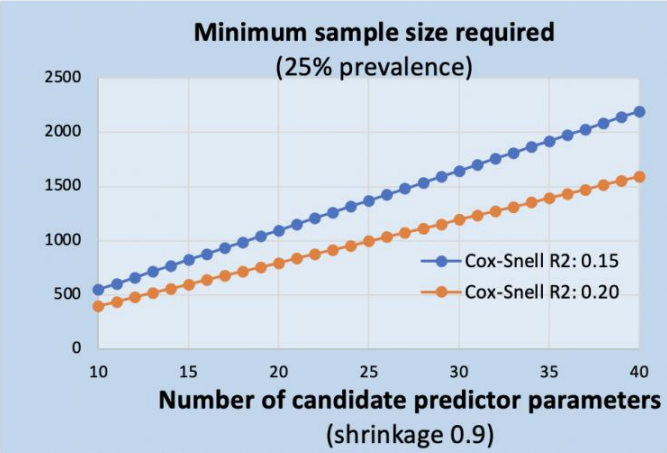
Appendix Figure 1. Sample size Calculation*

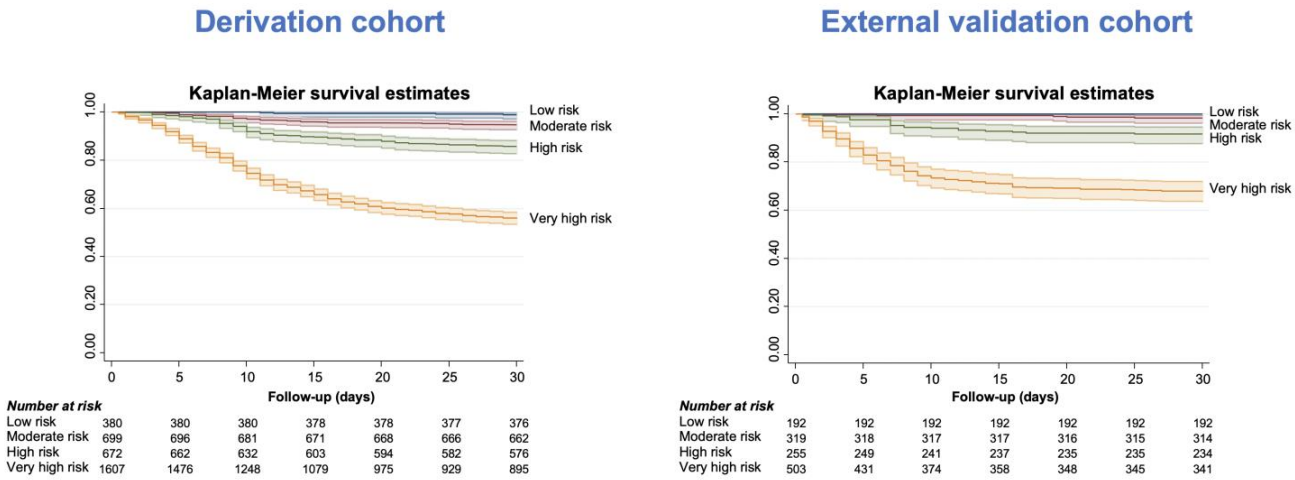


	Minimum sample size required (shrinkage of 0.9 and 25% prevalence)	
Parameters	Cox-Snell R^2: 0.15	Cox-Snell R^2: 0.20
10	549	398
15	823	597
20	1,097	796
25	1,372	995
30	1,646	1,194
35	1,920	1,393
40	2,194	1,592

To estimate a 30-parameter logistic model with a shrinkage of 0.9, a prevalence of events of 25% and assuming a Cox-Snell R^2 of 0.15, 1,646 individuals would be needed, approximately 14 events per variable. In our study, the estimated models were carried out with much higher sample size and 30 parameters were never exceeded, despite the categorization of some independent variables such as age.

*Riley RD, Ensor J, Snell KIE, Harrell FE, Jr., Martin GP, Reitsma JB, et al.
Calculating the sample size required for developing a clinical prediction model.
BMJ. 2020;368:m441. doi: 10.1136/bmj.m441.

Appendix Figure 2. Kaplan-Meier survival plots with 95% confidence intervals for the different 30-day mortality risk categories according to the simplified score in the derivation and validation cohorts.



We considered the risk of 30-day mortality as low with 0-2 points, moderate with 3-5, high with 6-8, and very high with 9-30.

