

Visión, Oportunidades y Transformaciones en el entorno empresarial derivados de medicina de precisión

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Santander, 1 de Julio del 2021

Financial Disclosures

Lluís Blanch MD, PhD

L.Blanch is inventor of one CS Parc Taulí owned US patent: “Method and system for managed related patient parameters provided by a monitoring device,” US Patent No. 12/538,940, and named in a provisional European patent application number EP19383116 owned by CS Parc Taulí: “A device and method for respiratory monitoring in mechanically ventilated patients”.

L.Blanch is founder of BetterCare S.L. which is a research and development company, spin off of Corporació Sanitària Parc Taulí.

Healthcare Access and Quality Index based on mortality from causes amenable to personal health care in 195 countries and territories, 1990–2015: a novel analysis from the Global Burden of Disease Study 2015

GBD 2015 Healthcare Access and Quality Collaborators*



	Healthcare Access and	Tuberculosis	Diarrhoeal diseases	Lower respiratory infections	Upper respiratory infections	Diphtheria	Whooping cough	Tetanus	Measles	Maternal disorders	Neonatal disorders	Non-melanoma skin cancer	Cervical cancer	Uterine cancer	Testicular cancer	Hodgkin's lymphoma	Leukaemia	Rheumatic heart disease	Ischaemic heart disease	Cerebrovascular disease	Hypertensive heart disease	Chronic respiratory disease	Peptic ulcer disease	Appendicitis	Inguinal, femoral, and abdominal hernia	Gallbladder and biliary diseases	Epilepsy	Diabetes mellitus	Chronic kidney disease	Congenital heart anomalies	Adverse effects of medical treatment
Andorra	95	98	99	85	100	100	98	99	100	100	99	82	93	96	81	70	73	96	84	96	95	97	95	99	93	91	92	96	95	96	88
Iceland	94	95	97	72	99	100	100	100	100	100	99	90	87	91	67	63	75	94	75	95	93	98	93	99	99	84	92	100	100	98	87
Switzerland	92	99	91	87	99	100	100	100	100	97	80	76	90	94	75	72	72	96	86	100	85	97	92	96	92	86	89	94	93	85	92
Sweden	90	98	96	80	99	100	100	100	100	98	90	78	76	95	83	76	67	91	73	88	94	95	79	98	92	86	85	78	95	95	86
Norway	90	95	92	78	99	100	100	100	100	99	90	81	81	91	65	70	76	93	78	87	99	95	80	98	92	86	80	78	92	93	97
Australia	90	100	94	82	99	100	100	100	99	96	81	52	84	95	86	74	70	86	78	93	98	90	93	98	89	84	83	83	88	90	77
Finland	90	93	99	89	99	100	100	100	100	99	95	84	95	92	78	69	72	96	67	80	75	98	75	96	84	79	76	79	99	87	96
Spain	90	92	96	80	99	100	98	100	100	99	85	74	83	90	82	64	66	76	86	91	93	95	96	94	84	74	97	98	86	88	77
Netherlands	90	99	94	71	99	100	100	100	100	96	79	80	83	96	74	65	78	93	79	85	97	94	90	95	87	79	82	84	89	88	90
Luxembourg	89	99	87	85	99	100	98	100	100	92	93	74	84	96	82	73	65	81	83	88	91	97	91	93	85	78	79	90	86	100	74
Japan	89	89	94	61	99	100	100	100	99	98	100	87	77	78	85	89	71	92	94	75	89	91	87	99	99	81	99	90	65	84	84
Italy	89	95	96	90	99	100	99	99	100	100	81	74	85	89	76	60	60	78	84	88	72	98	95	98	88	78	93	89	83	85	83
Ireland	88	91	94	71	99	100	100	100	100	98	90	59	76	92	82	58	69	87	73	92	93	93	81	99	86	81	81	91	88	86	85
Austria	88	95	92	95	99	100	100	100	99	99	84	68	78	89	71	70	67	86	76	93	77	96	88	98	89	84	89	84	78	89	64
France	88	92	92	76	99	100	99	100	99	93	86	72	81	93	73	68	64	80	87	89	94	98	91	95	85	81	75	87	92	86	62
Belgium	88	94	92	68	99	100	99	100	100	95	83	68	79	91	84	65	67	90	78	86	97	94	84	97	86	79	76	90	87	93	70
Canada	88	98	93	73	99	100	99	100	100	96	71	64	79	93	81	71	71	82	72	90	95	92	89	96	86	82	91	78	82	86	82
Slovenia	87	92	99	80	98	100	100	100	99	97	91	71	77	92	60	65	74	77	83	78	71	100	76	97	79	76	89	100	98	90	56
Greece	87	90	100	84	98	100	100	99	100	95	85	62	78	85	67	31	62	94	61	72	83	98	85	100	92	85	100	98	76	71	68
Germany	86	98	95	73	99	100	100	100	100	96	82	75	78	94	66	68	68	81	71	85	78	95	80	95	91	80	75	84	81	87	70
Singapore	86	79	96	39	99	100	100	100	100	99	98	88	75	85	99	86	63	93	74	77	53	95	87	99	93	79	98	94	52	92	97
New Zealand	86	96	90	87	99	100	100	100	99	89	79	60	82	87	73	66	62	70	69	84	93	86	89	96	89	81	80	83	72	85	92
South Korea	86	67	97	79	98	100	99	99	98	94	85	89	79	86	99	87	55	98	100	67	84	95	92	93	98	72	81	63	62	95	83
Denmark	86	96	90	74	98	100	100	100	100	99	81	74	80	94	65	63	72	90	79	81	94	92	68	87	83	78	78	72	79	87	82

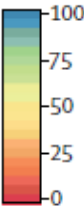
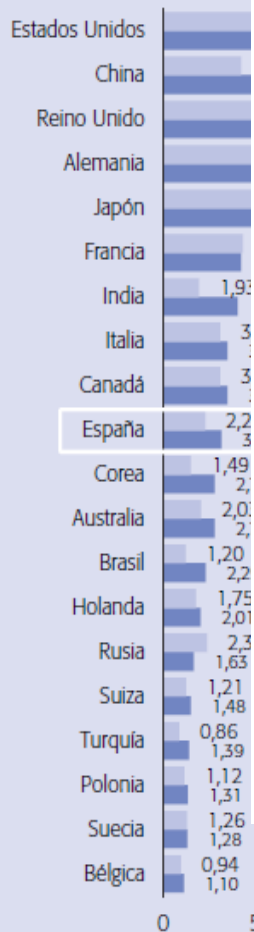




Gráfico I.31. Cuota n mundo con mayor pro



Fuente: SCImago Journal & Country Rank a partir de datos "Scopus". Elaboración Grupo SCImago, Instituto de Políticas y Bienes Públicos (IPP-CCHS) del CSIC, (2014). Tabla 47, segunda parte..

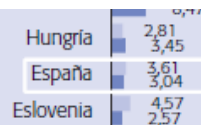
BOLSILLO / FINANZAS PERSONALES / EMPRENDEDORES

European Innovation Scoreboard 2021

EL LARGO CAMINO HACIA LA NUEVA ECONOMÍA

España retrocede dos puestos en el ranking de innovación de la UE

• Bruselas avisa que el esfuerzo es insuficiente ante el ritmo acelerado de otros países

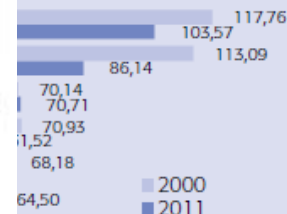


28

0 25 50 75 100 125

Fuente: "Main Science and Technology Indicators. Volume 2013/2". OCDE (2014) y elaboración propia. Tabla 54, segunda parte.

is por millón de habitantes,





JAMA

October & December 2018

Energy-Dense versus Routine Enteral Nutrition in the Critically Ill

The TARGET Investigators, for the ANZICS Clinical Trials Group*

Haloperidol and Ziprasidone for Treatment of Delirium in Critical Illness

T.D. Girard, M.C. Exline, S.S. Carson, C.L. Hough, P. Rock, I.S. Douglas, A. Malhotra, R.L. Owens, D.J. Feinstein, R.C. Hyzy, G.A. Schmidt, W.D. Schweickert, R.D. Hite, J.L. Thompson, R. Chandrasekhar, B.T. Pun, C. Stroup, P.P. Pandharipande, N.E. Brummel, C.G. G. Bernard, R.S. Dittus, and E.W.

Pantoprazole for Gastrointestinal Bleeding in the ICU

M. Krag, S. Marker, A. Lange, J.C. Schefold, F. Keus, A.B. Guttormsen, S. Lange, B.S. Rasmussen, M. Siegemund, H. Burdick, J.V. Jensen, R.D. Nielsen, L. Liboriussen, M.H. Bestle, D.F. Palmqvist, M. Bäcklund, J.H. Laake, P.M. Bådstøløkken, J. Grönlund, O. Breum, A. Walli, R. Winding, S. Iversen, I.-L. Jarnvig, J.O. White, B. Brand, M.B. Madsen, L. Quist, K.J. Thornberg, A. Møller, J. Wiis, A. Granholm, C.T. Anthon, T.S. Meyhoff, P.B. Hjortrup, S.R. Aagaard, J.B. Andreasen, C.A. Sørensen, P. Haure, J. Hauge, A. Hollinger, J. Scheuzger, D. Tuchscherer, T. Vuilliomonet, J. Takala, S.M. Jakob, M.L. Vang, K.B. Pælestik, K.L.D. Andersen, I.C.C. van der Horst, W. Dieperink, J. Fjølner, C.K.W. Kjer, C. Sølling, C.G. Sølling, J. Karttunen, M.P.G. Morgan, B. Sjøbø, J. Engstrøm, B. Agerholm-Larsen, and M.H. Møller, for the SUP-ICU trial group*

No Difference !!!

