SUPPLEMENTARY DATA

SECTION A. STUDY CONTEXT

This study was conducted in Catalonia, which is located in the northeast region of Spain. As in most European regions, in Catalonia, residents (N = 7 816 419 as of 2019) are granted universal public health care coverage by law.

In Catalonia, health care is delivered by the Catalan Health Service (CatSalut). The Catalan territory is divided into 7 health regions, delimited on the basis of geographical, socioeconomic, and demographic factors. These regions have adequate endowment of health resources for primary and specialized care including hospital care to meet the needs of the population. Each region is divided into health sectors, and these sectors are in turn, composed of integrated health care areas where coordination of care between hospital and primary care is guaranteed by contract.

In the recent years, specialized disease management programs, improved transitional care, and enhanced long-term care, among other interventions, have been delivered in Catalonia by the Catalan Health Service to promote quality of care improvement in the care of patients with chronic conditions, particularly chronic heart failure (HF).[1-6]

SECTION B. COMPONENTS AND IMPLEMENTATION OF THE NEW PRIMARY CARE-HOSPITAL INTEGRATED HEART FAILURE PROGRAM

Since 2017, a new program to improve the quality of care of patients with chronic HF has been developed and implemented in the Bellvitge University Hospital (HUB)-Delta del Llobregat Primary Care Service (HUB-DELTA) integrated health care area, located in the South Metropolitan Sector of the Barcelona Health Region. The HUB-DELTA integrated health care area provides multilevel and

multiprovider health care coordination for a population of 209 255 inhabitants (2019) in the city of El Prat de Llobregat and 2 urban districts of the city of L'Hospitalet de Llobregat (south and center L'Hospitalet de Llobregat). The health care network for patients with HF constructed in the HUB-DELTA area integrates health care institutions belonging to the Catalan Health Institute that include the HUB and 10 primary care centers of the Delta Primary Care Service along with other providers (social and health care, rehabilitation services, social services).

The HUB-DELTA HF program was designed as a nurse-based multidisciplinary, transitional care HF program. Details of the model implemented have been previously published.[1] In its design, an attempt was made to develop the conceptual framework provided by the Chronic Care Model including all components of care and interventions that have shown benefits in the care of patients with HF.[1,7-11] In brief, these include: *a)* encouraging patient empowerment through promotion of self-management and self-efficacy, *b)* promoting proactive planned structured care interventions instead of reactive care, *c)* interventions based on advanced practice nurses in both hospital and primary care, *d)* a multidisciplinary team approach, *e)* promotion of flexible health care services providing open access to patients when needed, *f)* prioritization of eHealth-based care (telemedicine), *g)* implementation of the use of electronic tools and strategies to support decision-making to specialized nurses, community nurses, and family physicians, *h)* enabling the use of shared electronic medical records and information systems to, first, improve communication and coordination of care among health care professionals and, second, to provide information to clinicians and managers on outcomes using dedicated key performance indicators (KPI) obtained from the information systems.

This model was successfully implemented previously in a different health care area.[2] In the current implementation, the model has been updated and improved in several aspects including: *a)* a more refined universal detection of patients in the acute phase, *b)* enhanced discharge coordination, *c)* improved early postdischarge contact, *d)* extension of structured follow up pathways of patients in all care settings including hospital-based HF clinic, primary care offices and home-based care, *e)* shared

electronic care plans between hospital and primary care, *f)* motivational interviewing-based nurse interventions and *g)* robust KPI monitoring of the implementation.

SECTION C. DATA SOURCES AND DATA QUALITY CONTROL

Since 2011, the Health Department of the Government of Catalonia has used an automated administrative health care database (the Catalan Health Surveillance System [CHSS]), which periodically collects detailed individual-level information on demographics and socioeconomic characteristics, as well as exhaustive health-related and medical resource use information generated by the interactions between Catalan residents and the public health care system. This longitudinal, quality-controlled, updated information system allows the performance of epidemiological analyses, evaluations of health care interventions and programs, and public analysis and benchmarking of health indicators across health care areas, among other assessments. Further details on the characteristics of the CHSS data base have been reported elsewhere by our group.[12-17]

Specifically for health care-related data, the database integrates information from a number of sources including the Minimum Data Set for Healthcare Units registry (which includes hospitalizations and use of primary care, emergency department, outpatient hospital clinics, mental health services, and skilled nursing facility services), information on pharmacy prescription, dialysis, ambulatory rehabilitation, home-based respiratory therapies, nonurgent health transport and billing records among other information. Medical conditions are coded using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) coding system. The vital status of the citizens included in the database is updated using information from the National Statistics Institute, Spanish Statistical Office. These registries have an automatic data validation system. Moreover, an external audit is carried out periodically to ensure data quality.

SECTION D. STUDY DESIGN, STUDY POPULATION, CODING CRITERIA AND OBJECTIVES

To evaluate the influence of socioeconomic status (SES) on the effectiveness of a multilevel, multidisciplinary, transitional care program for the management of patients with HF, we followed 3 critical steps.

In the first step, we designed and implemented a comprehensive HF program in the HUB-DELTA integrated health care area between November 2016 and December 2019. In terms of the quality of interventions implemented in the HUB-DELTA HF program, we included 3 distinct implementation periods: preimplementation period (2015 and 2016), transition period (2017) and consolidation of implementation period (2018 and 2019).

As a second step, we designed a pragmatic, population-based evaluation of the implementation of the program by conducting a natural experiment. For the purposes of this study, we included all individuals consecutively admitted to hospital with at least one ICD-9-CM code for HF as the primary diagnosis and discharged alive in Catalonia between January 1, 2015 and December 31, 2019. ICD-9-CM codes used for hospital admission due to HF were: 398.91, 402.x1, 404.x1, 404.x3, 428.0, 428.1, 428.2x, 428.x3, and 428.x4. SES, general clinical characteristics, demographic information, information on comorbidities and previous medical resource use were obtained at baseline in all patients. Clinical outcomes were measured and analyzed for all patients between January 1, 2015 and December 31, 2019. For the index admission at each time period or year of analysis and successive clinically-related and HF readmissions, we included only unplanned acute admissions lasting more than 24 hours.

The effectiveness of the implementation of the program was measured at 2 levels: first, comparing the outcomes of patients exposed to the HUB-DELTA HF program between periods of implementation taking 2015 (preimplementation) as the reference year and the period 2015 to 2016

(preimplementation period) as the reference period (intragroup comparison) and, second, comparing outcomes between patients in the HUB-DELTA area with patients in the remaining areas of the Catalan Health Service (CatSalut) at each predefined implementation period (between groups comparison).

The third step in the current project involved evaluation of the efficacy of the HUB-DELTA HF program stratified according to the level of SES across the studied time periods.

The primary outcome variable of the study was the time until the first clinically-related readmission. Secondary outcome variables were time until the first admission for HF and time to death. The outcomes variables were evaluated globally for the evaluation of the newly implemented HF program and stratified according to SES for the evaluation of the influence of SES on the effectiveness of a comprehensive HF program. The complete coding criteria for the present study is presented below.

List of ICD-9-CM codes used to define each of the conditions evaluated in the study

Previous myocardial infarction

Code	Description
410.xx	Acute myocardial infarction
412	Old myocardial infarction

Atrial fibrillation

Code	Description
427.31	Atrial fibrillation

Peripheral vascular disease

Code	Description
093.0	Aneurysm of aorta specified as syphilitic
437.3	Cerebral aneurysm nonruptured
440.x	Atherosclerosis
441.x	Aortic aneurysm and dissection
443.1	Thromboangiitis obliterans (buerger's disease)
443.2x	Other peripheral vascular disease
443.8x	Other specified peripheral vascular diseases
443.9	Peripheral vascular disease unspecified

447.1	Stricture of artery
557.1	Chronic vascular insufficiency of intestine
557.9	Unspecified vascular insufficiency of intestine
V43.4	Blood vessel replaced by other means

Hypertension

Code	Description
401.xx	Essential hypertension
402.xx	Hypertensive heart disease
403.xx	Hypertensive renal disease
404.xx	Hypertensive heart and renal disease
405.xx	Secondary hypertension

Obesity

Code	Description
278.00	Obesity, unspecified
278.01	Morbid obesity
V85.3x	Body Mass Index between 30-39, adult
V85.4x	Body Mass Index 40 and over, adult

Smoking

Code	Description
305.1	Tobacco use disorder
649.0x	Tobacco use disorder complicating pregnancy, childbirth, or the puerperium
989.84	Toxic effect of other substances: Tobacco
V15.82	History of tobacco use

Hyperlipidemia

Code	Description
272.0x	Pure hypercholesterolemia
272.1x	Pure hyperglyceridemia
272.2x	Hyperlipidemia, mixed
272.3x	Hyperchylomicronemia
272.4x	Other and unspecified hyperlipidemia

Diabetes mellitus

Code	Description
250.xx	Diabetes mellitus

Chronic kidney disease

Code	Description
403.01	Hypertensive chronic kidney disease, malignant, with chronic kidney disease stage v or end stage renal disease
403.11	Hypertensive chronic kidney disease, benign, with chronic kidney disease stage v or end stage renal disease
403.91	Hypertensive chronic kidney disease, unspecified, with chronic kidney disease stage v or end stage renal disease
404.02	Hypertensive heart and chronic kidney disease, malignant, without heart failure and with chronic kidney disease stage v or end stage renal disease
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage v or end stage renal disease
404.12	Hypertensive heart and chronic kidney disease, benign, without heart failure and with chronic kidney disease stage v or end stage renal disease
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage v or end stage renal disease
404.92	Hypertensive heart and chronic kidney disease, unspecified, without heart failure and with chronic kidney disease stage v or end stage renal disease
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage v or end stage renal disease
582.x	Chronic glomerulonephritis
583.0x	Nephritis and nephropathy not specified as acute or chronic with lesion of proliferative glomerulonephritis
583.1x	Nephritis and nephropathy not specified as acute or chronic with lesion of membranous glomerulonephritis
583.2x	Nephritis and nephropathy not specified as acute or chronic with lesion of membranoproliferative glomerulonephritis
583.4x	Nephritis and nephropathy not specified as acute or chronic with lesion of rapidly progressive glomerulonephritis
583.6x	Nephritis and nephropathy not specified as acute or chronic with lesion of renal cortical necrosis
583.7x	Nephritis and nephropathy not specified as acute or chronic with lesion of renal medullary necrosis
585.x	Chronic renal failure
586.x	Renal failure unspecified
588.0	Renal osteodystrophy
V42.0	Kidney replaced by transplant
V45.1x	Postsurgical renal dialysis status
V56.x	Encounter for dialysis and dialysis catheter care

Anemia

Code	Description
280.x	Iron deficiency anemias
281.x	Other deficiency anemias
282.x	Hereditary hemolytic anemias
283.x	Acquired hemolytic anemias
284.x	Aplastic anemia
285.x	Other and unspecified anemias

COPD (Chronic obstructive pulmonary disease)

Code	Description
491.0	Chronic bronchitis
491.2x	Obstructive chronic bronchitis
491.8	Other chronic bronchitis
491.9	Unspecified chronic bronchitis
492.x	Emphysema
494.x	Bronchiectasis
496	Chronic airway obstruction, not elsewhere classified

