply meet its obligations under the programme contract signed with the Catalan Health Service in terms of provision of health services, while at the same time balancing its budget thanks to improvements in productivity and an efficient management of resources.

	2012	2011	Variation 2012/2011	% variation 2012/2011
Personnel, current assets, and services expenditure	2,604,508,854.97	2,777,919,578.91	-173,410,723.94	-6.24
Current transfers	517,253.65	164,086.39	353,167.26	215.23
Real investments	13,799,913.00	5,809,773.74	7,990,139.26	137.53
Total expenditure	2,618,826,021.62	2,783,893,439.04	-165,067,417.42	-5.93

FINANCIAL MANAGEMENT

■ The ICS generalizes the use of electronic invoicing

In early 2012, the pilot scheme was launched to generalize electronic invoicing across all levels of the organization. This organizational change responds to the application of the Omnibus law regarding the simplification and improvement of the regulation to “promote the use of electronic invoicing as an execution condition of public sector contracts”.

At present, the ICS processes some 350,000 invoices annually. During the year 2012, 14,536 electronic invoices from 97 different suppliers have already been processed. Due to the high volume of invoicing, the progressive introduction of the electronic invoice will mean significant benefits.

The benefits of electronic invoicing lie in reduced costs, improved management, increased security, increased service quality, and greater flexibility in the relationship.

The Catalan public administrations share a common electronic invoicing solution that facilitates the relationship with companies and offers all the technological and legal guarantees. In this context, the ICS has been the public company that has promoted the use of the EDIFACT format, which has minimized the investments

for suppliers that were already using it with other customers. This initiative fulfils the Government’s objectives of facilitating the relationship between the administrations and businesses. The implementation project for electronic invoicing was developed in collaboration with the Catalan Government’s Department of the Economy and Knowledge.

■ New ICS public prices order is published

In the Order of the Department of Health SLT/483/2005, of 15 December, invoiceable events and items were regulated and there was approval of the public prices for services that the ICS provides to users not covered by the public health system when there is an entity required to pay such healthcare costs and when, according to the legislation in force, any other physical or legal person exists obliged to make such payment exists.

In the year 2012, due to the need to adjust prices and the current catalogue of services to the current services portfolio of ICS centres, a new [Order on pricing](#) (SLT/42/2012, of 24 February) was published which updates the list of invoiceable activities and their corresponding public prices in force to date.



THE INSTITUTION'S ORGANIZATIONAL CHART

General Public



CATALAN HEALTH INSTITUTE

Lines of activity

Healthcare

Teaching

Research

Regional structure



Corporate structure

Primary Healthcare Consortium of the Eixample (CAPSE)

Castelldefels Health Agents Consortium (CASAP)

Corporate Centre

Logaritme

Governing body

Board of Directors

Generalitat de Catalunya
Ministry of Health

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enthusiasm
public service
responsibility
innovation
commitment
respect
integrity
change
trust
involvement
safety
sustainability
competence
fairness
sensitivity
cooperation



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