Appendix Table 1. TRIPOD Checklist: Prediction Model Development and Validation

Section/Topic	Item		Checklist Item	Page
Title and abstract				
Title	1	D;V	Identify the study as developing and/or validating a multivariable prediction model, the target population, and the outcome to be predicted.	Title.
Abstract	2	D;V	Provide a summary of objectives, study design, setting, participants, sample size, predictors, outcome, statistical analysis, results, and conclusions.	Abstract.
Introduction				
Background and objectives	3a	D;V	Explain the medical context (including whether diagnostic or prognostic) and rationale for developing or validating the multivariable prediction model, including references to existing models.	Introduction paragraphs 1 to 3.
	3b	D;V	Specify the objectives, including whether the study describes the development or validation of the model or both.	Introduction paragraph 4.
Methods				
Source of data	4a	D;V	Describe the study design or source of data (e.g., randomized trial, cohort, or registry data), separately for the development and validation data sets, if applicable.	Methods section. Source of data epigraph.
	4b	D;V	Specify the key study dates, including start of accrual; end of accrual; and, if applicable, end of follow-up.	Methods section. Source of data epigraph.
Participants	5a	D;V	Specify key elements of the study setting (e.g., primary care, secondary care, general population) including number and location of centres.	Methods section. Participants epigraph.
	5b	D;V	Describe eligibility criteria for participants.	Methods section. Participants epigraph.
	5c	D;V	Give details of treatments received, if relevant.	Results section. Participants epigraph.
Outcome	6a	D;V	Clearly define the outcome that is predicted by the prediction model, including how and when assessed.	Methods section. Outcome epigraph.
	6b	D;V	Report any actions to blind assessment of the outcome to be predicted.	Non-applicable.
Predictors	7a	D;V	Clearly define all predictors used in developing the multivariable prediction model, including how and when they were measured.	Methods section. Predictors epigraph.
	7b	D;V	Report any actions to blind assessment of predictors for the outcome and other predictors.	Non-applicable.
Sample size	8	D;V	Explain how the study size was arrived at.	Methods section. Statistical analysis epigraph.
Missing data	9	D;V	Describe how missing data were handled (e.g., complete-case analysis, single imputation, multiple imputation) with details of any imputation method.	Methods section. Statistical analysis epigraph.
Statistical analysis methods	10a	D	Describe how predictors were handled in the analyses.	Methods section. Statistical analysis epigraph.
	10b	D	Specify type of model, all model-building procedures (including any predictor selection), and method for internal validation.	Methods section. Statistical analysis epigraph.
	10c	V	For validation, describe how the predictions were calculated.	Non-applicable.
	10d	D;V	Specify all measures used to assess model performance and, if relevant, to compare multiple models.	Methods section. Statistical analysis epigraph.
	10e	V	Describe any model updating (e.g., recalibration) arising from the validation, if done.	Non-applicable.
Risk groups	11	D;V	Provide details on how risk groups were created, if done.	Methods section. Statistical analysis epigraph.
Development vs. validation	12	V	For validation, identify any differences from the development data in setting, eligibility criteria, outcome, and predictors.	Results section. Participants epigraph.
Results				

Participants	13a	D;V	Describe the flow of participants through the study, including the number of participants with and without the outcome and, if applicable, a summary of the follow-up time. A diagram may be helpful.	Results. Participants epigraph.
	13b	D;V	Describe the characteristics of the participants (basic demographics, clinical features, available predictors), including the number of participants with missing data for predictors and outcome.	Results. Participants epigraph. Table 1.
	13c	V	For validation, show a comparison with the development data of the distribution of important variables (demographics, predictors and outcome).	Results. Participants epigraph. Table 1.
Model development	14a	D	Specify the number of participants and outcome events in each analysis.	Results. Model development and performance epigraph. Table 2.
	14b	D	If done, report the unadjusted association between each candidate predictor and outcome.	Results. Model development epigraph. Table 3.
Model specification	15a	D	Present the full prediction model to allow predictions for individuals (i.e., all regression coefficients, and model intercept or baseline survival at a given time point).	Results. Model development and Simplified score development epigraphs. Tables 3 and 5.
	15b	D	Explain how to use the prediction model.	Results. Model development and Simplified score development epigraphs. Table 5 and Figure 1.
Model performance	16	D;V	Report performance measures (with CIs) for the prediction model.	Results. Model development and Simplified score development epigraphs. Appendix Table 2.
Model-updating	17	V	If done, report the results from any model updating (i.e., model specification, model performance).	Non-applicable
Discussion				
Limitations	18	D;V	Discuss any limitations of the study (such as nonrepresentative sample, few events per predictor, missing data).	Discussion. Paragraph nº 4.
Interpretation	19a	V	For validation, discuss the results with reference to performance in the development data, and any other validation data.	Non-applicable.
	19b	D;V	Give an overall interpretation of the results, considering objectives, limitations, results from similar studies, and other relevant evidence.	Discussion. Paragraphs nº 1 - 3.
Implications	20	D;V	Discuss the potential clinical use of the model and implications for future research.	Discussion. Paragraphs nº 5.
Other information				
Supplementary information	21	D;V	Provide information about the availability of supplementary resources, such as study protocol, Web calculator, and data sets.	Methods section. Source of data epigraph. ClinicalTrials.gov (NCT04355871). European Union Electronic Register of Post-Authorization Studies (EUPAS34331). References section. References number 24 and 25
Funding	22	D;V	Give the source of funding and the role of the funders for the present study.	Title page and Abstract.

*Items relevant only to the development of a prediction model are denoted by D, items relating solely to a validation of a prediction model are denoted by V, and items relating to both are denoted D;V. We recommend using the TRIPOD Checklist in conjunction with the TRIPOD Explanation and Elaboration document.

Appendix Table 2. Performance of the final prediction model and the simplified score.