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of High-Flow Nasal Oxygen vs Standard Oxygen on 28-Day Mortality in Immunocompromised Patients With Acute Respiratory Failure The HIGH Randomized Clinical Trial

Elie Azoulay, MD, PhD; Virginie Lemiale, MD; Djamel Mokart, MD, PhD; Saad Nseir, MD, PhD; Laurent Argaud, MD, PhD; Frédéric Pène, MD, PhD; Loay Kontar, MD; Fabrice Bruneel, MD; Kada Klouche, MD, PhD; François Barbier, MD, PhD; Jean Reignier, MD, PhD; Lilia Berrahil-Meksen, MD; Guillaume Louis, MD; Jean-Michel Constantin, MD, PhD; Julien Mayaux, MD; Igor Thodose, MD; Achille Kouatchet, MD; Vincent Peigne, MD; Igor Théodose, MS; Pierre Perez, MD; Christophe Girault, MD; Samir Jaber, MD; Lila Bouadma, MD, PhD; Christine Lebert, MD; Alexandre Lautrette, MD, PhD; Jean-Herlé Raphalen, MD; Laurent Papazian, MD, PhD; Michael Darmon, MD, PhD; Sylvie Combes, MD, PhD; and the HIGH Investigators

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of Early Subcutaneous Vasopressin on Neurologic Outcomes in Patients With Sepsis-Associated Acute Kidney Injury The SAKI Trial

Stephane Legrand, MD, PhD; Stephen Bernard, MBBS, MD; Peter A. Cameron, MD; Michael G. Bellomo, MD, PhD; Shelli Gantner, MBBS; Alisa M. Higgins, MPH; Olivier Huet, MD, PhD; Jessica Kasza, PhD; Jeffrey J. Presneil, MBBS, PhD; Stephen Rashford, MBBS; Jeffrey V. Rosenfeld, MD, MS; Dinesh Varma, MD; Steven A. R. Webb, MD, PhD; Tony Trapani, BEMergHealth; and the SAKI Trial Investigators and the ANZICS Clinical Trials Group

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of Human Recombinant Alkaline Phosphatase on 7-Day Creatinine Clearance in Patients With Sepsis-Associated Acute Kidney Injury A Randomized Clinical Trial

Peter Pickkers, MD, PhD; Ravindra L. Mehta, MD; Patrick T. Murray, MD; Michael Joannidis, MD; Bruce A. Molitoris, MD; John A. Kellum, MD; Mirjam Bachler, PhD; Eric A. J. Hoste, MD, PhD; Oscar Hoiting, MD; Kenneth Krell, MD; Marlies Ostermann, MD, PhD; Wim Rozendaal, MD; Mia Valkonen, MD, PhD; David Brealey, MD, PhD; Albertus Beishuizen, MD, PhD; Ferhat Meziani, MD, PhD; Raghavan Murugan, MD, MS, FRCP; Hilde de Geus, MD, PhD; Didier Payen, MD, PhD; Erik van den Berg, MSc; Jacques Arend, MD; for the STOP-AKI Investigators

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Effect of Protocolized Weaning With Early Extubation to Noninvasive Ventilation vs Invasive Weaning on Time to Liberation From Mechanical Ventilation Among Patients With Respiratory Failure The Breathe Randomized Clinical Trial

Gavin D. Perkins, MD; Dipesh Mistry, PhD; Simon Gates, PhD; Fang Gao, MD; Catherine Snelson, MB; Nicholas Hart, PhD; Luigi Camporota, PhD; James Varley, MB; Coralie Carle, MB; Elankumaran Paramasivam, MB; Beverley Hoddell; Daniel F. McAuley, MD; Timothy S. Walsh, MD; Bronagh Blackwood, PhD; Louise Rose, PhD; Sarah E. Lamb, DPHL; Stavros Petrou, PhD; Duncan Young, DM; Ranjit Lall, PhD; for the Breathe Collaborators

Derivation, Validation, and Potential Treatment Implications of Novel Clinical Phenotypes for Sepsis

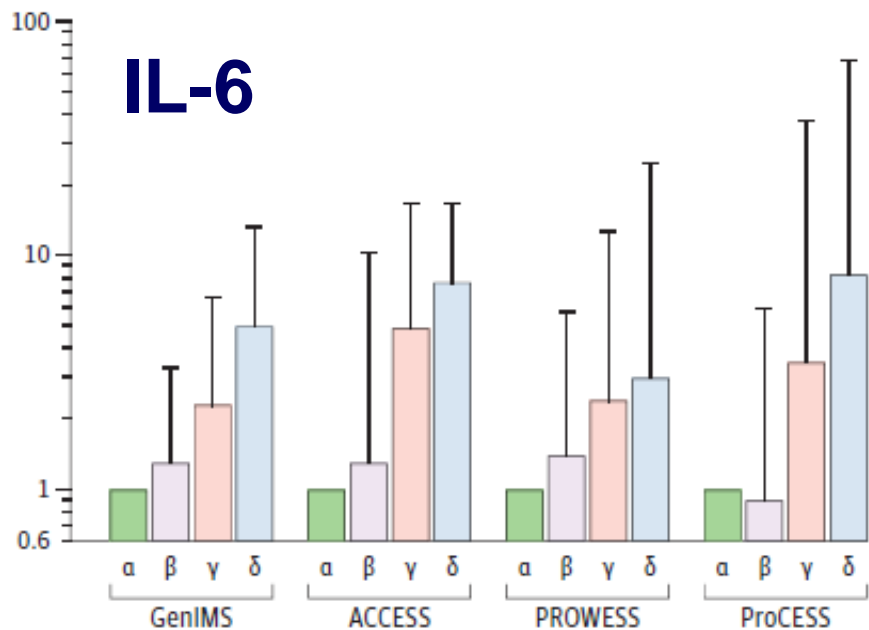
JAMA May 19, 2019

Christopher W. Seymour, MD, MSc; Jason N. Kennedy, MS; Shu Wang, MS; Chung-Chou H. Chang, PhD; Corrine F. Elliott, MS; Zhongying Xu, MS; Scott Berry, PhD; Gilles Clermont, MD, MSc; Gregory Cooper, MD, PhD; Hernando Gomez, MD, MPH; David T. Huang, MD, MPH; John A. Kellum, MD, FACP, MCCM; Qi Mi, PhD; Steven M. Opal, MD; Victor Talisa, MS; Tom van der Poll, MD, PhD; Shyam Visweswaran, MD, PhD; Yoram Vodovotz, PhD; Jeremy C. Weiss, MD, PhD; Donald M. Yealy, MD, FACEP; Sachin Yende, MD, MS; Derek C. Angus, MD, MPH

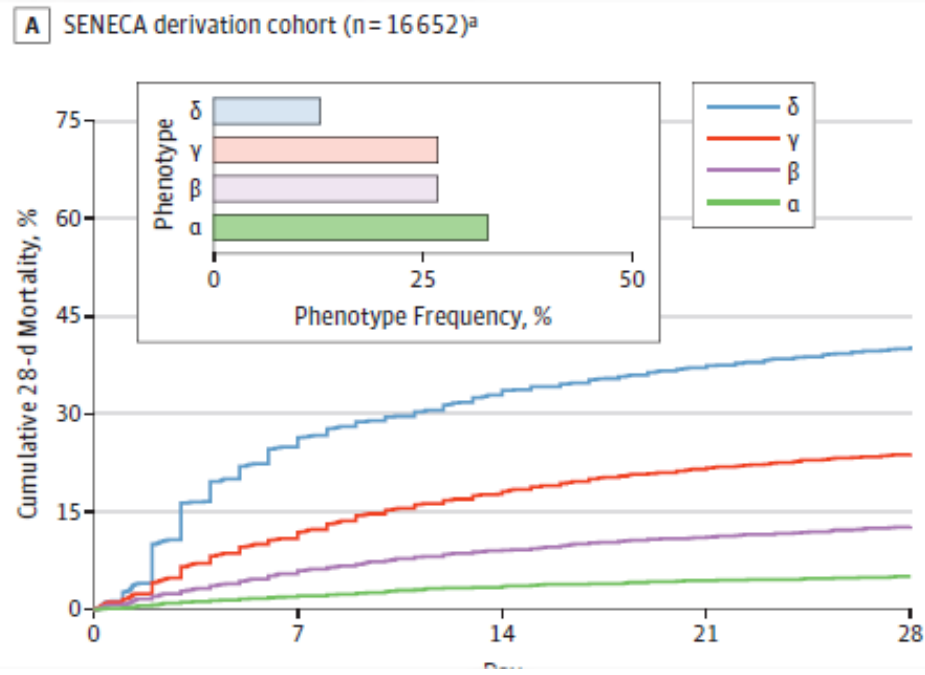
Derivation cohort: 20.189 patients with sepsis

Validation cohort: 43.086 patients with sepsis

Inflammatory Cytokines Across Phenotypes



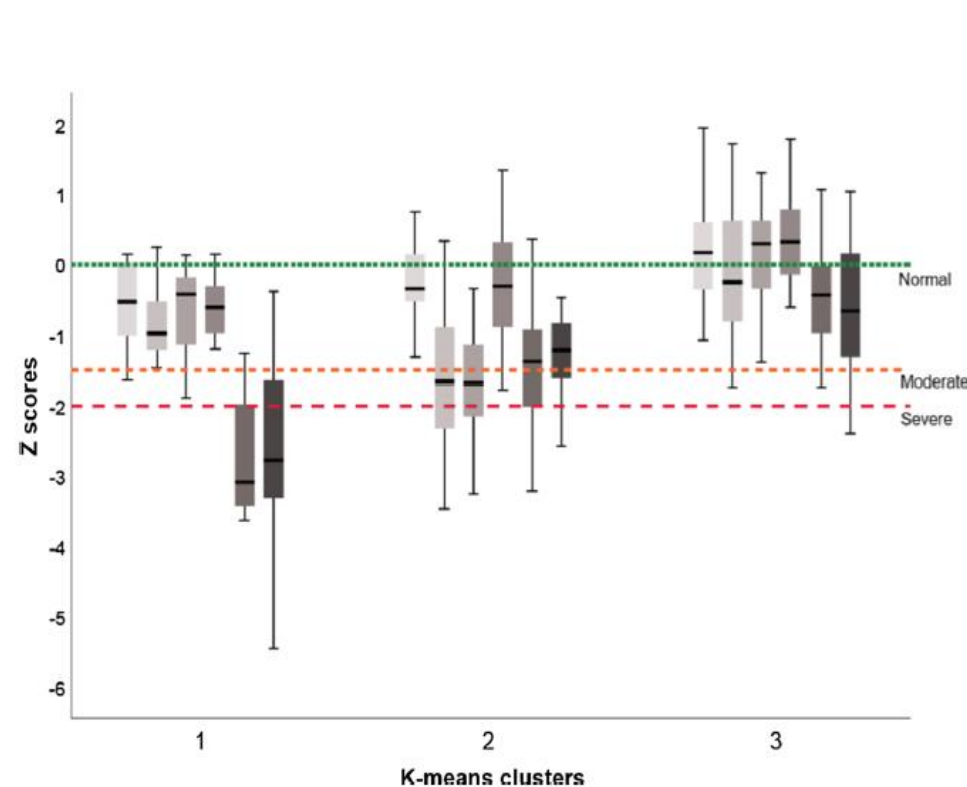
Short-term Mortality by Phenotype



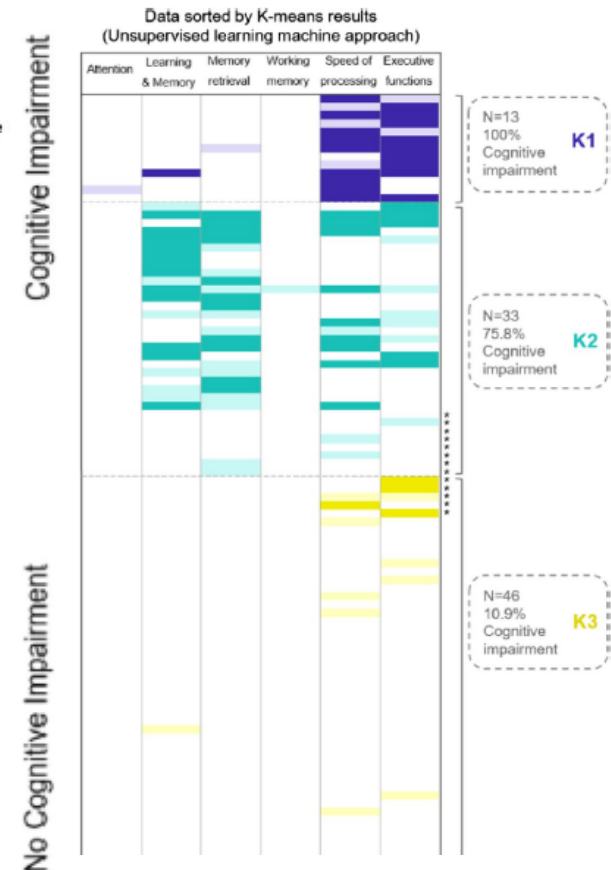
Cognitive phenotypes 1 month after ICU discharge in mechanically ventilated patients: a prospective observational cohort study