Cancer

Code	Description
140.x	Malignant neoplasm of lip
141.x	Malignant neoplasm of tongue
142.x	Malignant neoplasm of major salivary glands
143.x	Malignant neoplasm of gum
144.x	Malignant neoplasm of floor of mouth
145.x	Malignant neoplasm of other and unspecified parts of mouth
146.x	Malignant neoplasm of oropharynx
147.x	Malignant neoplasm of nasopharynx
148.x	Malignant neoplasm of hypopharynx
149.x	Malignant neoplasm of other and ill-defined sites within the lip oral cavity and pharynx
150.x	Malignant neoplasm of esophagus
151.x	Malignant neoplasm of stomach
152.x	Malignant neoplasm of small intestine including duodenum
153.x	Malignant neoplasm of colon
154.x	Malignant neoplasm of rectum rectosigmoid junction and anus

155.x	Malignant neoplasm of liver and intrahepatic bile ducts
156.x	Malignant neoplasm of gallbladder and extrahepatic bile ducts
157.x	Malignant neoplasm of pancreas
158.x	Malignant neoplasm of retroperitoneum and peritoneum
159.x	Malignant neoplasm of other and ill-defined sites within the digestive organs and peritoneum
160.x	Malignant neoplasm of nasal cavities middle ear and accessory sinuses
161.x	Malignant neoplasm of larynx
162.x	Malignant neoplasm of trachea bronchus and lung
163.x	Malignant neoplasm of pleura
164.x	Malignant neoplasm of thymus heart and mediastinum
165.x	Malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs
170.x	Malignant neoplasm of bone and articular cartilage
171.x	Malignant neoplasm of connective and other soft tissue
172.x	Malignant melanoma of skin
173.x	Other malignant neoplasms of skin
174.x	Malignant neoplasm of female breast
175.x	Malignant neoplasm of female breast
176.x	Kaposi sarcoma
179.x	Malignant neoplasm of uterus-part unspecified
180.x	Malignant neoplasm of cervix uteri
181.x	Malignant neoplasm of placenta
182.x	Malignant neoplasm of body of uterus
183.x	Malignant neoplasm of ovary and other uterine adnexa
184.x	Malignant neoplasm of other and unspecified female genital organs.
185.x	Malignant neoplasm of prostate
186.x	Malignant neoplasm of testis
187.x	Malignant neoplasm of penis and other male genital organs
188.x	Malignant neoplasm of bladder
189.x	Malignant neoplasm of kidney and other and unspecified urinary organs
190.x	Malignant neoplasm of eye
191.x	Malignan neoplasm of brain
192.x	Malignant neoplasm of other and unspecified parts of nervous system
193.x	Malignant neoplasm of thyroid gland
194.x	Malignant neoplasm of other endocrine glands and related structures
195.x	Malignant neoplasm of other and ill-defined sites
196.x	Secondary and unspecified malignant neoplasm of lymph nodes
197.x	Secondary malignant neoplasm of respiratory and digestive systems
198.x	Secondary malignant neoplasm of other specified sites
199.x	Malignant neoplasm without specification of site
200.x	Lymphosarcoma and reticulosarcoma

201.x	Hodgkin's disease
202.x	Other malignant neoplasms of lymphoid and histiocytic tissue
203.x	Multiple myeloma and immunoproliferative neoplasms
204.x	Lymphoid leukemia
205.x	Myeloid leukemia
206.x	Monocytic leukemia
207.x	Other specified leukemias
208.x	Leukemia of unspecified cell type
209.1x	Malignant carcinoid tumors of the appendix large intestine and rectum
209.2x	Malignant carcinoid tumor of unknown primary site
209.3x	Malignant poorly differentiated neuroendocrine cardinoma any site
209.7x	Secondary neuroendocrine tumors
230.x	Carcinoma in situ of digestive organs
231.x	Carcinoma in situ of respiratory system
232.x	Carcinoma in situ of skin
233.x	Carcinoma in situ of breast and genitourinary system
234.x	Carcinoma in situ of other and unspecified sites

Osteoarthritis

Code	**Description**
712.x	Crystal arthropathies
713.x	Arthropathy associated with other disorders classified elsewhere
714.x	Rheumatoid arthritis and other inflammatory polyarthropathies
716.x	Other and unspecified arthropathies
720.0x	Ankylosing spondylitis
730.x	Osteomyelitis periostitis and other infections involving bone

Cognitive impairment

Code	**Description**
317	Mild intellectual disabilities
318.x	Other specified mental retardation
319	Unspecified intellectual disabilities

Cirrhosis

Code	**Description**
571.2	Alcoholic cirrhosis of liver
571.5	Cirrhosis of liver without alcohol

Major mental health disorder

Code	Description
295.0x	Simple type schizophrenia
295.1x	Disorganized type schizophrenia
295.2x	Catatonic type schizophrenia
295.3x	Paranoid type schizophrenia
295.5x	Latent schizophrenia
295.6x	Residual schizophrenia
295.7x	Schizo-affective type schizophrenia
295.8x	Other specified types of schizophrenia
295.9x	Unspecified schizophrenia
301.22	Schizotypal personality disorder
297.1	Delusional disorder
297.3	Shared psychotic disorder
296.4x	Bipolar I disorder, most recent episode (or current) manic
296.5x	Bipolar I disorder, most recent episode (or current) depressed
296.6x	Bipolar I disorder, most recent episode (or current) mixed
296.7	Bipolar i disorder, most recent episode (or current) unspecified
296.8x	Other and unspecified bipolar disorders
296.3x	Major depressive disorder recurrent episode
297.9	Unspecified paranoid state
298.9	Unspecified psychosis
300.21	Agoraphobia with panic disorder
300.3	Obsessive-compulsive disorders
303.x	Alcohol dependence syndrome
304.2x	Cocaine dependence
304.0x	Opioid type dependence
304.7x	Combinations of opioid type drug with any other drug dependence
299.x	Pervasive developmental disorders
307.1	Anorexia nervosa
307.51	Bulimia nervosa

Alcohol abuse

Code	Description
303.x	Alcohol dependence syndrome
305.0x	Nondependent alcohol abuse

Opioid abuse

Code	Description

304.0x	Opioid type dependence
304.7x	Combinations of opioid type drug with any other drug dependence
305.5x	Nondependent opioid abuse

Cocaine abuse

Code	Description
304.2x	Cocaine dependence
305.6x	Nondependent cocaine abuse

Heart failure

Code	Description
398.91	Rheumatic heart failure (congestive)
402.01	Malignant hypertensive heart disease with heart failure
402.11	Benign hypertensive heart disease with heart failure
402.91	Unspecified hypertensive heart disease with heart failure
404.01	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified
404.03	Hypertensive heart and chronic kidney disease, malignant, with heart failure and with chronic kidney disease stage V or end stage renal disease
404.11	Hypertensive heart and chronic kidney disease, benign, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified
404.13	Hypertensive heart and chronic kidney disease, benign, with heart failure and chronic kidney disease stage V or end stage renal disease
404.91	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and with chronic kidney disease stage I through stage IV, or unspecified
404.93	Hypertensive heart and chronic kidney disease, unspecified, with heart failure and chronic kidney disease stage V or end stage renal disease
428.x	Heart failure

Iatrogenic complications

Code	Description
244.0	Postsurgical hypothyroidism
244.1	Other postablative hypothyroidism
244.2	Iodine hypothyroidism
244.3	Other iatrogenic hypothyroidism
245.4	Iatrogenic thyroiditis (
251.0	Hypoglycemic coma
251.3	Postsurgical hypoinsulinemia
253.7	Iatrogenic pituitary disorders

276.61	Transfusion associated circulatory overload
277.83	Iatrogenic carnitine deficiency
277.88	Tumor lysis syndrome
285.3	Antineoplastic chemotherapy induced anemia
287.41	Posttransfusion purpura
338.12	Acute postthoracotomy pain (
338.18	Other acute postoperative pain
338.22	Chronic postthoracotomy pain
338.28	Other chronic postoperative pain
349.0	Reaction to spinal or lumbar puncture
349.1	Nervous system complications from surgically implanted device
349.31	Accidental puncture or laceration of dura during a procedure
415.11	Iatrogenic pulmonary embolism and infarction
429.4	Functional disturbances following cardiac surgery
458.2	Iatrogenic hypotension
458.21	Hypotension of hemodialysis
458.29	Other iatrogenic hypotension
512.1	Iatrogenic pneumothorax
512.2	Postoperative air leak
518.4	Acute edema of lung unspecified
518.7	Transfusion related acute lung injury (TRALI)
519.0	Tracheostomy complications
519.00	Tracheostomy complication unspecified
519.01	Infection of tracheostomy
519.02	Mechanical complication of tracheostomy
519.09	Other tracheostomy complications
523.2	Gingival recession
530.86	Infection of esophagostomy
530.87	Mechanical complication of esophagostomy
536.4	Gastrostomy complications
536.40	Gastrostomy complication unspecified
536.41	Infection of gastrostomy
536.42	Mechanical complication of gastrostomy
536.49	Other gastrostomy complications
539.x	Complications of bariatric procedures
551.21	Incisional ventral hernia with gangrene
553.21	Incisional hernia without obstruction or gangrene
560.81	Intestinal or peritoneal adhesions with obstruction (postoperative) (postinfection)
564.2	Postgastric surgery syndromes
564.3	Vomiting following gastrointestinal surgery
564.4	Other postoperative functional disorders

568.0	Peritoneal adhesions (postoperative) (postinfection)
569.6	Colostomy and enterostomy complications
569.62	Mechanical complication of colostomy and enterostomy
569.7x	Other disorders of intestine: Complications of intestinal pouch
579.2	Blind loop syndrome
579.3	Other and unspecified postsurgical non absorption
593.3	Stricture or kinking of ureter
596.81	Infection of cystostomy
598.2	Postoperative urethral stricture
614.6	Pelvic peritoneal adhesions female (postoperative) (post infection)
728.13	Postoperative heterotopic calcification
780.62	Postprocedural fever
780.63	Postvaccination fever
780.66	Febrile nonhemolytic transfusion reaction
909.3	Late effect of complications of surgical and medical care
995.24	Failed moderate sedation during procedure
995.4	Shock due to anesthesia
995.86	Malignant hyperthermia
997.x	Complications affecting specified body system not elsewhere classified
997.99	Complications affecting other specified body systems not elsewhere classified
998.x	Other complications of procedures not elsewhere classified
999.x	Complications of medical care not elsewhere classified
V15.53	Personal history of retained foreign body fully removed
V15.80	Personal history of failed moderate sedation
V15.83	Personal history of underimmunization status
V90.01	Retained depleted uranium fragments
V90.09	Other retained radioactive fragments

SECTION E. ASSESMENT OF SOCIOECONOMIC STATUS, COVARIATES, AND STUDY ENDPOINTS

Assessment of individual socioeconomic status

The methodology for the assessment of individual SES has been previously reported by our group.[14,15] Briefly, in the CHSS database, information on individual annual income (classified as < €18 000, €18 000-€100 000, > €100 000) is recorded and updated on a yearly basis, as well as information on receipt of welfare economic support by the government. For the purposes of our study, these variables were assessed for all patients at the time of the index admission. We defined 4 individual income categories: an annual income > €100 000 was considered "high" income, €18 000-€100 000 was considered "medium" income, and < €18 000 was considered "low" income. These 3 categories included both active workers and retired individuals receiving a retirement pension. Finally, individuals receiving welfare support from the government were considered to have "very low income". This categorization mirrors that used in Catalonia for pharmaceutical copayment purposes. For the present analysis, we grouped patients with medium and high income into a single category. Information on education level was not available in the database.