	Nº Participants	AUROC	95% CI
Primary analysis *			
Final prediction model			
Derivation cohort	3,358	0.822	0.806 – 0.837
External validation cohort	1,269	0.845	0.819 – 0.870
Simplified score			
Derivation cohort	3,358	0.806	0.790 – 0.821
External validation cohort	1,269	0.831	0.806 – 0.856
Sensitivity analysis 1 †			
Final prediction model			
Derivation cohort	4,031	0.822	0.809 – 0.836
External validation cohort	2,202	0.850	0.831 – 0.867
Simplified score			
Derivation cohort	4,031	0.805	0.791 – 0.820
External validation cohort	2,202	0.848	0.830 – 0.866
Sensitivity analysis 2 ‡			
Final prediction model			
Derivation cohort	4,031	0.818	0.805 – 0.832
External validation cohort	2,202	0.859	0.842 – 0.876
Simplified score			
Derivation cohort	4,031	0.806	0.791 – 0.820
External validation cohort	2,202	0.849	0.831 – 0.866

Abbreviations: AUROC; Area Under the Receiver Operating Characteristics; CI, confidence interval

* Primary analysis: Complete-case analysis without recoding missing values for predictors.
† Sensitivity analysis 1: Recoding missing values for predictors as a separate category.
‡ Sensitivity analysis 2: Missing values for predictors were given the value of the reference category for the variable.

Appendix Table 3. Simplified score to predict 30–day mortality in hospitalized patients with COVID–19 in the external validation cohort: Sensitivity, specificity, likelihood ratios, and predictive values for the different scores (0 to 30) in the validation cohort.

Score	Participants			Sen (%)	Spe (%)	+LR	1/-LR	PPV (%)	NPV (%)
	Total	Dying within 30-days							
		Nº	%						
0	20	0	0.0	100	0.0	1	.	14.8	.
1	68	0	0.0	100	1.9	1.019	.	15.1	100
2	104	0	0.0	100	8.1	1.089	.	15.9	100
3	103	0	0.0	100	17.8	1.216	.	17.5	100
4	109	1	0.9	100	27.3	1.375	.	19.3	100
5	107	4	3.74	99.5	37.3	1.586	70.090	21.6	99.8
6	112	5	4.46	97.3	46.8	1.830	17.600	24.1	99.0
7	80	8	10.0	94.7	56.7	2.187	10.660	27.6	98.4
8	63	8	12.7	90.4	63.4	2.468	6.618	30.0	97.4
9	42	8	19.1	86.2	68.5	2.732	4.950	32.2	96.6
10	45	12	26.7	81.9	71.6	2.884	3.959	33.4	95.8
11	45	11	24.4	75.5	74.7	2.980	3.051	34.1	94.6
12	26	5	19.2	69.7	77.8	3.139	2.566	35.3	93.7
13	18	7	38.9	67.0	79.7	3.308	2.418	36.5	93.3
14	19	5	26.3	63.3	80.8	3.290	2.200	36.4	92.7
15	27	9	33.3	60.6	82.1	3.379	2.085	37.0	92.3
16	32	10	31.2	55.9	83.7	3.430	1.896	37.4	91.6
17	40	14	35.0	50.5	85.8	3.547	1.734	38.2	90.9
18	49	16	32.6	43.1	88.2	3.639	1.549	38.8	89.9
19	41	13	31.7	34.6	91.2	3.934	1.394	40.6	88.9
20	23	9	39.1	27.7	93.8	4.463	1.297	43.7	88.2
21	17	6	35.3	22.9	95.1	4.665	1.233	44.8	87.6
22	17	7	41.2	19.7	96.1	5.065	1.197	46.8	87.3
23	12	4	33.3	16.0	97.0	5.391	1.155	48.4	86.9
24	15	8	53.3	13.8	97.8	6.229	1.135	52.0	86.7
25	13	5	38.5	9.6	98.4	6.088	1.088	51.4	86.2
26	9	4	44.4	6.9	99.2	8.306	1.065	59.1	86.0
27	8	6	75.0	4.8	99.6	12.940	1.046	69.2	85.7
28	3	1	33.3	1.6	99.8	8.625	1.014	60.0	85.4
29	2	2	100	1.1	100	-	1.011	100	85.3
30	0	-	-	-	-	-	-	-	-

Abbreviations: Sen, sensitivity; Spe, specificity; +LR, positive likelihood ratio; -LR, negative likelihood ratio; PPV, positive predictive value; NPV, negative predictive value.

Appendix Table 4. The COVID-19@Spain Study Group.