Sol Fernández-Gonzalo^{1,2,3*}, Guillem Navarra-Ventura^{1,4}, Neus Bacardit⁵, Gemma Gomà Fernández¹, Candelaria de Haro^{1,4}, Carles Subirà⁶, Josefina López-Aguilar^{1,4}, Rudys Magrans⁷, Leonardo Sarlabous¹, Jose Aquino Esperanza^{1,4,8}, Mercè Jodar^{2,3,9}, Montse Rué^{10,11}, Ana Ochagavía^{1,4}, Diego J. Palao^{2,12,13}, Rafael Fernández^{4,6} and Lluís Blanch^{1,4,8}

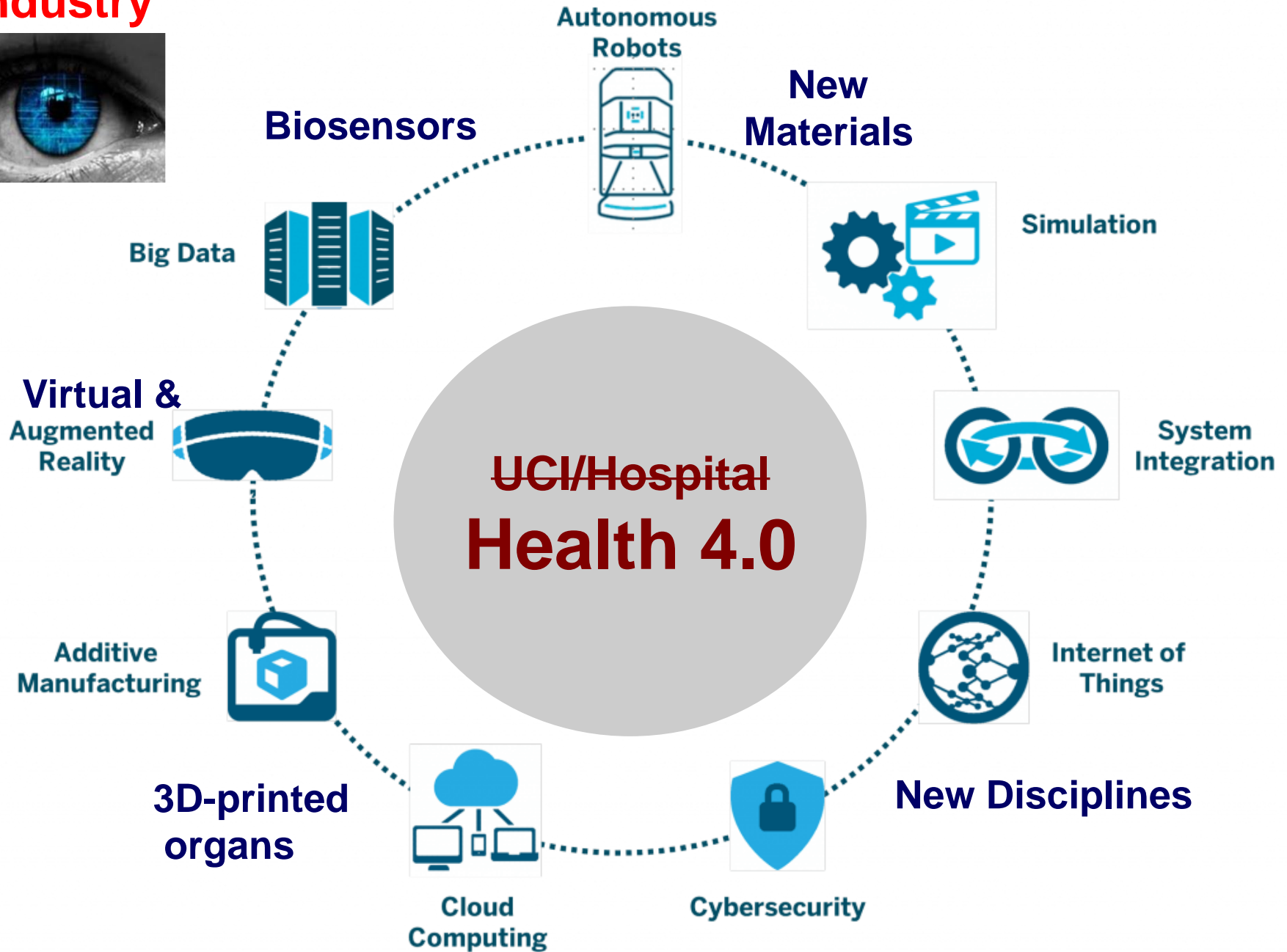
Fernández-Gonzalo et al. Crit Care (2020) 24:618

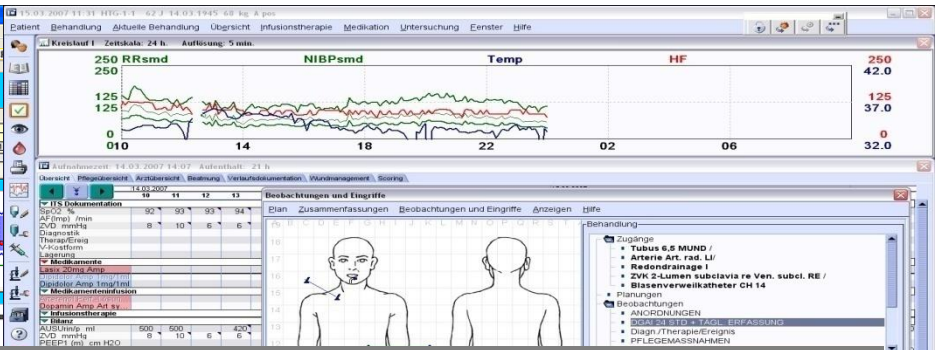
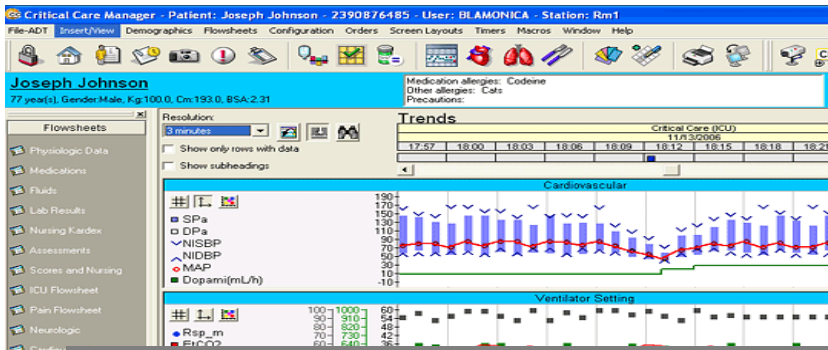


- Attention
- Learning and memory storage
- Memory retrieval
- Working memory
- Speed of processing
- Executive functions

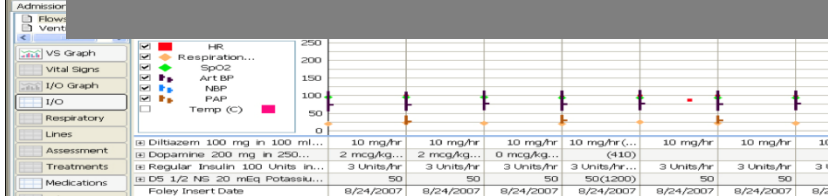


Industry





Information overload



Suite

Time	Temp	HR	RR	SpO2	NIBP	MAP	Temp	HR	RR	SpO2	NIBP	MAP	Temp	HR	RR	SpO2	NIBP	MAP	Temp
12:00	37.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
13:00	37.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
14:00	37.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
15:00	36.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
16:00	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
17:00	36.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
18:00	36.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
19:00	36.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
20:00	36.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
21:00	36.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
22:00	36.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
23:00	36.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
00:00	36.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
01:00	35.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
02:00	35.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
03:00	35.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
04:00	35.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
05:00	35.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
06:00	35.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
07:00	35.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
08:00	35.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
09:00	35.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
10:00	35.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
11:00	34.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
12:00	34.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
13:00	34.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
14:00	34.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
15:00	34.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
16:00	34.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
17:00	34.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
18:00	34.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
19:00	34.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
20:00	34.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
21:00	33.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
22:00	33.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
23:00	33.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
00:00	33.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
01:00	33.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
02:00	33.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
03:00	33.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
04:00	33.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
05:00	33.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
06:00	33.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
07:00	32.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
08:00	32.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
09:00	32.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
10:00	32.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
11:00	32.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
12:00	32.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
13:00	32.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
14:00	32.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
15:00	32.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
16:00	32.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
17:00	31.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
18:00	31.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
19:00	31.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
20:00	31.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
21:00	31.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
22:00	31.4	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
23:00	31.3	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
00:00	31.2	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
01:00	31.1	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
02:00	31.0	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
03:00	30.9	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
04:00	30.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
05:00	30.7	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
06:00	30.6	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
07:00	30.5	61	21	92	110	70	36.8	61	21	92	110	70	36.8	61	21	92	110	70	36.8
08:00	30.																		



E015011 MDI

Apellido Apellido, Nombre
♀ 25 años 187cm 82kg

EPI 1234567890
NHC 1234567890



12 min



Manel Enrich

Plantilla 1

Constantes



29/07/11 - 30/07/11

1 hora



GENERAL

SEÑALES VITALES

FRECUENCIA CARDIACA

ipm

RESPIRACIONES

resp/min

TEMPERATURA

C

P. ARTERIAL SISTÓLICA

mmHg

P. ARTERIAL MEDIA

mmHg

P. ARTERIAL DIASTÓLICA

mmHg

P. VENOSA CENTRAL

mmHg

TEMPERATURA

TEMPERATURA

C

HEMO INV.