Assessment of covariates and comorbidities

Information on relevant covariates including age, sex, and comorbidities available at the time of the index admission was used for all patients. Specifically for comorbidities, we used the "adjusted morbidity groups" (GMA [Catalan acronym for "Grups de Morbiditat Ajustats"]) comorbidity classification system.[14,18,19] The GMA system has been developed specifically for the Catalan health care system and includes 31 mutually exclusive categories of morbidity and complexity (social features

not included) and can be expressed as a single GMA index. Importantly, the GMA system has shown to outperform the Charlson comorbidity index in the Catalan population in terms of its ability to predict incident urgent hospitalizations. For the present study, based on the distribution of GMAs within the HF study population, 4 GMA risk strata were defined: low, intermediate, high and very high.

Ascertainment of study endpoints

Urgent clinically-related re-hospitalization (ie, unplanned hospitalization, as opposed to planned hospitalizations, such as those for diagnostic or surgical procedures) was the primary endpoint of our study. HF rehospitalizations and all-cause death were the secondary endpoints of the study.

Clinically-related hospital readmissions were defined using the Chronic Condition Indicator criteria of the ICD-9-CM of the Agency for Healthcare Research and Quality.[20]

Accordingly, clinically-related readmissions can be cataloged as: *a)* recurrences when the primary diagnosis includes diagnostic coding of circulatory or heart disease (07-Diseases of the circulatory system, according to CCI), or when the primary diagnosis is acute respiratory failure and the principal secondary diagnosis is heart failure with no external cause; *b)* admission due to pre-existing chronic conditions when the primary diagnosis of the episode includes diagnostic coding consistent with chronic pre-existing disease not involving the circulatory system and having no external cause; and *c)* admission due to complications when the primary diagnosis includes diagnostic coding consistent with complications associated with or caused by the medical care received during the index hospitalization. Complications are listed in section D of the supplementary data (iatrogenic complications). HF readmissions were defined using the same coding criteria used for the index HF admission and are also listed in the section D of the supplementary data.

SECTION F. STATISTICAL ASPECTS OF THE STUDY

The baseline characteristics of the study population are described overall and by several strata including health care area (CatSalut vs HUB-DELTA), study periods and individual income (SES groups). Categorical variables are reported using number and proportion, and continuous variables using mean and standard deviation. Characteristics were compared across the different strata using the chi-square, Student t-test, 1-way ANOVA or nonparametric tests, as appropriate.

First, multivariate adjusted Cox proportional hazards models analyzing the determinants of clinically-related readmission, HF readmission and all-cause death in patients discharged alive with a primary diagnosis of HF in Catalonia between January 1, 2015 and December 31, 2019 were conducted. All models were adjusted for age, sex, individual SES, previous hospitalization, comorbidities (using the GMA morbidity index) and time since diagnosis of HF.

Next, the risk of the occurrence of clinical endpoints according to SES after discharge across the predefined time periods was explored using multivariate Cox proportional hazards models in patients discharged alive with a primary diagnosis of HF in Catalonia and the HUB-DELTA area between January 1, and December 31, 2019.

Multivariate Cox proportional hazards models were used to assess the multivariable-adjusted effect on clinical outcomes of the implementation of the hospital-primary care integrated HF program in the HUB-DELTA health care area. Primary and secondary endpoints were analyzed across years and predefined time periods according to health care setting in models adjusted for individual SES, sex, age, previous hospitalization, comorbidities (morbidity index: GMA) and time since diagnosis of HF.

To explore the effect of the program according to individual SES, several multivariable (adjusted) Cox proportional models evaluating the impact on clinical outcomes across years and predefined time periods according to health care setting (HUB-DELTA area vs rest of CatSalut) and

stratified by SES were conducted. The effect of the interaction between individual SES and health care area (HUB-DELTA vs rest of CatSalut) across study periods was further explored in similar models.

For this analysis, the adjusted probabilities of experiencing any of the clinical events studied here are graphically represented, according to the period, and stratified by individual SES based on Cox proportional hazards models.

All statistical tests and confidence intervals (CI) were constructed with a type I error alpha level of 5%, with no adjustments for multiplicity. *P* values below .05 were considered statistically significant. All analyses were performed using R software (version 4.0.2; R Foundation for Statistical Computing, Vienna, Austria).

Table 1 of the supplementary data. Baseline clinical characteristics including socioeconomic status of patients discharged alive with a primary diagnosis of HF in Catalonia between January 1, 2015 and December 31, 2019 overall and according to the 3 predefined time

	Overall	2015-2016	2017	2018-2019	*P*
	N = 77 554	n = 30 566	n = 14 581	n = 32 407	
Individual annual income					< .001
Medium or high SES	12 018 (15.5)	4174 (13.7)	2340 (16.1)	5504 (17.0)	
Low SES	61 967 (79.9)	24 884 (81.4)	11 571 (79.4)	25 512 (78.8)	
Very low SES	3535 (4.56)	1496 (4.90)	663 (4.55)	1376 (4.25)	
Sex					.011
Male	35 895 (46.3)	13 973 (45.7)	6880 (47.2)	15 042 (46.4)	
Female	41 659 (53.7)	16 593 (54.3)	7701 (52.8)	17 365 (53.6)	
Age, y	79.8 ± 10.8	79.4 ± 10.8	79.3 ± 10.9	80.4 ± 10.7	< .001
Age group, y					< .001
15-49	1212 (1.56)	488 (1.60)	252 (1.73)	472 (1.46)	
50-64	6009 (7.75)	2375 (7.78)	1232 (8.45)	2402 (7.41)	
65-74	12 372 (16.0)	5000 (16.4)	2506 (17.2)	4866 (15.0)	
75-84	28 054 (36.2)	11 772 (38.6)	5250 (36.0)	11 032 (34.0)	
>84	29 876 (38.5)	10 900 (35.7)	5341 (36.6)	13 635 (42.1)	

	Overall	2015-2016	2017	2018-2019	*P*
Morbidity burden (GMA)	37.9 ± 16.4	35.1 ± 15.8	38.0 ± 16.1	40.5 ± 16.7	.000
Risk levels (GMA)					< .001
Low risk	1793 (2.31)	1045 (3.42)	275 (1.89)	473 (1.46)	
Intermediate risk	12 188 (15.7)	5859 (19.2)	2260 (15.5)	4069 (12.6)	
High risk	32 138 (41.4)	13 185 (43.1)	6103 (41.9)	12 850 (39.7)	
Very high risk	31 435 (40.5)	10 477 (34.3)	5943 (40.8)	15 015 (46.3)	
Years since HF diagnosis					< .001
< 1	32 738 (42.2)	13 283 (43.5)	6173 (42.3)	13 282 (41.0)	
1-2	13 396 (17.3)	5657 (18.5)	2499 (17.1)	5240 (16.2)	
3-5	14 986 (19.3)	6091 (19.9)	2760 (18.9)	6135 (18.9)	
> 5	16 434 (21.2)	5535 (18.1)	3149 (21.6)	7750 (23.9)	
Previous MI	15 794 (20.4)	6188 (20.2)	2895 (19.9)	6711 (20.7)	.083
Atrial fibrillation	28 780 (37.1)	6284 (20.6)	4973 (34.1)	17 523 (54.1)	.000
Peripheral vascular disease	19 196 (24.8)	7161 (23.4)	3532 (24.2)	8503 (26.2)	< .001
Hypertension	70 649 (91.2)	27 736 (90.8)	13 255 (91.0)	29 658 (91.6)	.003
Obesity	25 945 (33.5)	5811 (19.0)	4577 (31.4)	15 557 (48.0)	.000
Smoking habit	17 326 (22.3)	3908 (12.8)	3201 (22.0)	10 217 (31.5)	.000
Hyperlipidemia	31 593 (40.7)	7299 (23.9)	5396 (37.0)	18 898 (58.3)	.000
Diabetes mellitus	39 684 (51.2)	15 862 (51.9)	7380 (50.6)	16 442 (50.8)	.004
CKD	41 498 (53.5)	15 586 (51.0)	7723 (53.0)	18 189 (56.2)	< .001
Anemia	43 515 (56.1)	16 445 (53.8)	8077 (55.4)	18 993 (58.6)	< .001

	Overall	2015-2016	2017	2018-2019	*P*
COPD	32 703 (42.2)	12 736 (41.7)	6088 (41.8)	13 879 (42.9)	.007
Cancer	11 994 (15.5)	4682 (15.3)	2002 (13.7)	5310 (16.4)	< .001
Osteoarthritis	10 218 (13.2)	3459 (11.3)	1812 (12.4)	4947 (15.3)	< .001
Severe cognitive impairment	5904 (7.62)	1930 (6.32)	1031 (7.07)	2943 (9.09)	< .001
Cirrhosis	1657 (2.14)	600 (1.96)	359 (2.46)	698 (2.16)	.003
Major mental health disorder	9501 (12.3)	3309 (10.8)	1834 (12.6)	4358 (13.4)	< .001
Alcohol abuse	9201 (11.9)	3322 (10.9)	1859 (12.7)	4020 (12.4)	< .001
Opioid abuse	510 (0.66)	162 (0.53)	112 (0.77)	236 (0.73)	.002
Cocaine abuse	348 (0.45)	102 (0.33)	65 (0.45)	181 (0.56)	< .001
Number of previous hospital admissions	1.13 ± 1.59	1.18 ± 1.62	1.05 ± 1.48	1.11 ± 1.62	< .001
Number of days in hospital (previous)	9.65 ± 16.0	10.00 ± 16.3	9.15 ± 15.5	9.56 ± 15.9	< .001
Number of days in psychiatric unit (previous)	0.03 ± 1.48	0.03 ± 1.58	0.04 ± 1.92	0.03 ± 1.12	.963
Number of days in skilled nursing facility (previous)	3.19 ± 18.2	2.20 ± 14.6	2.99 ± 18.0	4.22 ± 21.0	< .001
Number of days in nursing home (previous)	27.1 ± 92.0	28.2 ± 93.5	25.6 ± 89.9	26.8 ± 91.6	.016

CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease; GMA, adjusted morbidity groups; HF, heart failure; MI, myocardial infarction; SES, socioeconomic status.

The data are presented as mean ± standard deviation or No. (%).