Fundación SEIMC-GESIDA: Esther Aznar, Pedro Gil, Patricia Gonzalez, Clara Muñoz, María Yllescas. **Hospital General Universitario Gregorio Marañón:** Juan C López, Margarita Ramírez-Schacke, Isabel Gutiérrez, Francisco Tejerina, Teresa Aldámiz-Echevarría, Cristina Díez, Chiara Fanciulli, Leire Pérez-Latorre, Francisco Parras, Pilar Catalán, María E García-Leoni, Isabel Pérez-Tamayo, Luis Puente, Jamil Cedeño, Juan Berenguer. **Hospital Universitario La Paz:** Marta Díaz, Fernando de la Calle, Marta Arsuaga, Elena Trigo, M del Mar Lago, Rosa de Miguel, Julen Cadiñaños, Carmen Busca, Alfredo Mican, Marta Mora, Juan Carlos Ramos, Belén Loeches, José I Bernardino, Julio García, José R Arribas. **Hospital Infanta Leonor:** Ana Such, Elena Álvaro, Elsa Izquierdo, Juan Torres, Guillermo Cuevas, Jesús Troya, Beatriz Mestre, Eva Jiménez, Inés Fernandez, Ana J Tebar, Fátima Brañas, Jorge Valencia, Mario Pérez, Marta Alvarado, Pablo Ryan. **Complejo Hospitalario Virgen de la Salud:** M Antonia Sepúlveda, Carmen Yera, Pilar Toledano, Verónica Cano, Sadaf Zafar, Gema Muñiz, Inmaculada Martín, Helena Mozas, Ana Alguacil, M Paz García. **Hospital Universitario Rafael Méndez:** Ana I Peláez, Elena Morcillo. **Hospital Universitario de Cruces:** Josune Goikoetxea, M José Blanco, Javier Nieto, Mikel del Álamo. **Hospital de Melilla:** Isabel A. Pérez, Inés Pérez. **Hospital San Eloy de Barakaldo:** Rafael Silvariño, Jon Ugalde. **Hospital Universitario Central de Asturias:** Víctor Asensi, Lucia Suárez, Silvia Suárez, Carmen Yllera. **Hospital General Universitario de Alicante:** Vicente Boix, Marcos Díez, Melissa Carreres. **Hospital Virgen de la Victoria:** Cristina Gómez-Ayerbe, Javier Sánchez-Lora, José L Velasco, María López-Jódar, Jesús Santos. **Hospital Universitario Puerto Real:** Jesús Ruiz, Ianire Virto. **EOXI Pontevedra e Salnés:** Vanessa Alende, Ruth Brea. **Hospital de Figueres:** Sonia Vega, Estel Pons. **Hospital Sant Jaume de Calella:** Oscar Del Río, Silvia Valero. **Hospital del Mar:** Judit Villar-García, Joan Gómez-Junyent, Hernando Knobel, M Cecilia Cánepa, Silvia Castañeda, Luisa Sorli, Roberto Güerri-Fernández, María Milagro, Juan P Horcajada. **Hospital Clínico Universitario Virgen de la Arrixaca:** Elisa García, Encarnación Moral, Alicia Hernádez. **Hospital de Can Misses:** Esther García. **Hospital de Sagunto:** Carmen Sáez, Zineb Karroud. **Hospital Clínico San Cecilio:** José Hernández, David Vinuesa, José L García, José A Peregrina. **Hospital Universitario Príncipe de Asturias:** María Novella, Cristina Hernández, José Sanz, Ramón Pérez, Rodrigo Sierra, David Alonso, Aida Gutiérrez, Alberto Arranz, Juan Cuadros, Melchor Álvarez de Mon. **Parc Sanitari Sant Joan de Déu:** Vicente F Díaz De Brito, Montserrat Sanmarti, Aina Gabarrell, Daniel Molina, Sergio España, Jonathan Cámara, Albert Sabater, Laura Muñoz. **Hospital Nuestra Señora de Gracia:** Paula Sáez, Esperanza Bejaranao. **HC Marbella Internacional Hospital:** Marco A Sampere, Salvador Álvarez. **Hospital La Princesa:** Ignacio De los Santos, Lucio García-Fraile, Miguel Sampedro, Ana Barrios, Carlos Rodríguez, Daniel Useros, Almudena Villa, Javier Oliver, Alexia C Espiño , Jesús Sanz. **Hospital Josep Trueta:** María Rexach, Ivette Abascal, Ana del C Pérez. **Hospital Dos De Maig:** Clara Sala, Susana Casas. **Hospital Arnau de Vilanova-Lliria:** Cecilia Tortajada, Carmina Oltra. **Hospital General Universitario de Elche:** Mar Masiá, Félix Gutiérrez. **Hospital Clínico Universitario de Valencia:** Ana Ferrer, Carlos Bea. **Complejo Asistencial De Ávila:** Miguel Pedromingo, M Ángeles Garcinuño, Silvana Fiorante, Sergio Pérez. **Hospital Comarcal de Alcañiz:** Pilar Hernández, Violeta A Alastrué. **Hospital Universitario Marqués de Valdecilla:** M Carmen Fariñas, Claudia González, Francisco Arnaiz, Jorge Calvo, Mónica Gonzalo. **Hospital Quiron-Salud de Torrevieja:** Francisco Mora. **Hospital Universitario Miguel Servet:** Ana Milagro, Miriam Latorre-Millán, Antonio Rezusta, Ana Martínez. **SCIAS, Hospital de Barcelona:** Yolanda Meije, Alejandra Duarte, Julia Pareja, Mercedes Clemente. **Fundación Hospital Universitario Alcorcón:** Juan E Losa, Ana Vegas. **Hospital Álvaro Cunqueiro:** M Teresa Pérez-Rodríguez, Alexandre Pérez. **Complejo Asistencial Universitario de Salamanca:** Moncef Belhassen-García, Beatriz Rodríguez-Alonso, Amparo López-Bernus, Cristina Carbonell. **Hospital Universitario Severo Ochoa:** Rafael Torres, Juan Catón, Blanca Alonso, Sara L Kamal, Lucia Cajuela, David Roa, Miguel Cervero, Alberto Orejas, Juan P Avilés, Lidia Martín. **Hospital CIMA-Sanitas:** Iván Pelegrín, Rosana Rouco. **Hospital HLA Inmaculada:** Jorge Parra, Violeta Ramos. **Hospital Universitario Rio Hortega:** Jessica Abadía. **Hospital de Guadalajara:** Juan Salillas, Robert Torres, Miguel Torralba, Alberto Serrano, Sergio Gilaberte, Marina Pacheco, Mónica Liébana, Sara Fernández, Álvaro Varela, Henar Calvo. **Hospital Universitario Infanta Sofía:** Patricia Martínez, Patricia González- Ruano, Eduardo Malmierca, Isabel Rábago, Beatriz Pérez-Monte. **Hospital Comarcal de Blanes:** Ángeles García, Pere Comas. **Hospital Universitari de Tarragona Joan XXIII:** Merce Sirisi, Richard Rojas. **Hospital Universitario Basurto:** José L Díaz de Tuesta, Ruth Figueroa, Ander González. **Hospital Universitario de Canarias:** Remedios Alemán, M del Mar Alonso. **Hospital Universitario de Gran Canaria Dr. Negrín:** Oscar Sanz, Karim M Ramírez. **Hospital Son Espases:** Melchor Riera, Helem H Vilchez, Francesc Albertí, Ana I Cañabate. **Hospital Universitario de Móstoles:** Víctor J Moreno, Silvia Álvarez, Beatriz Álvarez, Alejandro García, Elena Isaba, Covadonga Morcate, Andrea Pérez. **Complejo Hospitalario Universitario A Coruña:** Lucía Ramos, Laura Castelo, María Rodríguez, Mónica González, Efrén Sánchez, Enrique Míguez. **Hospital Costa del Sol:** Javier De la Torre, José M García de Lomas. **Hospital Clínico Universitario Lozano Blesa:** Elena Morte, Silvia Loscos, Ana Camón. **Hospital Mutua de Terrassa:** Lucía