FRECUENCIA CARDIACA

ipm

P. ARTERIAL SISTÓLICA

mmHg

P. ARTERIAL DIASTÓLICA

mmHg

P. VENOSA CENTRAL

mmHg

METABOLISMO

GASES SANGUINEOS

TIPO GASES

texto

pH

valor

pCO2 (AV)

mmHg

pO2 (AV)

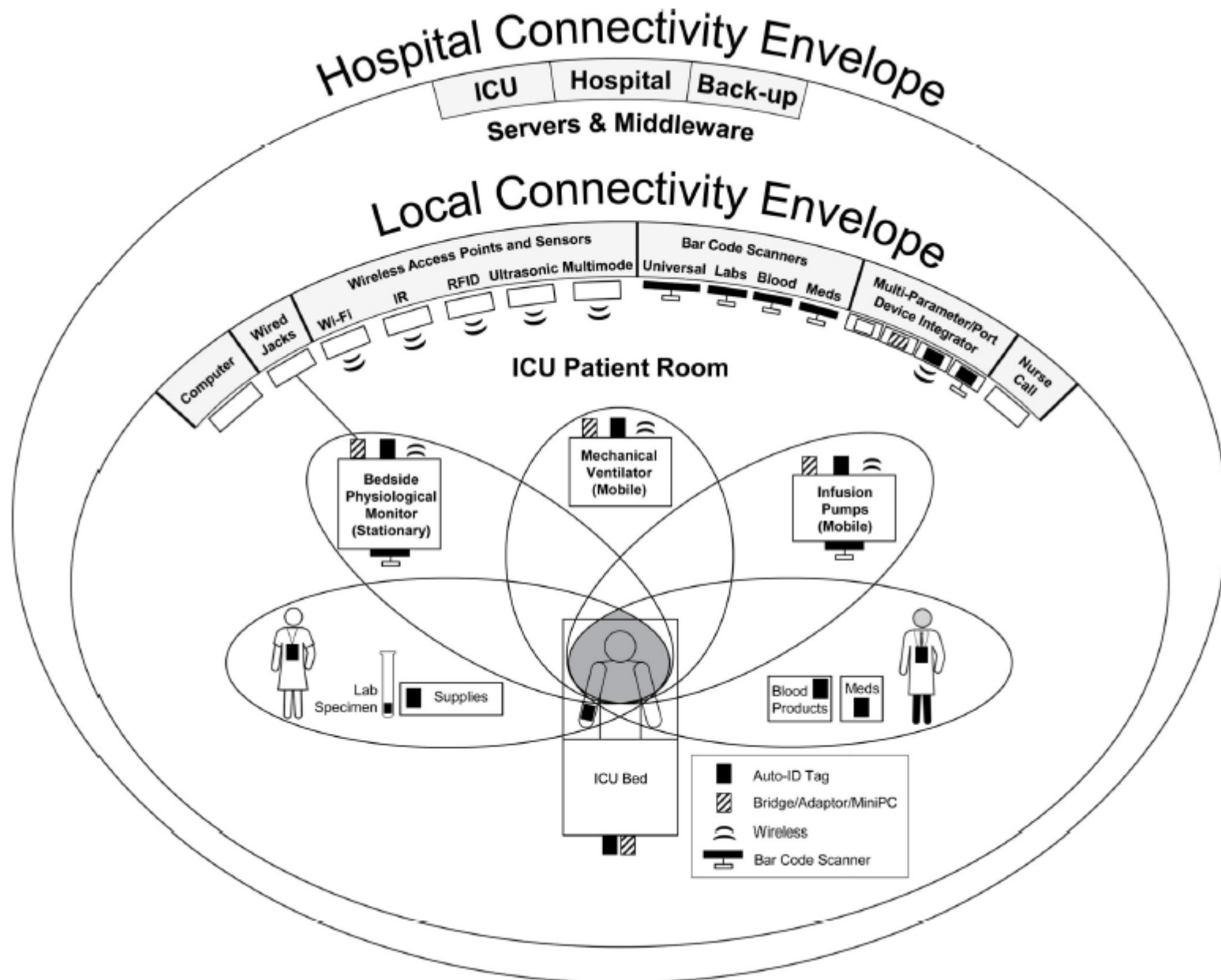
mmHg

	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
FRECUENCIA CARDIACA	93	185	93	93	93	93	93	93
RESPIRACIONES	24	24	24	24	24	24	24	24
TEMPERATURA		38.5			38.5			
P. ARTERIAL SISTÓLICA	117	117	117	145	117	117	117	117
P. ARTERIAL MEDIA	60	60	60	60	60	60	60	60
P. ARTERIAL DIASTÓLICA	48	48	48	48	48	48	48	48
P. VENOSA CENTRAL		3			3			3

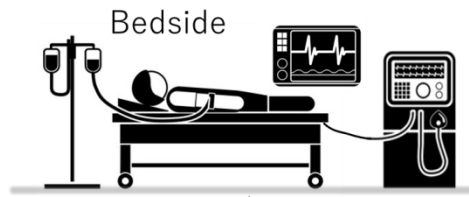
	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
FRECUENCIA CARDIACA	160	160	160	30				
P. ARTERIAL SISTÓLICA								
P. ARTERIAL DIASTÓLICA								
P. VENOSA CENTRAL	40	40	40	0				

	14:00
TIPO GASES	Arterial
pH	7.46
pCO2 (AV)	
pO2 (AV)	96.5





Some hospitals...

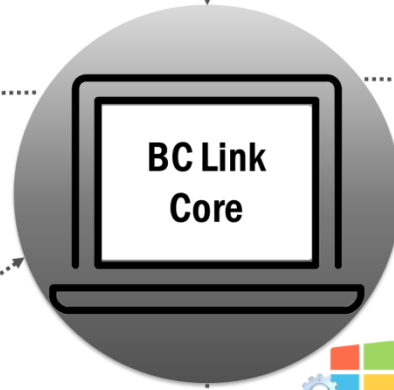


Real-time Indicators

- Advanced Measurements
- Event Indicators
- Quality Indicators
- Custom Indicators

- Signal Processing
- Machine Learning
- Pattern Recognition

Comprehensive Connectivity



Hospital Interoperability

- Hospital Information System
- Hospital Domotics
- Smart Data Display Systems

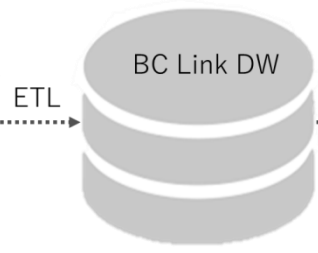
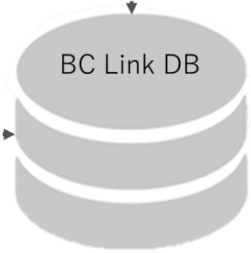


Advanced Remote Monitoring

BC Link WebView

BC Link Central

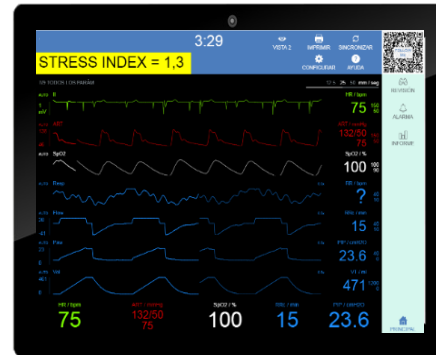
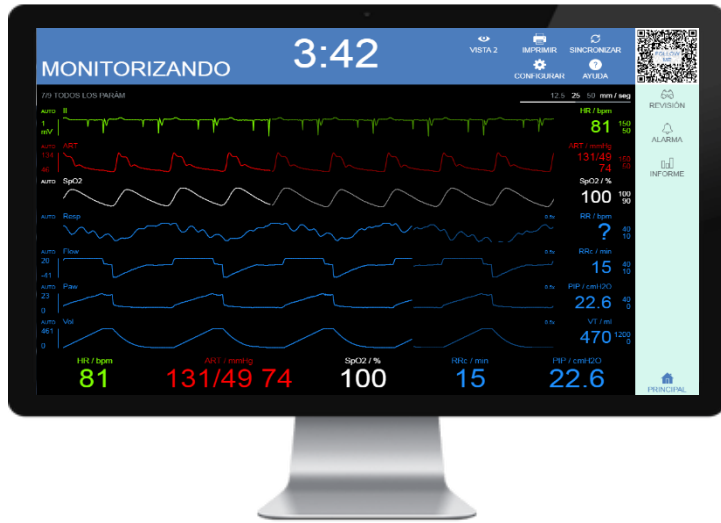
Secure Web Sockets



Healthcare Analytics

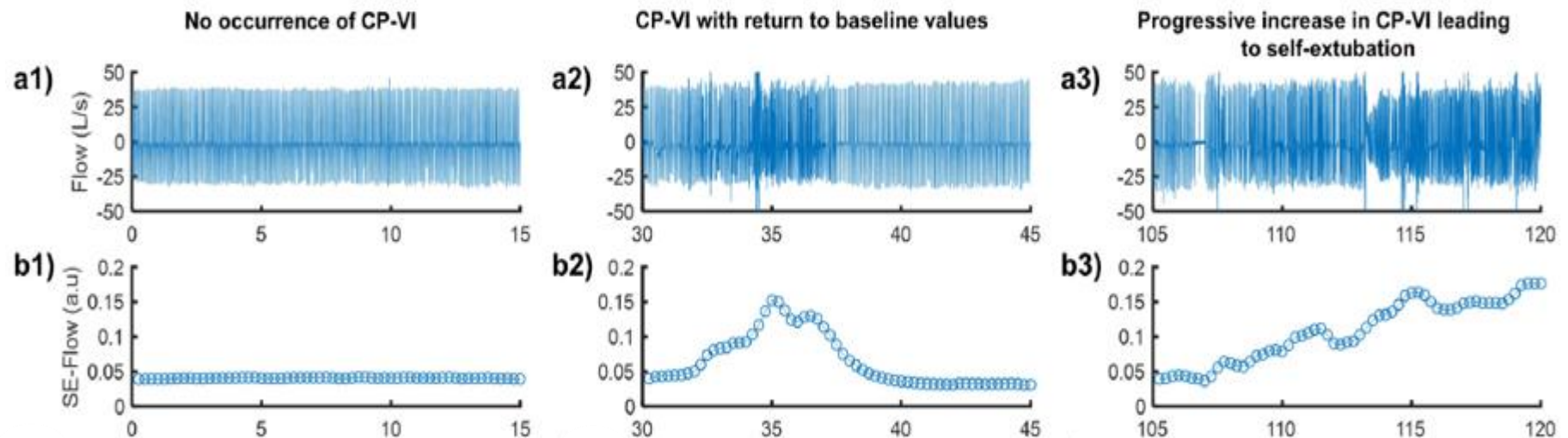
BC Link Analytics





Development and validation of a sample entropy-based method to identify complex patient-ventilator interactions during mechanical ventilation

Leonardo Sarlabous^{1,4,8}✉, José Aquino-Esperanza^{1,2,3,8}, Rudys Magrans⁵, Candelaria de Haro^{1,2}, Josefina López-Aguilar^{1,2}, Carles Subirà⁶, Montserrat Batlle⁶, Montserrat Rué⁷, Gemma Gomà¹, Ana Ochagavia^{1,2}, Rafael Fernández^{2,6} & Lluís Blanch^{1,2,5}



Wearable Devices in Health: Are We Ready?