Table 2 of the supplementary data. Baseline clinical characteristics including the SES of patients discharged alive with a primary diagnosis of HF in HUB-DELTA health care area between January 1, 2015 and December 31, 2019 according to 3 predefined time periods

	Total	2015-2016	2017	2018-2019	*P*
	N = 3396	n = 1622	n = 724	n = 1050	
Individual annual income					.081
Medium or high SES	550 (16.2)	257 (15.8)	105 (14.5)	188 (17.9)	
Low SES	2669 (78.6)	1267 (78.1)	588 (81.2)	814 (77.5)	
Very low SES	177 (5.21)	98 (6.04)	31 (4.28)	48 (4.57)	
Sex					.458
Male	1599 (47.1)	772 (47.6)	349 (48.2)	478 (45.5)	
Female	1797 (52.9)	850 (52.4)	375 (51.8)	572 (54.5)	
Age, y	79.4 ± 9.96	79.1 ± 9.53	79.2 ± 9.89	80.0 ± 10.6	.062
Age group, y					< .001
15-49	40 (1.18)	16 (0.99)	9 (1.24)	15 (1.43)	
50-64	243 (7.16)	118 (7.27)	42 (5.80)	83 (7.90)	
65-74	584 (17.2)	294 (18.1)	132 (18.2)	158 (15.0)	
75-84	1367 (40.3)	699 (43.1)	306 (42.3)	362 (34.5)	
>84	1162 (34.2)	495 (30.5)	235 (32.5)	432 (41.1)	
Morbidity burden (GMA)	37.0 ± 15.8	35.6 ± 15.3	38.1 ± 15.9	38.5 ± 16.4	< .001
Risk levels (GMA)					< .001
Low risk	66 (1.94)	40 (2.47)	15 (2.07)	11 (1.05)	

	Total	2015-2016	2017	2018-2019	*P*
Intermediate risk	560 (16.5)	297 (18.3)	110 (15.2)	153 (14.6)	
High risk	1482 (43.6)	731 (45.1)	296 (40.9)	455 (43.3)	
Very high risk	1288 (37.9)	554 (34.2)	303 (41.9)	431 (41.0)	
Years since HF diagnosis:					.002
< 1	1384 (40.8)	670 (41.3)	285 (39.4)	429 (40.9)	
1-2	587 (17.3)	315 (19.4)	118 (16.3)	154 (14.7)	
3-5	692 (20.4)	332 (20.5)	151 (20.9)	209 (19.9)	
> 5	733 (21.6)	305 (18.8)	170 (23.5)	258 (24.6)	
Previous MI	665 (19.6)	325 (20.0)	159 (22.0)	181 (17.2)	.039
Atrial fibrillation	1221 (36.0)	359 (22.1)	278 (38.4)	584 (55.6)	< .001
Peripheral vascular disease	930 (27.4)	410 (25.3)	211 (29.1)	309 (29.4)	.031
Hypertension	3095 (91.2)	1480 (91.3)	665 (91.9)	950 (90.5)	.583
Obesity	1096 (32.3)	327 (20.2)	255 (35.2)	514 (49.0)	< .001
Smoking	809 (23.8)	250 (15.4)	180 (24.9)	379 (36.1)	< .001
Hyperlipidemia	1431 (42.1)	441 (27.2)	314 (43.4)	676 (64.4)	< .001
Diabetes mellitus	1733 (51.0)	832 (51.3)	372 (51.4)	529 (50.4)	.874
CKD	1901 (56.0)	885 (54.6)	400 (55.2)	616 (58.7)	.106
Anemia	1840 (54.2)	828 (51.0)	383 (52.9)	629 (59.9)	< .001
COPD	1440 (42.4)	717 (44.2)	314 (43.4)	409 (39.0)	.022
Cancer	575 (16.9)	273 (16.8)	122 (16.9)	180 (17.1)	.976
Osteoarthritis	361 (10.6)	155 (9.56)	79 (10.9)	127 (12.1)	.112

	Total	2015-2016	2017	2018-2019	*P*
Severe cognitive impairment	194 (5.71)	79 (4.87)	31 (4.28)	84 (8.00)	.001
Cirrhosis	77 (2.27)	33 (2.04)	17 (2.35)	27 (2.57)	.653
Major mental health disorder	411 (12.1)	163 (10.0)	108 (14.9)	140 (13.3)	.001
Alcohol abuse	645 (19.0)	299 (18.4)	150 (20.7)	196 (18.7)	.406
Opioid abuse	12 (0.35)	2 (0.12)	6 (0.83)	4 (0.38)	.026
Cocaine abuse	13 (0.38)	4 (0.25)	3 (0.41)	6 (0.57)	.363
Number of previous hospital admissions	1.22 ± 1.55	1.34 ± 1.63	1.26 ± 1.58	1.01 ± 1.38	< .001
Number of days in hospital (previous)	9.42 ± 15.6	9.93 ± 15.1	9.50 ± 15.9	8.57 ± 16.0	.087
Number of days in psychiatric unit (previous)	0.03 ± 0.91	0.02 ± 0.82	0.01 ± 0.37	0.05 ± 1.24	.561
Number of days in skilled nursing facility (previous)	2.78 ± 18.8	3.28 ± 22.4	1.96 ± 13.4	2.58 ± 15.7	.267
Number of days in nursing home (previous)	15.0 ± 69.6	20.2 ± 79.6	12.8 ± 65.6	8.43 ± 53.2	< .001

CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease; GMA, adjusted morbidity groups; HF, heart failure; MI, myocardial infarction; SES, socioeconomic status.

The data are presented as mean ± SD or No. (%).

Table 3 of the supplementary data. Baseline characteristics of patients included in the study in Catalonia between January 1, 2015 and December 31, 2019, according to SES

	Total	Medium or high SES	Low SES	Very low SES	*P*
	N = 77 520	n = 12 018	n = 61 967	n = 3535	
Sex					.001
Male	35 883 (46.3)	7646 (63.6)	26 926 (43.5)	1311 (37.1)	
Female	41 637 (53.7)	4372 (36.4)	35 041 (56.5)	2224 (62.9)	
Age, y	79.8 ± 10.8	78.6 ± 10.6	80.5 ± 10.5	71.8 ± 13.1	.001
Age group, y					.001
15-49	1211 (1.56)	165 (1.37)	857 (1.38)	189 (5.35)	
50-64	6005 (7.75)	1021 (8.50)	4172 (6.73)	812 (23.0)	
65-74	12 367 (16.0)	2478 (20.6)	9010 (14.5)	879 (24.9)	
75-84	28 042 (36.2)	4413 (36.7)	22 578 (36.4)	1051 (29.8)	
> 84	29 864 (38.5)	3934 (32.8)	25 331 (40.9)	599 (17.0)	
Morbidity burden (GMA)	37.9 ± 16.4	36.3 ± 16.6	38.1 ± 16.3	39.3 ± 17.8	< .001
Risc levels (GMA)					< .001
Low risk	1783 (2.30)	399 (3.32)	1273 (2.05)	111 (3.14)	
Intermediate risk	12 177 (15.7)	2184 (18.2)	9481 (15.3)	512 (14.5)	
High risk	32 127 (41.4)	4923 (41.0)	25 836 (41.7)	1368 (38.7)	
Very high risk	31 433 (40.5)	4512 (37.5)	25 377 (41.0)	1544 (43.7)	
Years since HF diagnosis					< .001
< 1	32 713 (42.2)	5764 (48.0)	25 590 (41.3)	1359 (38.4)	

1-2	13 392 (17.3)	2051 (17.1)	10 718 (17.3)	623 (17.6)	
3-5	14 984 (19.3)	2152 (17.9)	12 169 (19.6)	663 (18.8)	
> 5	16 431 (21.2)	2051 (17.1)	13 490 (21.8)	890 (25.2)	
Previous MI	15 789 (20.4)	2662 (22.2)	12 412 (20.0)	715 (20.2)	< .001
Atrial fibrillation	28 780 (37.1)	4764 (39.6)	22 909 (37.0)	1107 (31.3)	< .001
Peripheral vascular disease	19 196 (24.8)	3131 (26.1)	15 110 (24.4)	955 (27.0)	< .001
Hypertension	70 627 (91.2)	10 705 (89.3)	56 815 (91.7)	3107 (87.9)	< .001
Obesity	25 945 (33.5)	3802 (31.6)	20 828 (33.6)	1315 (37.2)	< .001
Smoking	17 326 (22.4)	3484 (29.0)	12 831 (20.7)	1011 (28.6)	< .001
Hyperlipidemia	31 593 (40.8)	5215 (43.4)	24 918 (40.2)	1460 (41.3)	< .001
Diabetes mellitus	39 673 (51.2)	5914 (49.3)	31 764 (51.3)	1995 (56.4)	< .001
CKD	41 488 (53.6)	6204 (51.7)	33 510 (54.1)	1774 (50.2)	< .001
Anemia	43 505 (56.1)	6248 (52.0)	35 265 (56.9)	1992 (56.4)	< .001
COPD	32 692 (42.2)	4906 (40.9)	26 278 (42.4)	1508 (42.7)	.007
Cancer	11 993 (15.5)	2073 (17.2)	9531 (15.4)	389 (11.0)	< .001
Osteoarthritis	10 218 (13.2)	1465 (12.2)	8285 (13.4)	468 (13.2)	.003
Severe cognitive impairment	5904 (7.62)	697 (5.81)	4988 (8.05)	219 (6.20)	< .001
Cirrhosis	1657 (2.14)	244 (2.03)	1323 (2.14)	90 (2.55)	.180
Major mental health disorder	9498 (12.3)	1204 (10.0)	7585 (12.2)	709 (20.1)	< .001
Alcohol abuse	9199 (11.9)	1490 (12.4)	7109 (11.5)	600 (17.0)	< .001
Opioid abuse	510 (0.66)	53 (0.44)	384 (0.62)	73 (2.07)	< .001
Cocaine abuse	348 (0.45)	6 (0.05)	237 (0.38)	105 (2.97)	< .001

Number of previous hospital admissions	1.13 ± 1.59	1.02 ± 1.44	1.12 ± 1.57	1.53 ± 2.34	< .001
Number of days in hospital (previous)	9.66 ± 16.0	8.86 ± 15.5	9.65 ± 15.8	12.5 ± 19.1	< .001
Number of days in psychiatric unit (previous)	0.03 ± 1.48	0.02 ± 0.75	0.04 ± 1.56	0.06 ± 1.85	.364
Number of days in skilled nursing facility (previous)	3.19 ± 18.2	2.79 ± 16.8	3.26 ± 18.4	3.34 ± 19.7	.030
Number of days in nursing home (previous)	27.1 ± 92.0	16.2 ± 71.7	29.4 ± 95.5	24.9 ± 88.6	< .001

CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease; GMA, adjusted morbidity groups; HF, heart failure; MI, myocardial infarction; SES, socioeconomic status.

The data are presented as mean ± standard deviation or No. (%).