Gómez, Lucia Boix, Beatriz Dietl. **Hospital de la Plana:** Iris Pedrola, Amparo Blasco. **Hospital Virgen de la Concha - Complejo Asistencial de Zamora:** Cristina López, Esther Fraile. **Complejo Hospitalario Universitario Insular Materno-Infantil:** Tomás Tosco, María Aroca. **Hospital de la Marina Baixa:** José T Algado, Ana M Garijo, Concepción Amador. **Hospital Universitario Virgen Macarena:** Jesús Rodriguez-Baño, Pilar Retamar, Adoración Valiente, Luis E. López-Cortés, Jesús Sojo, Belén Gutiérrez-Gutiérrez, José Bravo-Ferrer, Elena Salamanca, Zaira R. Palacios, Patricia Pérez-Palacios, Enrique Peral, José A Pérez de León, Jesús Sánchez-Gómez, Lucía Marín-Barrera, Domingo García-Jiménez. **Hospital Universitari de Bellvitge**: Jordi Carratalá, Gabriela Abelenda-Alonso, Carmen Ardanuy , Alba Bergas, Guillermo Cuervo, M Ángeles Domínguez, Miguel Fernández-Huerta, Carlota Gudiol , Laia Lorenzo-Esteller, Jordi Niubó, Sandra Pérez-Recio, Daniel Podzamczer, Miquel Pujol, Alexander Rombauts, Núria Trullen. **Hospital Universitario y Politécnico La Fe:** Miguel Salavert, Iván Castro. **Hospital Universitario del Vinalopó:** Adriana Hernández, Raquel Martínez. **Hospital de Sabadell (Parc Tauli):** Marta Navarro, Sonia Calzado, Manuel Cervantes, Aina Gomila, Oriol Gasch, M Luisa Machado, Eva Van den Eynde, Luis Falgueras, M del Carmen Navarro. **Hospital Clinic de Barcelona:** Esteban Martínez, M Ángeles Marcos, Mar Mosquera, José L Blanco, Montserrat Laguno, Jhon Rojas, Ana González-Cordón, Alexy Inciarte, Berta Torres, Lorena De la Mora, Alex Soriano. **Hospital Universitario de la Ribera:** Olalla Martínez, Virginia Pérez. **Fundación Jiménez Díaz:** Alfonso Cabello, Nerea Carrasco, Beatriz Álvarez, Elizabet Petkova, Miguel Górgolas, Laura Prieto, Irene Carrillo, Sara Heili, Felipe Villar, Ricardo Fernández, José Milicua. **Hospital Clínico Universitario de Valladolid:** Virginia Fernández, Carlos J Dueñas, Cristina Hernán. **Hospital Clínico San Carlos:** Fernando González-Romo, Paloma Merino, Alba Rueda, Jorge Martínez, Sara Medrano, Irene Díaz, Yolanda Posada, Alberto Delgado-Iribarren. **Hospital Santa Creu i Sant Pau:** Joaquín López-Contreras, Pablo Pascual, Virginia Pomar, Nuria Rabella, Natividad Benito, Pere Domingo, Xavier Bonfill, Rafael Padrós, Mireia Puig, Jordi Mancebo, Mercè Gurguí. **Clínica Universitaria de Navarra - Campus Madrid: M**elania Íñigo, Alejandra Pérez. **Hospital Son Llatzer:** Patricia Sorní , Nora Izko. **Hospital General de la Defensa Gómez Ulla:** Francisco J Membrillo, María Simón, Maribel Zamora, Yolanda Martínez, Pablo Fernández-González, Francisco Alcántara, Alejandro Aguirre, Elena López, Germán Ramírez-Olivencia, Miriam Estébanez. **Hospital Universitario de Álava:** Ester Sáez de Adana, Joseba Portu, Juan C Gainzarain, Zuriñe Ortiz de Zárate, Miguel A Moran, Andrés Canut, Silvia Hernáez, Leire Balerdi, Cristina Morales, Miguel Corral, Zeltia Valcarce. **Hospital Santos Reyes:** Noelia Arenal , Raquel E Rodríguez. **Hospital Dr. José Molina Orosa:** Laura Iglesias, Beatriz Loureiro. **Hospital Vall d´Hebrón:** Adrián Sánchez, Juan Espinosa, Benito Almirante, Marta Miarons, Júlia Sellarés, María Larrosa, Sonia García, Blanca Marzo, Miguel Villamarín, Nuria Fernández. **Hospital Universitario Rey Juan Carlos:** Conchita Pérez-Jorge, Elena Resino, Andrea Espigares, Teresa Álvarez de Espejo, Iván Navas, M Isabel Quijano, Luis A Nieto, Guillermo Jiménez. **Complejo Hospitalario Universitario Santa Lucía:** Mercedes Guillamón, Josefina García. **Hospital Santa Bárbara:** Constanza Muñoz. **Complejo Hospitalario Universitario de Ferrol:** Ana Mariño, Nieves Valcarce. **Hospital de l'Esperit Sant:** Alex Smithson, Cristina Chico. **Hospital Universitario los Arcos del Mar Menor:** Adriana Sánchez, Eva P García. **Hospital HLA Universitario Moncloa:** Isabel Jiménez, Guillermo Estrada, María Lorén, Nuria Parra, Carmen Martínez, Aránzazu Villasante, Teresa García, M José Ruiz, Marta Robledo, Juan C Abad. **Hospital Virgen del Puerto:** José R Muñoz , Montaña Jiménez. **Hospital Marina Salud de Dénia:** Javier Coy, Inmaculada Poquet. **Hospital Universitario de Jerez:** Marta Santos, Virginia Naranjo. **Hospital Reina Sofía de Tudela:** Tamara Manso, Delia Quilez. **Hospital Clínico Universitario de Santiago de Compostela:** Gema Barbeito, M Jesús Domínguez. **Hospital Universitario del Henares:** Laura Mao, Rodrigo Alonso, Jose D Ampuero, Raquel Barrós, M Aránzazu Galindo, Lourdes Herrera, Rocío Martínez, Sara Rodrigo, Cristóbal M Rodríguez. **Hospital Universitario Lucus Augusti:** Eva M Romay, Roi Suárez. **Hospital de Donostia:** Maialen Ibarguren, José M Marimón, Loreto Vidaur, Xabier Kortajarena. **Hospital de Urduliz Alfredo Espinosa:** Miriam García, Asier Aranguren. **Hospital de Mendaro:** Maria Álvarez, Cintia M Martínez. **Hospital Juan Ramón Jiménez:** Francisco Rodríguez, Francisco Muñoz. **Hospital de Tortosa Virgen de la Cinta:** Elena Chamarro , Merce Cardona. **Hospital Riotinto:** Ismail Zakariya-Yousef, Marta Rico. **Hospital Vega Baja:** Jara Llenas, M Carmen Sánchez. **Hospital Puerta de Hierro:** Ana Fernández, Jorge Calderón, Marcos López, Antonio Ramos, Elena Múñez, Alejandro Callejas, José M Vázquez, Itziar Diego, Esther Expósito, Jorge Anel. **Hospital Universitario de Getafe:** Raquel Álvarez, Lucía Fernández, Roberto Vates, Andrés F Cardona, Pablo Marguenda, Gabriel Gaspar, Elena M Aranda, Blanca Martínez, Daniel Roger, Irene Martín. **Hospital General de la Palma:** André Barbosa, Iván Piñero. **Hospital El Bierzo:** Alberto Bahamonde, Paula Runza. **Fundación Hospital de Calahorra:** Eva Talavera, Marta Lamata. **Hospital Alto Deba:** Ainhoa Urrutia, Lorea Arteche. **Hospital Universitario San Juan de Alicante:** Elisabet Delgado, Virginia Molina. **Hospital de Guadarrama:** Sarah Caro, Gema Domínguez. **Hospital Universitario de Jaén:** Carolina Roldán, Carmen Herrero. **Hospital de Mataró:** Luis Force, Raquel Aranega. **Hospital de Palamós:** Arantzazu Mera, M Roca Toda. **Hospital Universitario de Valme:** Nicolas Merchante , Eva M León. **Clínica Universitaria de Navarra - Campus Navarra:** José L Del Pozo. **Hospital Clínica Benidorm:** Josefa Serralta, Ginger G Cabrera. **Hospital Doce de Octubre:** Mario Fernández-Ruiz, José M Aguado, Guillermo Maestro. **Hospital Universitario Virgen del Rocío:**