Anna Ullastres PhD. February 11, 2020

Traditional vital signs with a general medical importance



Heart Rate



Blood Pressure



Respiratory Rate



Blood Oxygen Saturation



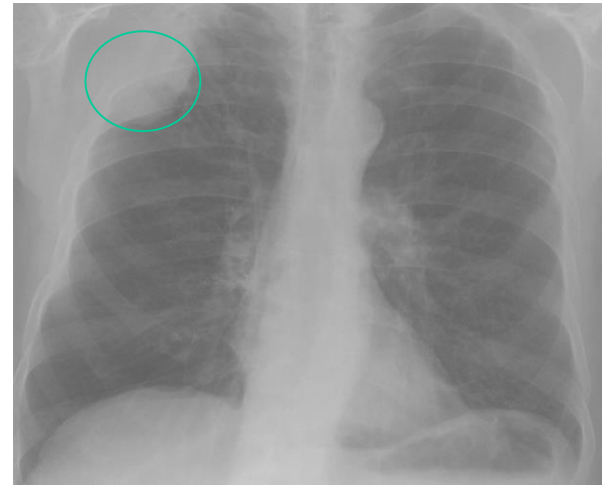
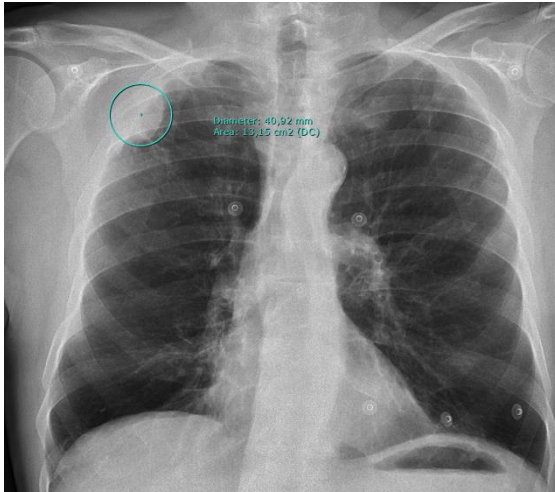
Body Temperature

<https://www.tauli.cat/es/institut/actualitat/vigilancia-tecnologica/2020/02/wearable-devices-in-health-are-we-ready/>

LuCaDAAlert: Deep Learning para detección de Cáncer de Pulmón

Enero 2019

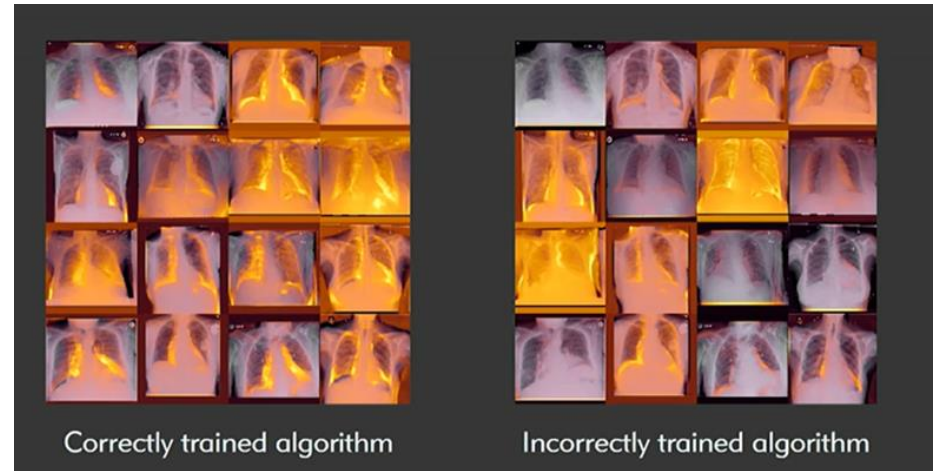
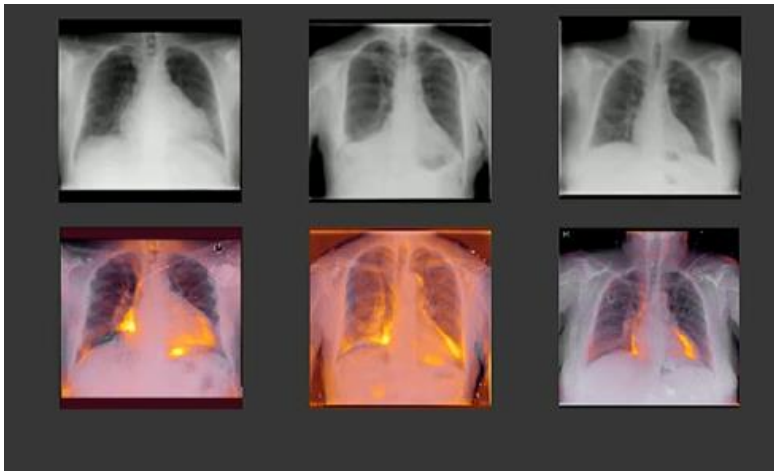
Abril 2019



DTS 21
(ISCiii)

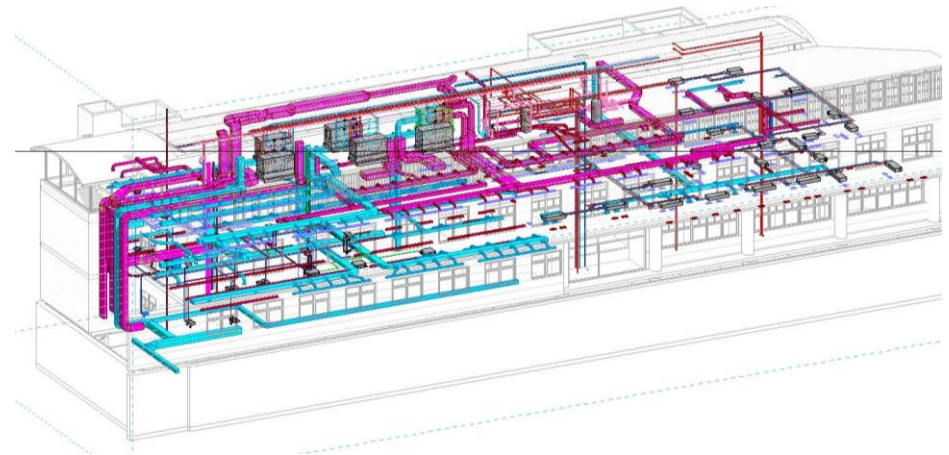
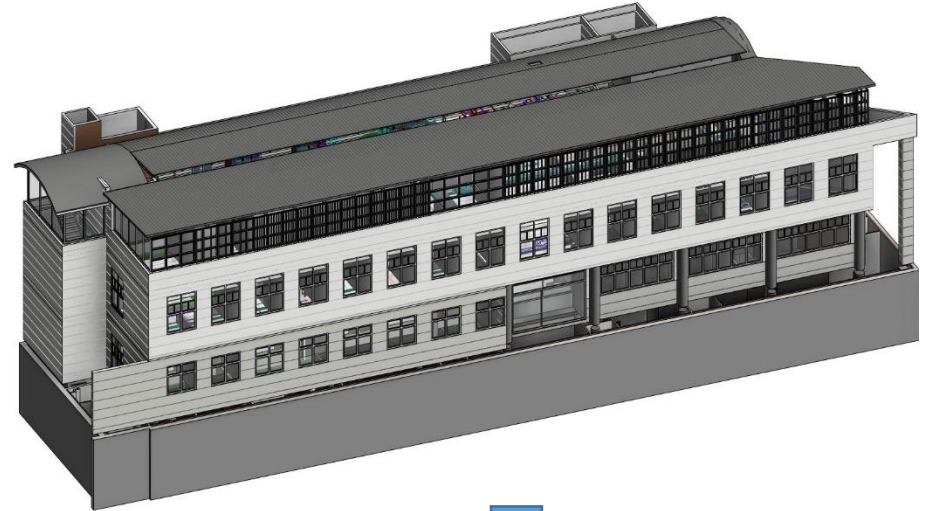


Convolutional Neural Network



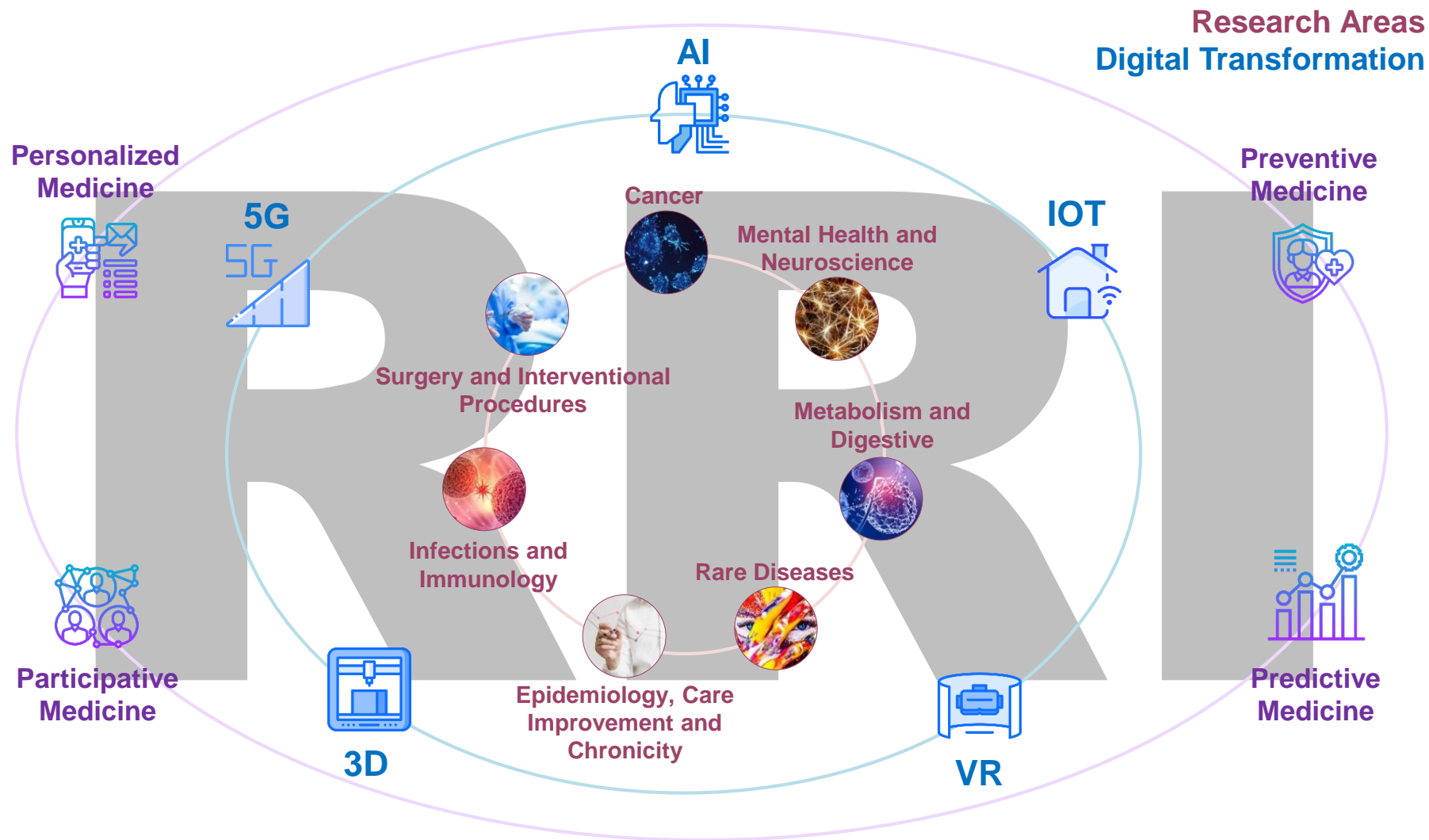
La utilización de CAD sobre 400.000 personas puede detectar precozmente 10 Ca. de Pulmón/Año y evitar 18 meses de retardo diagnóstico.