Table 4 of the supplementary data. Baseline characteristics of patients in the HUB-DELTA health care area between January 1, 2015 and December 31, 2019 according to SES

	Total	Medium or high SES	Low SES	Very low SES	*P*
	N = 3396	n = 550	n = 2669	n = 177	
Gender					< .001
Male	1599 (47.1)	381 (69.3)	1177 (44.1)	41 (23.2)	
Female	1797 (52.9)	169 (30.7)	1492 (55.9)	136 (76.8)	
Age, y	79.4 (9.96)	76.7 (9.55)	80.3 (9.73)	73.8 (11.1)	< .001
Age group					.
15-49	40 (1.18)	5 (0.91)	30 (1.12)	5 (2.82)	
50-64	243 (7.16)	56 (10.2)	159 (5.96)	28 (15.8)	
65-74	584 (17.2)	146 (26.5)	390 (14.6)	48 (27.1)	
75-84	1367 (40.3)	217 (39.5)	1081 (40.5)	69 (39.0)	
> 84	1162 (34.2)	126 (22.9)	1009 (37.8)	27 (15.3)	
Morbidity burden (GMA)	37.0 (15.8)	34.8 (15.5)	37.4 (15.8)	38.8 (16.7)	.001
Risc levels (GMA)					.
Low risk	66 (1.94)	19 (3.45)	42 (1.57)	5 (2.82)	
Intermediate risk	560 (16.5)	96 (17.5)	443 (16.6)	21 (11.9)	
High risk	1482 (43.6)	258 (46.9)	1150 (43.1)	74 (41.8)	
Very high risk	1288 (37.9)	177 (32.2)	1034 (38.7)	77 (43.5)	
Years since HF diagnosis					< .001

	Total	Medium or high SES	Low SES	Very low SES	*P*
< 1	1384 (40.8)	251 (45.6)	1080 (40.5)	53 (29.9)	
1-2	587 (17.3)	89 (16.2)	476 (17.8)	22 (12.4)	
3-5	692 (20.4)	93 (16.9)	559 (20.9)	40 (22.6)	
> 5	733 (21.6)	117 (21.3)	554 (20.8)	62 (35.0)	
Previous MI	665 (19.6)	130 (23.6)	505 (18.9)	30 (16.9)	.027
Atrial fibrillation	1221 (36.0)	192 (34.9)	967 (36.2)	62 (35.0)	.812
Peripheral vascular disease	930 (27.4)	145 (26.4)	739 (27.7)	46 (26.0)	.746
Hypertension	3095 (91.2)	479 (87.1)	2460 (92.2)	156 (88.1)	< .001
Obesity	1096 (32.3)	185 (33.6)	838 (31.4)	73 (41.2)	.019
Smoking habit	809 (23.8)	177 (32.2)	597 (22.4)	35 (19.8)	< .001
Hyperlipidemia	1431 (42.1)	249 (45.3)	1110 (41.6)	72 (40.7)	.259
Diabetes mellitus	1733 (51.0)	245 (44.5)	1391 (52.1)	97 (54.8)	.003
CKD	1901 (56.0)	287 (52.2)	1546 (57.9)	68 (38.4)	< .001
Anemia	1840 (54.2)	264 (48.0)	1478 (55.4)	98 (55.4)	.006
COPD	1440 (42.4)	230 (41.8)	1110 (41.6)	100 (56.5)	.001
Cancer	575 (16.9)	103 (18.7)	457 (17.1)	15 (8.47)	.006
Osteoarthritis	361 (10.6)	71 (12.9)	268 (10.0)	22 (12.4)	.102
Severe cognitive impairment	194 (5.71)	11 (2.00)	173 (6.48)	10 (5.65)	< .001
Cirrhosis	77 (2.27)	28 (5.09)	44 (1.65)	5 (2.82)	< .001
Major mental health disorder	411 (12.1)	58 (10.5)	321 (12.0)	32 (18.1)	.027
Alcohol abuse	645 (19.0)	135 (24.5)	467 (17.5)	43 (24.3)	< .001

	Total	Medium or high SES	Low SES	Very low SES	*P*
Opioid abuse	12 (0.35)	1 (0.18)	8 (0.30)	3 (1.69)	.036
Cocaine abuse	13 (0.38)	0 (0.00)	8 (0.30)	5 (2.82)	< .001
Number of previous hospital admissions	1.22 ± 1.55	1.10 ± 1.36	1.21 ± 1.55	1.76 ± 2.02	< .001
Number of days in hospital (previous)	9.42 ± 15.6	9.22 ± 16.5	9.13 ± 14.9	14.4 ± 21.6	< .001
Number of days in psychiatric unit (previous)	0.03 ± 0.91	0.00 ± 0.00	0.03 ± 0.80	0.19 ± 2.48	.052
Number of days in skilled nursing facility (previous)	2.78 ± 18.8	1.49 ± 9.12	3.14 ± 20.7	1.39 ± 9.13	.105
Number of days in nursing home (previous)	15.0 ± 69.6	3.38 ± 32.9	17.5 ± 75.0	13.0 ± 65.6	< .001

±

CKD, chronic kidney disease; COPD, chronic obstructive pulmonary disease; GMA, adjusted morbidity groups; HF, heart failure; MI, myocardial infarction; SES, socioeconomic status.

The data are presented as mean ± standard deviation or No. (%).

Table 5 of the supplementary data. Multivariate adjusted Cox proportional hazards models analyzing the determinants of all-cause death, clinically-related readmission and HF readmission including socioeconomic status (SES) in patients discharged alive with a primary diagnosis of HF in Catalonia between January 1, 2015 and December 31, 2019

All-cause death			
Variable	**β**	**HR**	**95%CI**
Individual annual income			
Medium or high SES	0.000	1.000	–
Low SES	0.069	1.071	1.039-1.104
Very low SES	0.146	1.157	1.092-1.226
Sex			
Male	0.000	1.000	–
Female	−0.206	0.814	0.797-0.832
Age group, y			
15-49	0.000	1.000	–
50-64	0.666	1.946	1.645-2.301
65-74	1.072	2.920	2.480-3.437
75-84	1.489	4.433	3.770-5.212
>84	2.081	8.016	6.818-9.425
Risk levels (Adjusted Morbidity Groups-GMA)			
Low risk	0.000	1.000	–
Intermediate risk	0.216	1.242	1.125-1.371
High risk	0.490	1.632	1.482-1.798

All-cause death			
Variable	**β**	**HR**	**95%CI**
Very high risk	0.827	2.286	2.071-2.523
Years since HF diagnosis			
<1	0.000	1.000	–
1-2	0.213	1.237	1.201-1.274
3-5	0.200	1.222	1.187-1.258
> 5	0.272	1.312	1.275-1.350
Number of previous hospital admissions	0.072	1.074	1.067-1.081
Area and period			
Rest of CatSalut 2015-2016	0.000	1.000	–
Rest of CatSalut 2017	−0.108	0.898	0.873-0.923
Rest of CatSalut 2018-2019	-0.156	0.856	0.833-0.879
HUB-DELTA area 2015-2016	-0.083	0.920	0.865-0.979
HUB-DELTA area 2017	-0.217	0.805	0.725-0.895
HUB-DELTA area 2018-2019	-0.344	0.709	0.631-0.796

CLINICALLY-RELATED READMISSION			
Variable	**β**	**HR**	**95%CI**
Individual annual income			
Medium or high SES	0.000	1.000	–
Low SES	0.083	1.087	1.057-1.118
Very low SES	0.165	1.179	1.121-1.240
Sex			
Male	0.000	1.000	–
Female	−0.140	0.869	0.852-0.887
Age group, y			
15-49	0.000	1.000	–
50-64	0.116	1.123	1.028-1.226
65-74	0.178	1.195	1.097-1.302
75-84	0.146	1.157	1.063-1.259
> 84	0.080	1.083	0.995-1.179
Risk levels (Adjusted Morbidity Groups-GMA)			
Low risk	0.000	1.000	–
Intermediate risk	0.390	1.476	1.357-1.606
High risk	0.678	1.970	1.814-2.140
Very high risk	0.883	2.418	2.221-2.632
Years since HF diagnosis			
< 1	0.000	1.000	–
1-2	0.223	1.250	1.215-1.286

CLINICALLY-RELATED READMISSION			
Variable	**β**	**HR**	**95%CI**
3-5	0.274	1.315	1.279-1.351
> 5	0.310	1.363	1.327-1.401
Number of previous hospital admissions	0.133	1.142	1.135-1.149
Area and period			
Rest of CatSalut 2015-2016	0.000	1.000	–
Rest of CatSalut 2017	−0.131	0.877	0.854-0.901
Rest of CatSalut 2018-2019	−0.172	0.842	0.822-0.862
HUB-DELTA area 2015-2016	0.171	1.186	1.119-1.257
HUB-DELTA area 2017	0.001	1.001	0.913-1.097
HUB-DELTA area 2018-2019	−0.278	0.757	0.688-0.833

HF READMISION			
Variable	**β**	**HR**	**95%CI**
Individual annual income			
Medium or high SES	0.000	1.000	–
Low SES	0.113	1.119	1.082-1.158
Very low SES	0.199	1.220	1.149-1.295
Sex			
Male	0.000	1.000	–
Female	0.002	1.002	0.978-1.026
Age group, y			
15-49	0.000	1.000	–
50-64	0.091	1.096	0.978-1.227
65-74	0.162	1.175	1.054-1.311
75-84	0.268	1.307	1.173-1.456
> 84	0.310	1.363	1.223-1.519
Risk levels (Adjusted Morbidity Groups-GMA)			
Low risk	0.000	1.000	–
Intermediate risk	0.497	1.644	1.457-1.855
High risk	0.834	2.302	2.044-2.592
Very high risk	1.031	2.803	2.485-3.163
Years since HF diagnosis			
< 1	0.000	1.000	–
1-2	0.388	1.474	1.425-1.525

HF READMISION			
Variable	**β**	**HR**	**95%CI**
3-5	0.467	1.595	1.544-1.648
>5	0.539	1.714	1.660-1.770
Number of previous hospital admissions	0.147	1.158	1.150-1.166
Area and period			
Rest of CatSalut 2015-2016	0.000	1.000	–
Rest of CatSalut 2017	−0.157	0.855	0.829-0.882
Rest of CatSalut 2018-2019	−0.209	0.812	0.789-0.835
HUB-DELTA area 2015-2016	0.267	1.306	1.223-1.393
HUB-DELTA area 2017	0.063	1.065	0.958-1.183
HUB-DELTA area 2018-2019	−0.367	0.693	0.616-0.780

Table 6 of the supplementary data. Multivariate (adjusted) Cox proportional hazards analyses exploring the effect of the interaction term health care area (HUB-DELTA area vs rest of CatSalut) by SES (low or very low vs Medium or high) on all outcomes across the predefined study periods.

	Interaction term [health care area*SES strata] for each period		
All-cause death			
Period	HR	95%CI	*P* for interaction
2015-2016	1.015	0.851-1.211	.864
2017	0.768	0.572-1.032	.080
2018-2019	1.025	0.731-1.439	.884
Clinically-related readmissions			
Period	HR	95%CI	*P* for interaction
2015-2016	0.914	0.781-1.069	.259
2017	0.943	0.722-1.232	.667
2018-2019	1.049	0.806-1.366	.721
HF readmissions			
Period	HR	95%CI	*P* for interaction
2015-2016	0.868	0.727-1.037	.119
2017	1.148	0.819-1.609	.424
2018-2019	1.139	0.808-1.605	.459

FIGURES OF THE SUPPLEMENTARY DATA

Figure 1 of the supplementary data. Flow diagram of patients of the study population included in the present analysis.