José M Cisneros, Jerónimo Pachón, Manuela Aguilar-Guisado, Teresa Aldabó, M Dolores Avilés, Claudio Bueno, Elisa Cordero-Matía, Ana Escoresca, Lydia Gálvez-Benítez, Carmen Infante, Guillermo Martín, Julia Praena, Cristina Roca, Celia Salamanca, Alejandro Suárez-Benjumea. **Hospital Universitario Ramón y Cajal:** Pilar Vizcarra, Carmen Quereda, Mario J Rodriguez, Francesca Gioia, Francesca Norman, Santos Del Campo, Rafael Cantón. **Hospital Universitario San Pedro:** José A Oteo, Paula Santibáñez, Cristina Cervera, Carlos Ruiz, José R. Blanco, José M Azcona, Concepción García, Jorge Alba, Valvanera Ibarra, Mercedes San Franco, Luis Metola. **Hospital Quirón A Coruña:** Héctor Meijide, Silvia Paulos. **HM Sanchinarro:** Justo Menéndez, Paula Villares, Lara Montes. **Hospital Francesc de Borja:** Álvaro Navarro, Anna Ferrer. **Complejo Hospitalario Universitario Nuestra Señora de La Candelaria:** M de la Luz Padilla, Lucy Abella, Marcelino Hayek, Antonio García, Carolina Hernández. **Hospital Universitario HM Montepríncipe:** Andrés J Ruiz, Isabel Barrio. **Hospital Universitario HM Puerta del Sur:** Alí Martakoush. **Hospital Universitario HM Torrelodones:** Agustín Rojas-Vieyra. **Hospital Universitario HM Madrid:** Sonia García, Mercedes Villarreal. **Hospital Don Benito-Villanueva de la Serena:** Marta Vizcaíno, M Pilar García. **Hospital de Viladecans:** Ana Lérida, Natalia Carrasco, Beatriz M Sanjuan, Lydia Martín, Camilo Sanz. **Centro Nacional de Epidemiología:** Inmaculada Jarrín, Belén Alejos, Cristina Moreno, Marta Rava, Carlos Iniesta, Rebeca Izquierdo, Inés Suárez-García, Asunción Díaz, Marta Ruiz-Alguero, Victoria Hernando.