Building Information Modeling

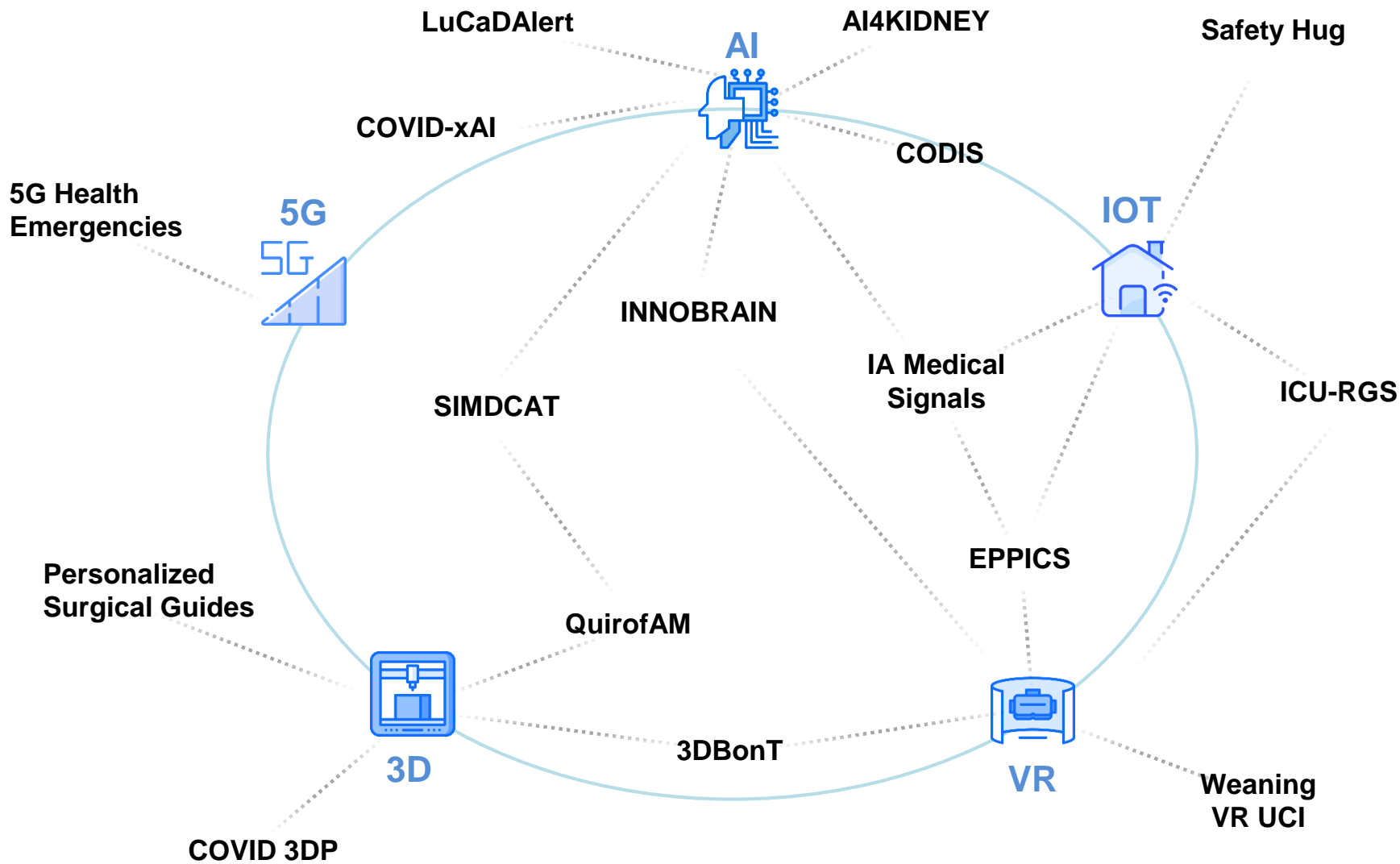


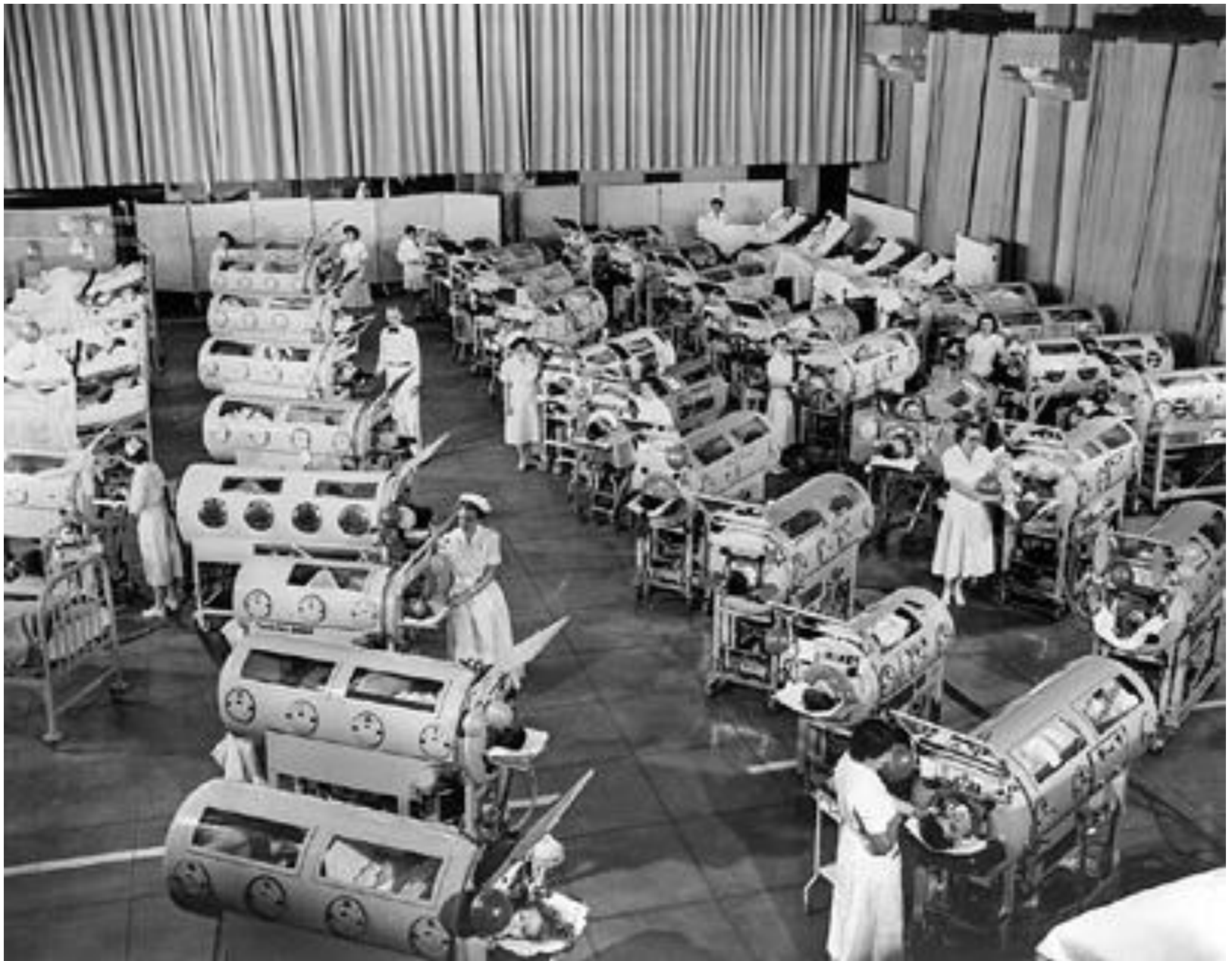
Internet of Things
Internet of Medical Devices
Internet of Emotions
Digital Twins

Vision of Knowledge



Ongoing Projects for Digital Transformation





1953 Polio Epidemic Rancho Los Amigos Hospital California

Louise Reisner-Sénélar

The birth of intensive care medicine: Björn Ibsen's records



On 27 August 1952, Ibsen demonstrated his anaesthetic skills on a 12-year-old girl named Vivi E., who was in a state of severe respiratory failure. Ibsen ventilated the tracheotomised girl with a to-and-fro system, sucking the mucus from her lungs and narcotising her in order to release her bronchospasm. As it became clear that the available cuirass respirator could not provide sufficient ventilation, Ibsen continued to ventilate the girl manually and eventually saved her life.