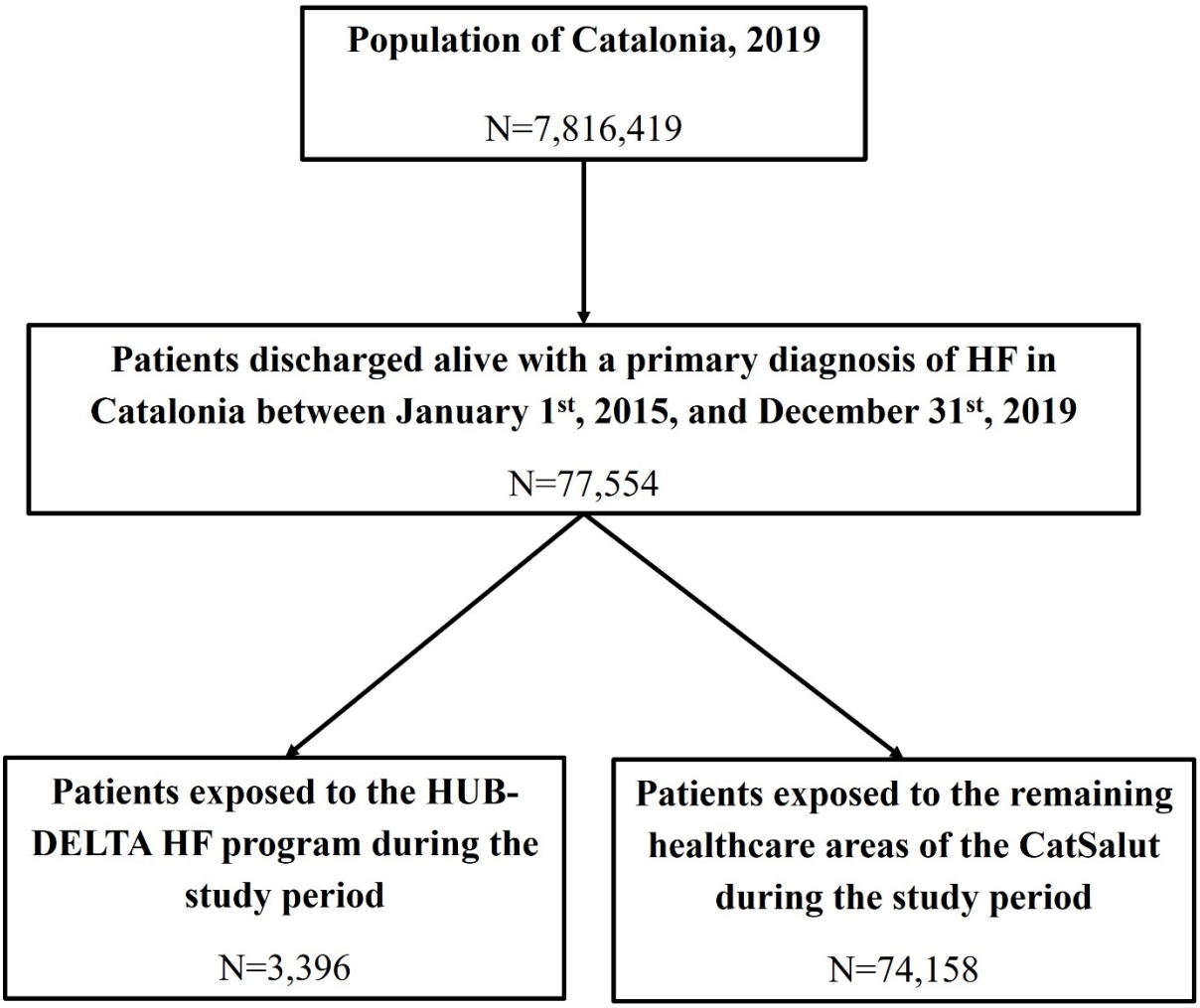
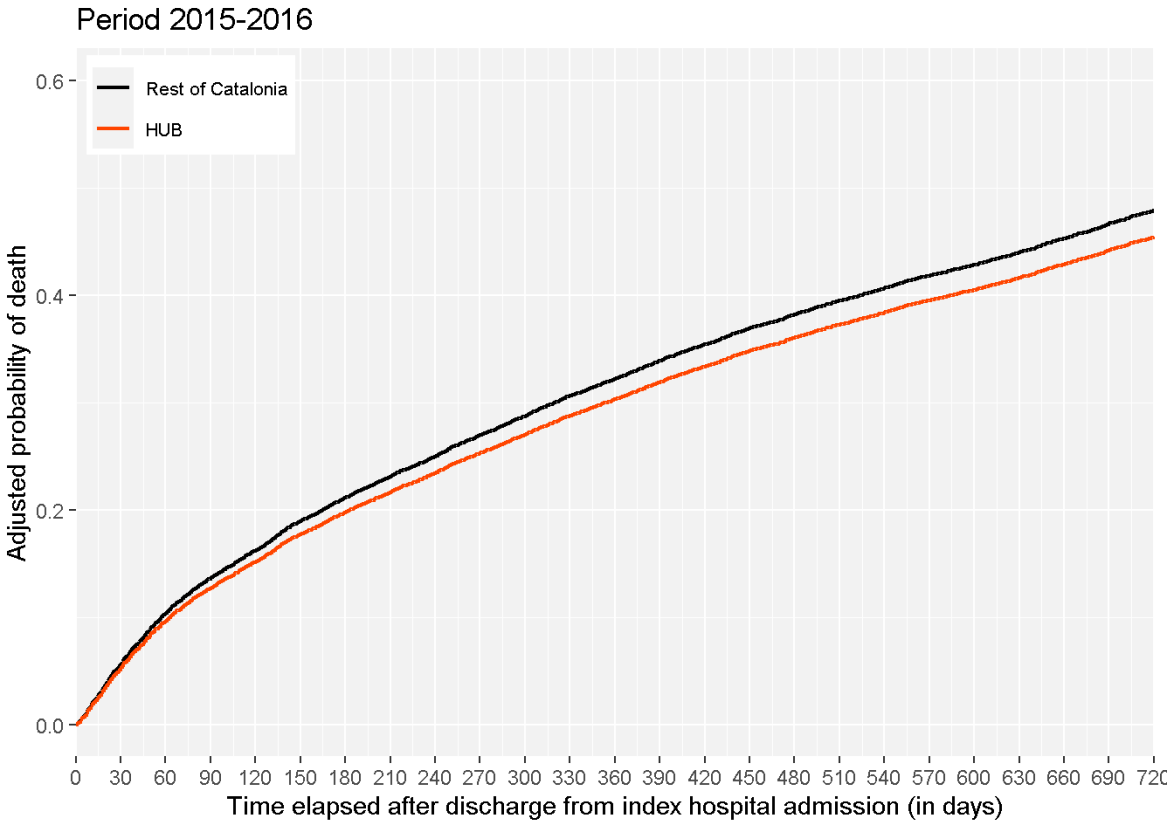
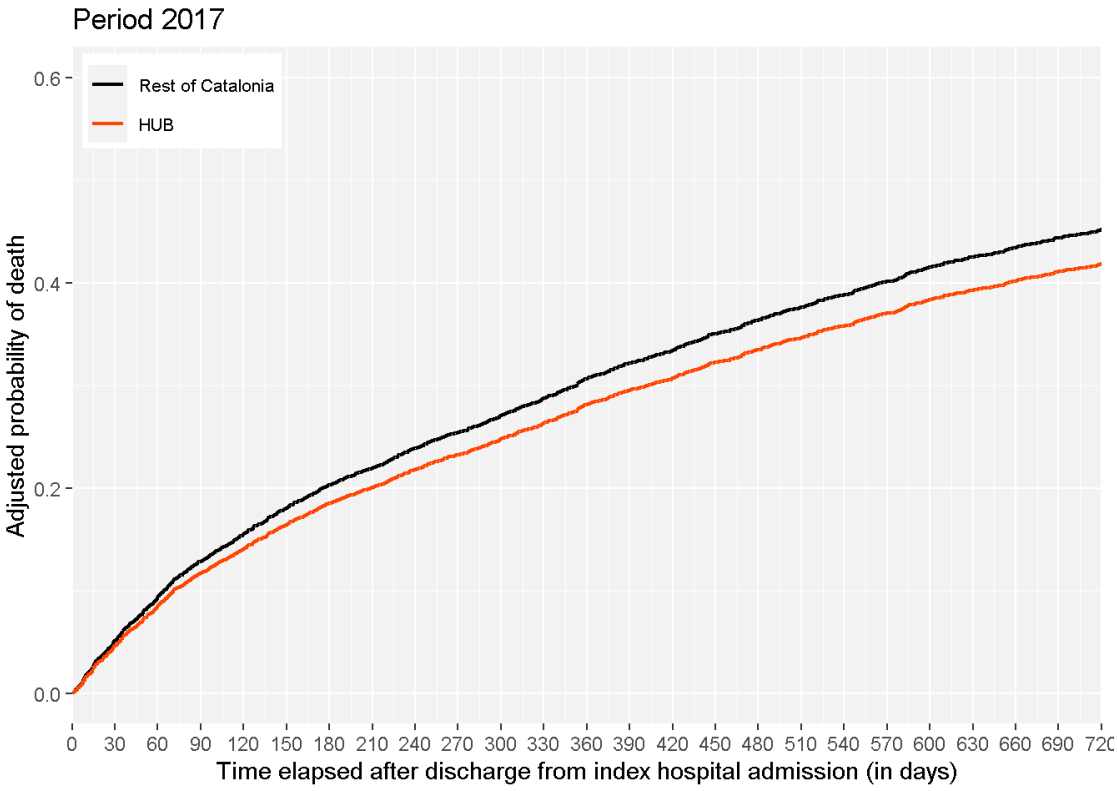


Figure 2 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on the adjusted probability of all-cause death according to health care setting (HUB-DELTA area vs the rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in the whole study population.