Appendix Table 5. COVID@HULP Working Group

Scientific Committee: J Frías, AJ Carcas, E Ramírez, A Martín-Quirós, M Quintana, J Mingorance, F Arnalich, F Moreno, JC Figueiras, N García-Arenzana, JR Arribas, AM Borobia.

Microbiology Department: M Dolores Montero, MP Romero, C Toro-Rueda, S García-Bujalance, G Ruiz-Carrascoso, E Cendejas-Bueno, I Falces-Romero, F Lázaro-Perona, M Ruiz-Bastián, A Gutiérrez-Arroyo, P Girón De Velasco-Sada, E Dahdouh, B Gómez-Arroyo, C García-Sánchez, V Guedez-López, I Bloise, M Alguacil-Guillén, M Gracia Liras-Hernández, M Sánchez-Castellano, P García-Clemente, P González-Donapetry, S San José-Villar, M de Pablos, R Gómez-Gil, M Corcuera, A. Rico-Nieto, B. Loeches, J Mingorance, J García Rodríguez.

Pharmacy Department: F Moreno, A Herrero.

Laboratory Medicine Department: D Prieto Arribas, P Oliver-Saez, R Mora, P Fernández-Calle, MJ Alcaide, J Diaz-Garzón, B Fernández-Puntero, R Nuñez, G Crespo, O Rodriguez, H Mendez, M Duque, R Gomez, M Sanz de Pedro, L Pascual, M Segovia, JM Iturzaeta, M Rodriguez, A García, MA Martinez, B Fabre, E Martinez, I Moreno, N Rodriguez, D Ortiz, M Simon, IG Tomoiu, C Pizarro, B Montero, AL Qasem, M Gomez, I Casares, A Buño.

Radiology Department: M Martí de Gracia, L Parra Gordo, A Diez Tascón, S Ossaba Vélez, I Pinilla, E Cuesta, M Fernández- Velilla, M Torres, G Garzón.

Preventive Medicine Department: V Pérez, A Quintás, I San Juan, J Cantero, C Pérez, M Castro, L Hernández, T Pedraz, E Fernández, C García, A Robustillo.

Emergency Medicine Department: I Fernández, M Noguerol, A Martínez, M González, R Cabrera, R Mayayo, R Marín, V Lo-Iacono, M Lerín, P Romero, B Reche, R Tejada, M Rico, R Deza, S Fabra, I Arroyo, L Dani, L Labajo, R Soriano, L López, E Calvin, S Martñinez, L López-Tappero, M Pilares, O González, G Bejarano, A Iglesias, Y Tung, C Maroun, R Bravo, M Silvestre, F Perdomo, B Alonso, B Antón, I Arenas, C Cabré, F Marqués, E Muñoz, MA Molina, N Cancelliere, S Pastor, L Frade, P López, I García.

Internal Medicine Department: F Arnalich, C Fernández Capitán, JJ González Garcia, JM Herrero, MA Quesada Simón, A Robles Marhuenda, JI Bernardino, M Mora, C Soto Abanedes, AM Noblejas Mozo, JC Ramos, B Diaz Pollán, MJ Jaras Hernandez, E Martinez Robles, A Moreno Fernandez, R Montejano, A Sanchez Purificación, JC Martin Gutiérrez, PL Martinez Hernández, F la Calle, M Arsuaga, M Diaz Menéndez, E Trigo, C Busca Arenzana, T Sancho Bueso, A Lorenzo Hernández, B Gutierrez Sancerni, G. Salgueiro, L. Martin Carbonero, J. Mostaza, R. de Miguel, M.A. Martinez-López, V. Hontañon, A. Menéndez, J. Cadiñanos, J Alvarez Troncoso, A Castellano, C Marcelo Calvo, I Vives Beltrán, L Ramos Ruperto, G Daroca Bengoa, MM Arcos Rueda, J Vasquez Manau, P Fernández Cidón, C Rosario Herrero Gil, E Palmier Peláez, Y Untoria Tabares, C. Lahoz, E. Estirado, C Hernández, F. Garcia-Iglesias, E. Monteoliva, M Martínez, M. Varas, T. González Alegre, ME Valencia, V Moreno, ML Montes.