The Anæsthetist's Viewpoint on the Treatment of Respiratory Complications in Poliomyelitis During the Epidemic in Copenhagen, 1952

By Dr. BJØRN IBSEN

Consultant Anæsthetist

Blegdam Hospital, Copenhagen, Denmark

The Epidemic of Poliomyelitis in Copenhagen, 1952


By H. C. A. LASSEN

Professor of Epidemiology, University of Copenhagen

Chief Physician Blegdam Hospital, Copenhagen, Denmark

TABLE VI.—MORTALITY RATES

Group	Period of admission	No. of cases	No. died	Per cent
I	7/7 -25/8	31	27	87
II	26/8 - 8/9	50	27	54
III	8/9 -23/9	50	25	50
IV	23/9 - 5/10	50	20	40
V	6/10-21/10	50	13	26
VI	21/10- 6/11	50	18	36
VII	6/11-23/12	50	11	22
Total II-VII		300	114	38



COVID-19 Pandemic

Fifth Intensive Care Unit in Parc Taulí. Third Week April 2020



Turning the crisis into an opportunity: digital health strategies deployed during the COVID-19 outbreak in Catalonia

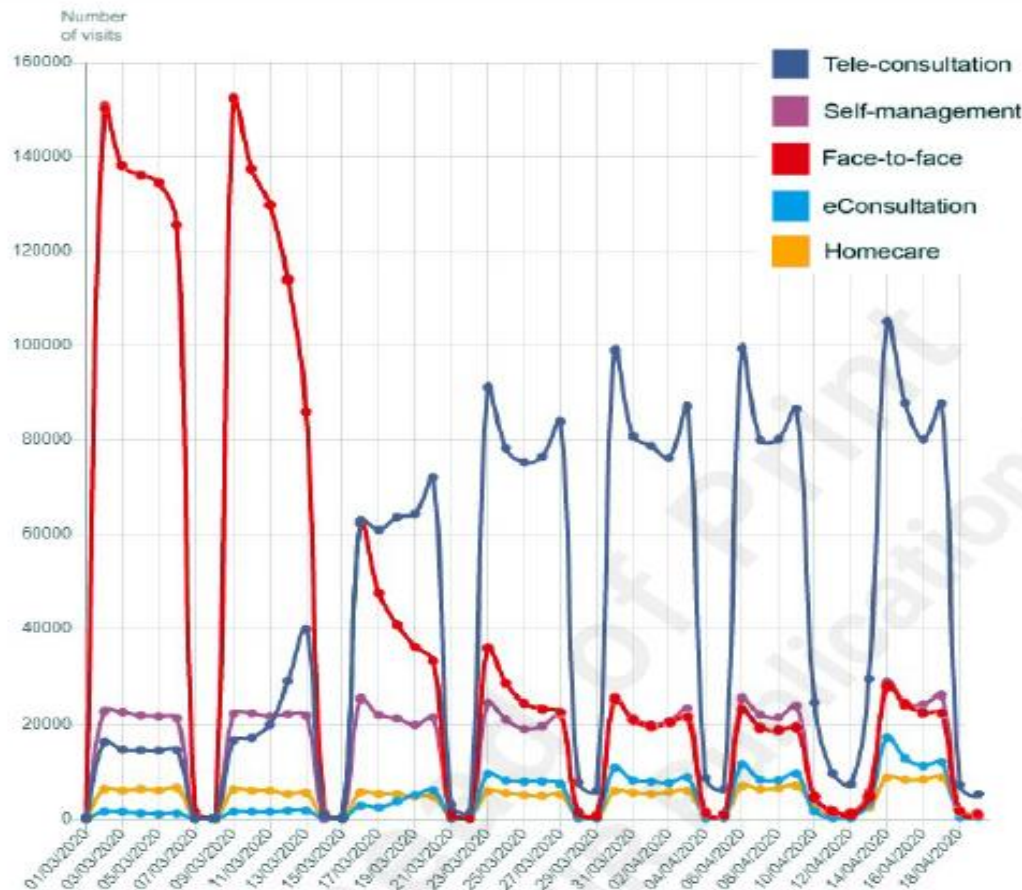


Figure 2: Primary Care visits in Catalonia classified among typology for the period 03/01/2020 to 04/19/2020.

(JMIR Preprints 03/04/2020:19106)

DOI: <https://doi.org/10.2196/preprints.19106>

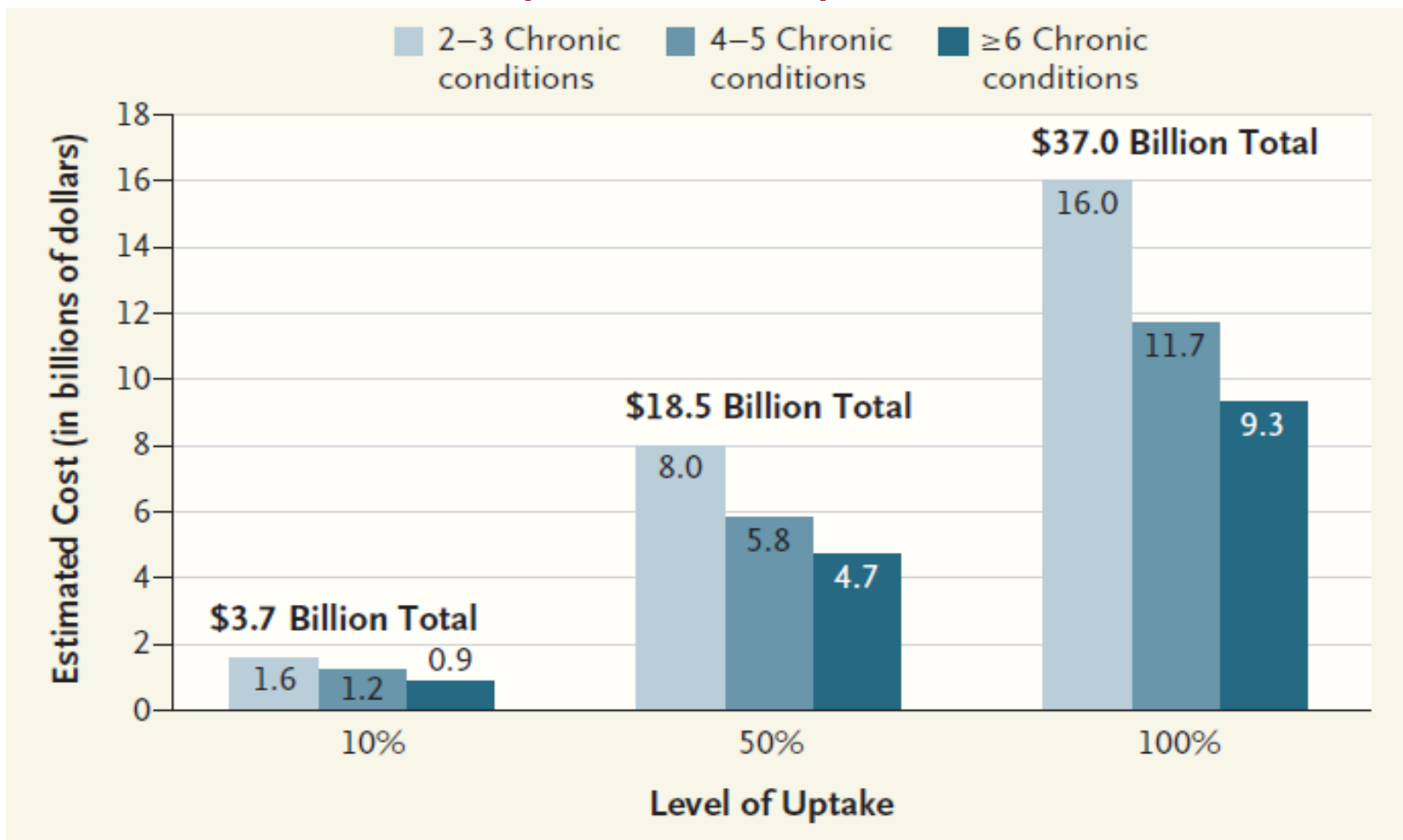
Remote Patient Monitoring — Overdue or Overused?

Keizra Mecklai, B.S., Nicholas Smith, B.S., Ariel D. Stern, Ph.D., and Daniel B. Kramer, M.D., M.P.H.

[n engl j med 384;15 nejm.org April 15, 2021](https://doi.org/10.1093/nejm/ckaa111)

Estimated Cost to Medicare of Remote Patient Monitoring (RPM) Services

25.4 million patients as of September 2020



New Technological Services: 3D Lab

- Virtual surgical planning
- Printing of anatomical surgical models
- Design surgical guides
- Simulation models
- Development of tailor-made healthcare products
- Training in 3D printing



Integrated 3D printing solution to mitigate shortages of airway consumables and personal protective equipment during the COVID-19 pandemic