A




Period 2017
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

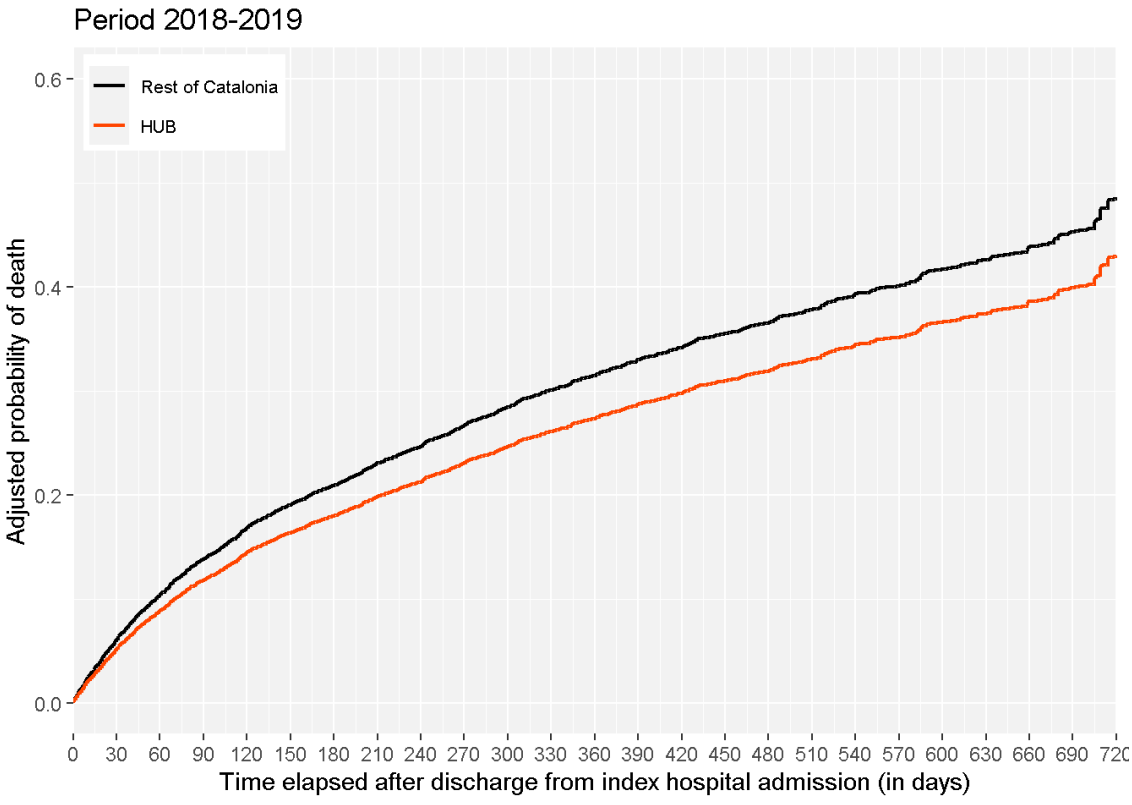
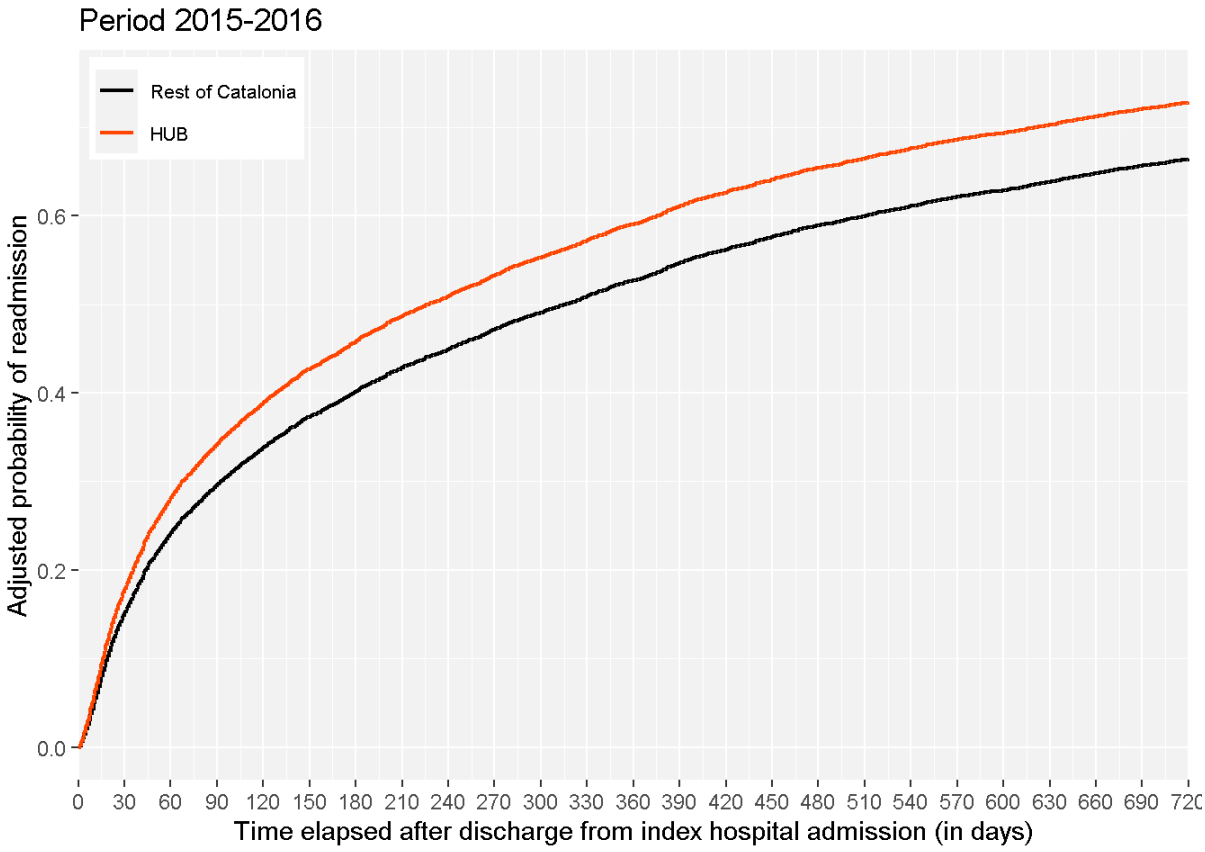
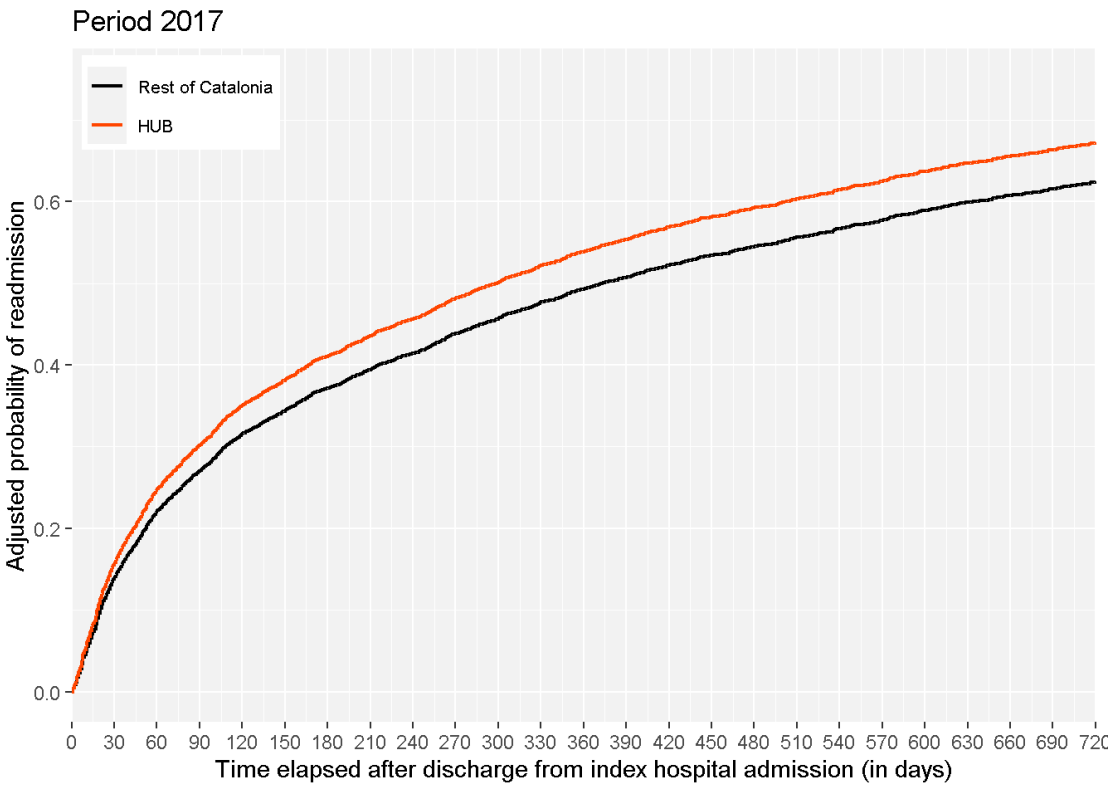

Period 2018-2019
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

Figure 3 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of clinically-related readmission according to health care setting (HUB-DELTA area vs the rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in the whole study population.