Neumology Department: S Alcolea, J Cabanillas, C Carpio, R Casitas, J Fernández-Bujarrabal, I Fernández Navarro, J Fernández Lahera, C García Quero, M Hidalgo, R Galera, F García Río, L Gómez Carrera, M Gómez Mendieta, A Mangas, E Martínez Cerón, M Martínez Redondo, Y Martínez Abad, A Martínez-Verdasco, C Plaza, S Quirós, D Romera, D Romero, B Sánchez, A Santiago, C Villasante, E Zamarrón, V Arnalich, P Mariscal, A Falcone, D Laorden, MC Prados, R Álvarez-Sala

Intensive Care Department: A García, C Arévalo, C Gutiérrez, JC Figueira, M Quintana, S Yus, MJ Asensio, M Sánchez, JM Añón, J Manzanares, A García de Lorenzo, E Perales, B Civantos, L Cachafeiro, A Agrifoglio, B Estébanez, E Flores, M Hernández, P Millán, M Rodríguez, C Gutiérrez, K Nanwani

Pediatric Intensive Care Department: B Arizcun, E Pérez, D Rodríguez, M Sánchez, U Quesada, C Román, P Dorao, E Alvarez-Rojas, JJ Menendez-Suso, C Verdu, A Gómez-Zamora, C Schuffelman, B Calderón, M Laplaza, M del Rio, I Amores, M Rodriguez-Rubio, P de la Oliva

Cardiology Department: J Ruiz, S Rosillo, O González, A Iniesta, I Ponz.

Anesthesiology Department: JM Muñoz Ramón, MC Hernández Gancedo, R Uña Orejón, P Sanabria Carretero, I Moreno Gomez-Limón, A Seiz-Martinez, E Guasch-Arévalo, C Martín-Carrasco, E Alvar, L Serrá, F Iannucelli, J Latorre, S Casares, I Valbuena, L Díaz Díez Picazo, C Rodríguez Roca: O Cervera, E García de las Heras, P Durán, C Castro, C Manrique de Lara, J Veganzones, A López Tofiño, E Fernandez-Cerezo, S Zurita, S Casares, M López-Martinez, T Prim, J Alvárez del Vayo, G Alcaraz, L Castro, J Yagüe, S Díaz-Carrasco, P González-Pizarro, A Montero, FJ Sagra, A Suárez.

Palliative Care Unit: L Díez Porres, M Varela Cerdeira, A Alonso Babarro.

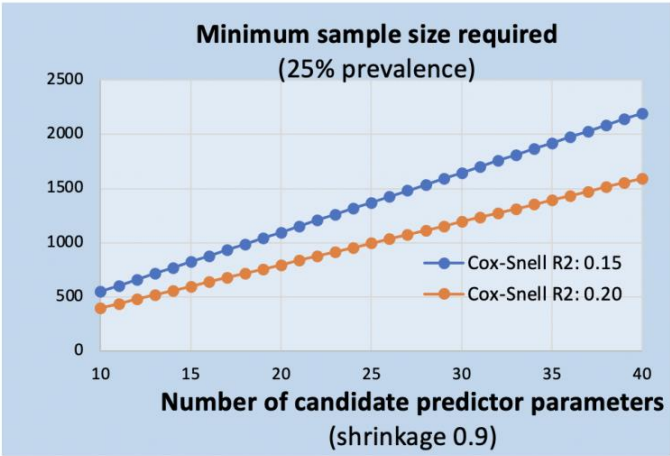
Data Entry (Medical Students): F Abellán, J Alonso, A Álvarez, M Archinà, S Arribas, T Baselga, P Barco, N Barrera, L Barrera, A Bartrina, G Bassani, P Betancort, I Blanco, C Blasco, L Brieba, F Cadenas, P Carrera, C Cascajares, A Catino, R Cavallé, D Ceniza, Y Conde, L Currás, M Daltro, A Esteban, M Fernández, I Ferrer, L Regaño, P Galindo, S Garcia-Bellido, C García-Mochales, T Gómez, C Gómez, N González, S González, J Guisández,

P Hernández, R Hernando, I Llorente, A Marín, P López, L Mejuto, M Palma, A Peña, L Platero, D Pujol, M Ramírez, M Redondo, F Reinoso, A Rodríguez, A Rodríguez, L Romero, S Sánchez, M Sánchez, P Serrano, H Serrano, T Silva, E Soria, A Suárez, B Tejero, A Torrecillas, J Torres, M Valentín-Pastrana, A Villanueva, M Virgós, M Yagüe, N Yustas.

Clinical Pharmacology Department: J Montserrat, J Queiruga, A Rodriguez Mariblanca, L Martínez de Soto, M Urroz, E Seco, M Zubimendi, S Stuart, L Díaz, I García.

Data management: MT García Morales, A Martín-Vega

Appendix Figure 1. Sample size Calculation*



	Minimum sample size required (shrinkage of 0.9 and 25% prevalence)	
Parameters	Cox-Snell R^2: 0.15	Cox-Snell R^2: 0.20
10	549	398
15	823	597
20	1,097	796
25	1,372	995
30	1,646	1,194
35	1,920	1,393
40	2,194	1,592

To estimate a 30-parameter logistic model with a shrinkage of 0.9, a prevalence of events of 25% and assuming a Cox-Snell R^2 of 0.15, 1,646 individuals would be needed, approximately 14 events per variable. In our study, the estimated models were carried out with much higher sample size and 30 parameters were never exceeded, despite the categorization of some independent variables such as age.

*Riley RD, Ensor J, Snell KIE, Harrell FE, Jr., Martin GP, Reitsma JB, et al.
Calculating the sample size required for developing a clinical prediction model.
BMJ. 2020;368:m441.
Epub 2020/03/20. doi: 10.1136/bmj.m441. PubMed PMID: 32188600.