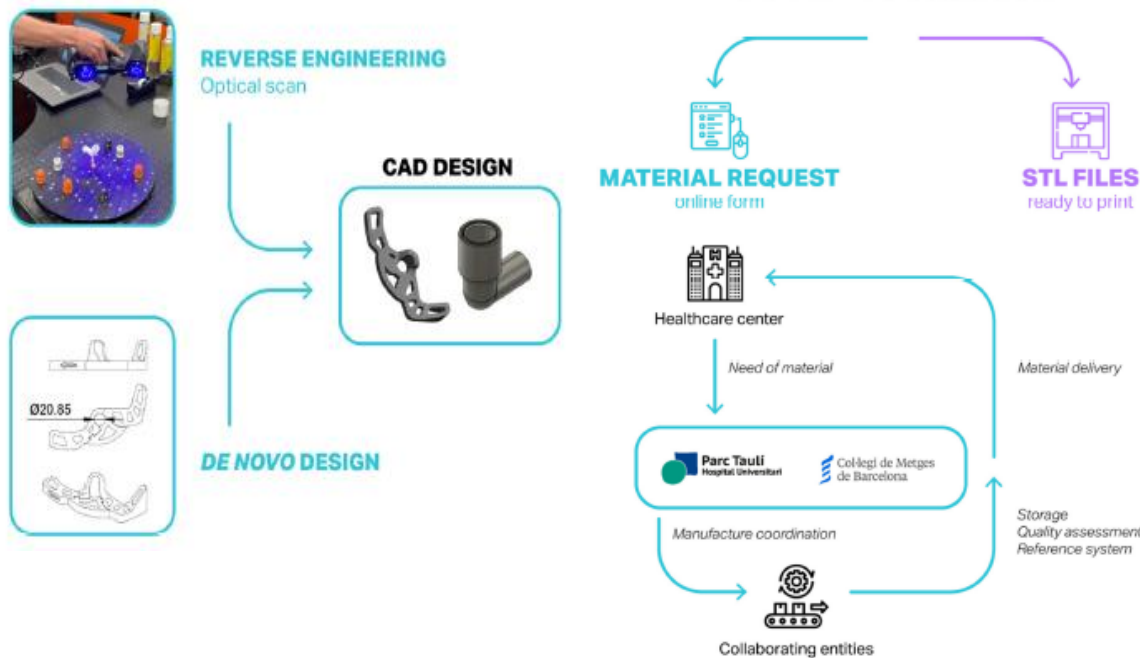
BMC Health Services Research

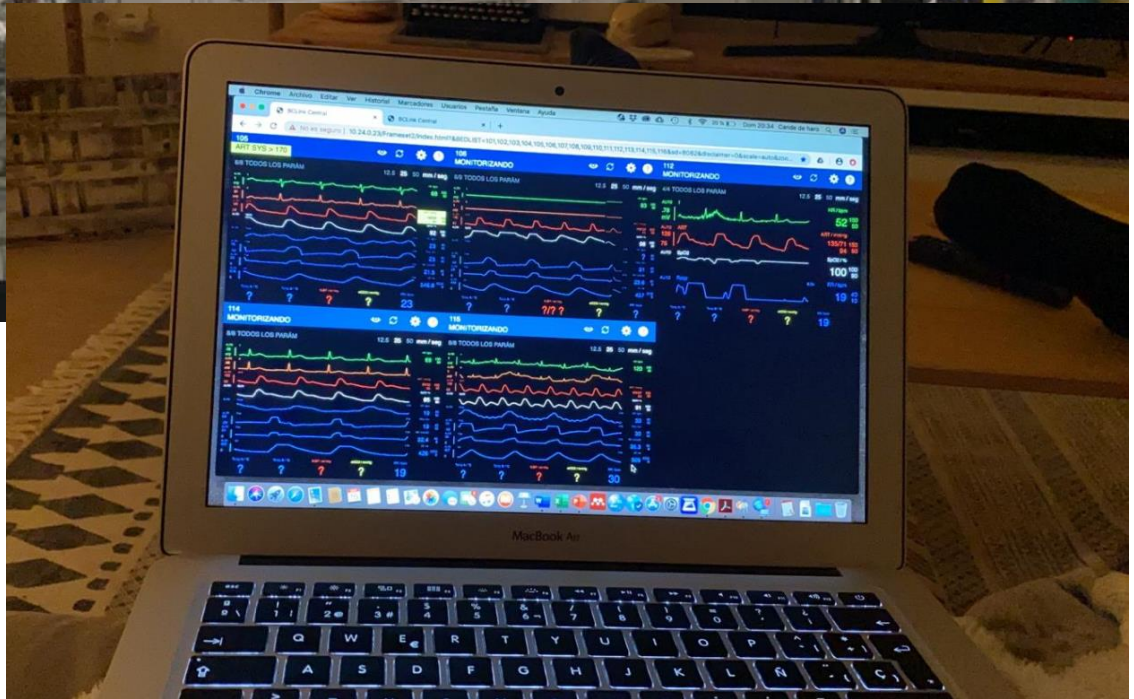
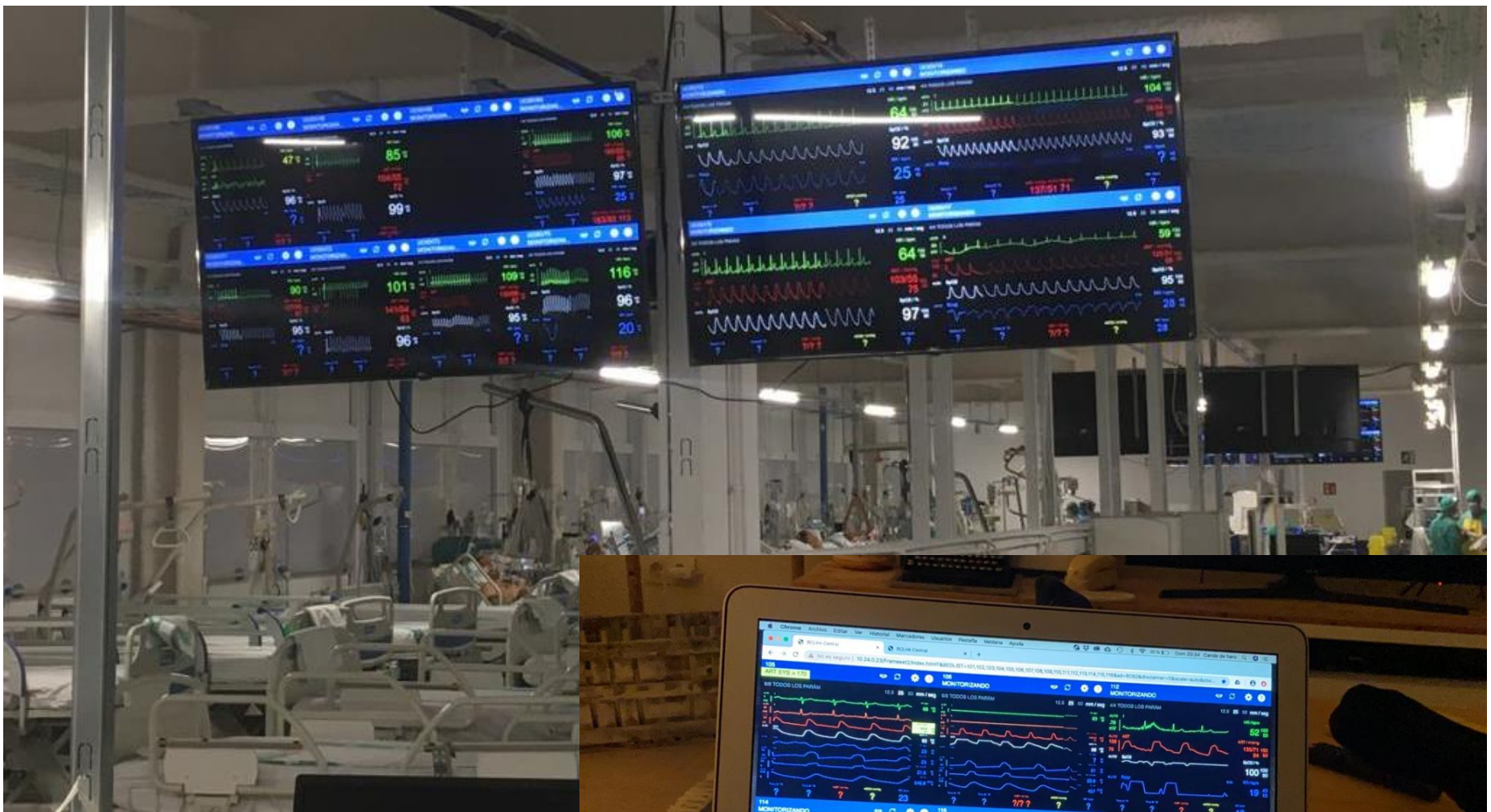
Ferran Fillat-Gomà^{1,2*}, Sergi Coderch-Navarro¹, Laia Martínez-Carreres^{1,2}, Núria Monill-Raya^{1,3}, Toni Nadal-Mir⁴, Cristina Lalmolda^{5,6}, Manel Luján^{5,6}, Candelaria de Haro⁵ and Lluís Blanch^{5,6}

Fillat-Gomà et al. BMC Health Services Research (2020) 20:1035
<https://doi.org/10.1186/s12913-020-05891-2>

Table 1 Companies involved in the manufacture of 3D medical devices, number of items and number of companies per industry type

Company Type	3D printed units N (%)	number of companies N (%)
3D-printing Industry	5234 (23.6%)	13 (18.6%)
Automotive Industry	2854 (12.9%)	3 (4.3%)
Dental Industry	2641 (11.9%)	9 (12.9%)
Manufacturers associations	1847 (8.3%)	10 (14.3%)
Universities	1579 (7.1%)	3 (4.3%)
Chemical Industry	1483 (6.7%)	2 (2.9%)
Naval and railway Industry	1193 (5.4%)	1 (1.4%)
Plastic Industry	1053 (4.7%)	4 (5.7%)
Engineering Consulting	781 (3.5%)	6 (8.6%)
Electric Industry	686 (3.1%)	4 (5.7%)
Metal Industry	473 (2.1%)	3 (4.3%)
Biomedical Industry	469 (2.1%)	1 (1.4%)
Jewelry	403 (1.8%)	1 (1.4%)
Social Organizations	353 (1.6%)	3 (4.3%)
Medical Industry	284 (1.3%)	1 (1.4%)
Food Industry	284 (1.3%)	2 (2.9%)
Packaging Industry	240 (1.1%)	2 (2.9%)
Medical Center	69 (0.3%)	1 (1.4%)
Unknown	267 (1.2%)	1 (1.4%)
TOTAL	22,193 (100%)	70 (100%)



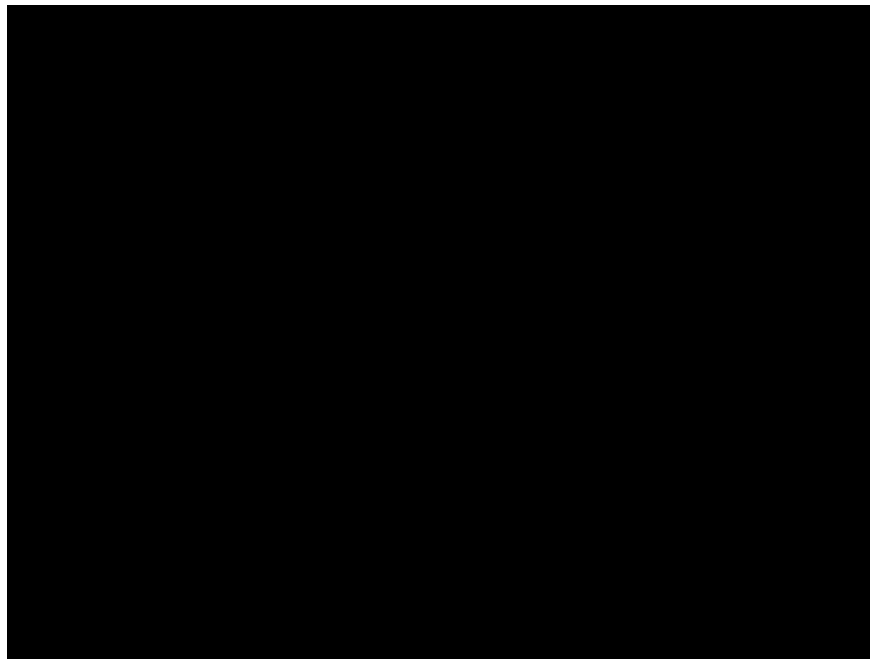


 **Parc Taulí** ^R
Institut d'Investigació
i Innovació I3PT

**Bcare**
BETTER CARE

Role of New Disciplines in ICU/Hospital/Health: neuropsychologists, medical engineers, computer & data scientists.....

Technological Tools for the Early Prevention of the Post- Intensive Care Syndrome



Sol Fernandez, Guillem Navarra
Grants for Research Projects in SARS-COV2 and COVID19 illness,
2020

Funding: 180.660 €

Knowledge Industry grants. Producte Grants, 2019

Funding: 99.989 €

DYNAMIZATION AND INNOVATION of the industrial capacities of the National Health System and their effective transfer to the productive sector (2021-3)





Muchas gracias!!