A



B


Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

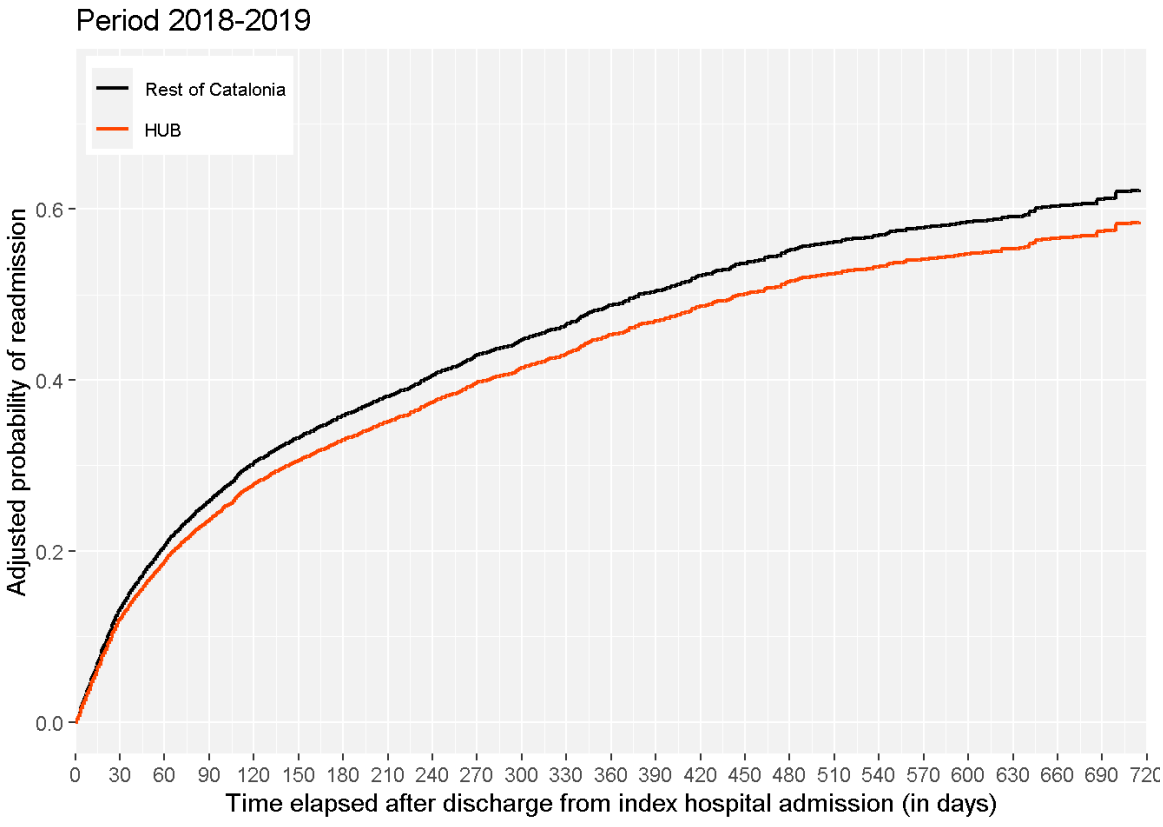
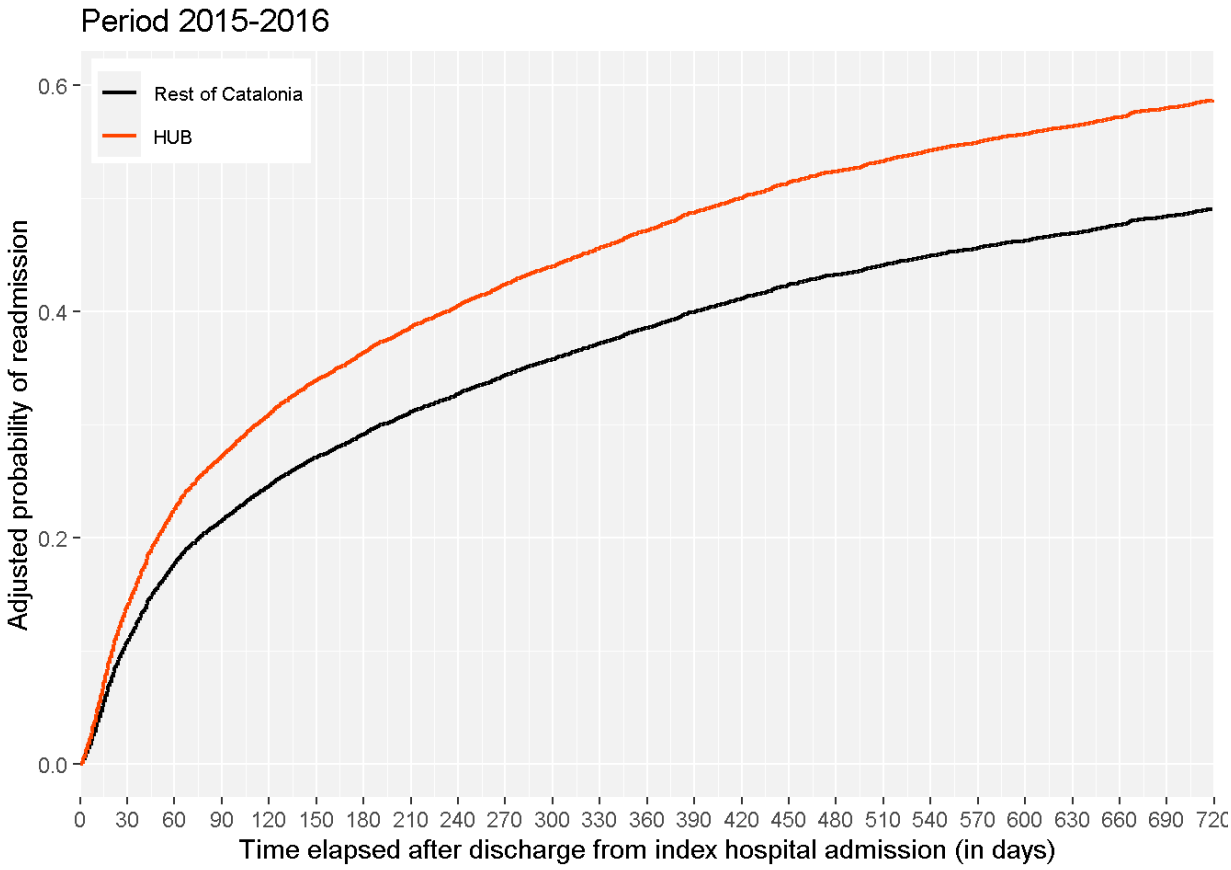
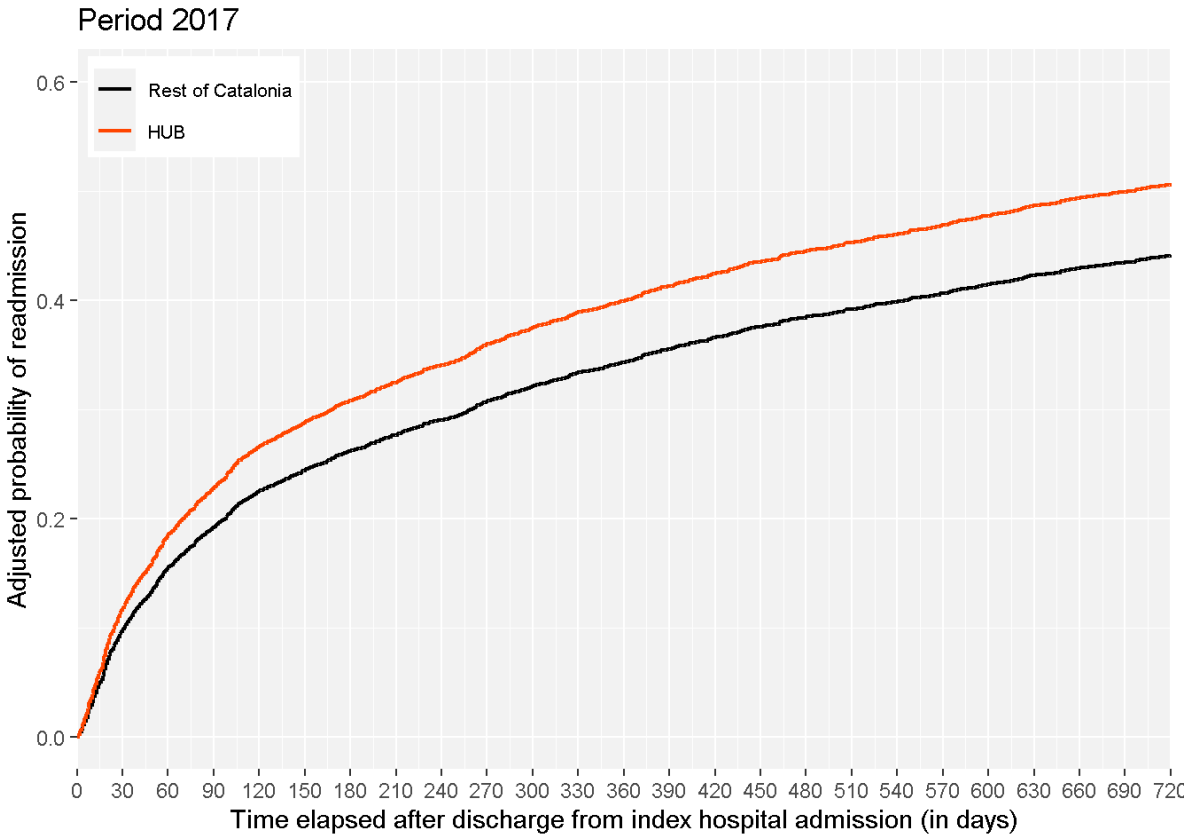

Period 2018-2019
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

Figure 4 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of HF readmission according to health care setting (HUB-DELTA area vs the rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B) and 2018 to 2019 (panel C) in the whole studied population.

A



B


Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

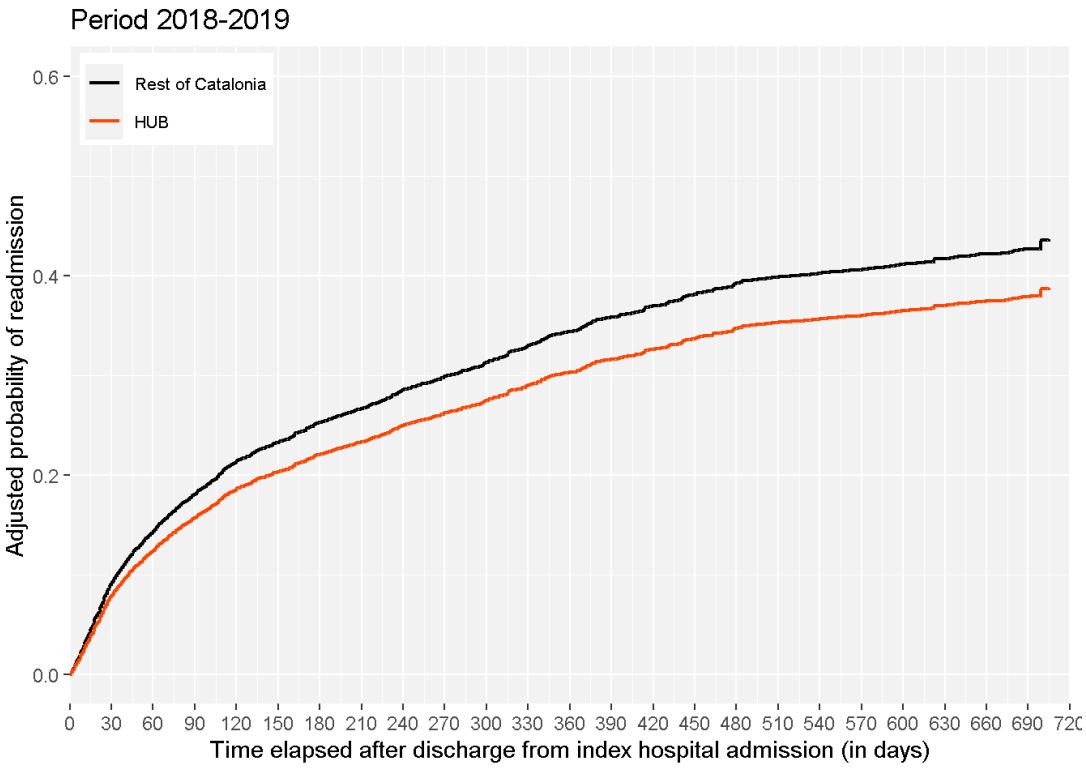
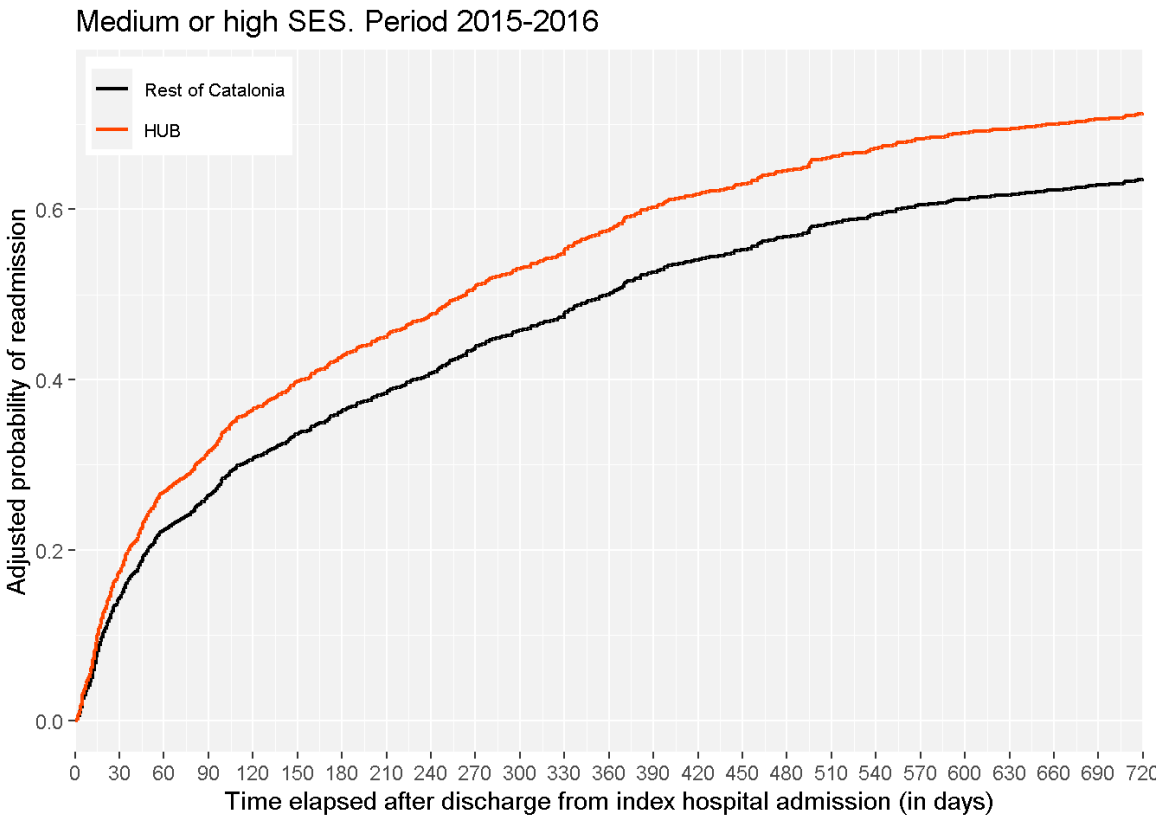
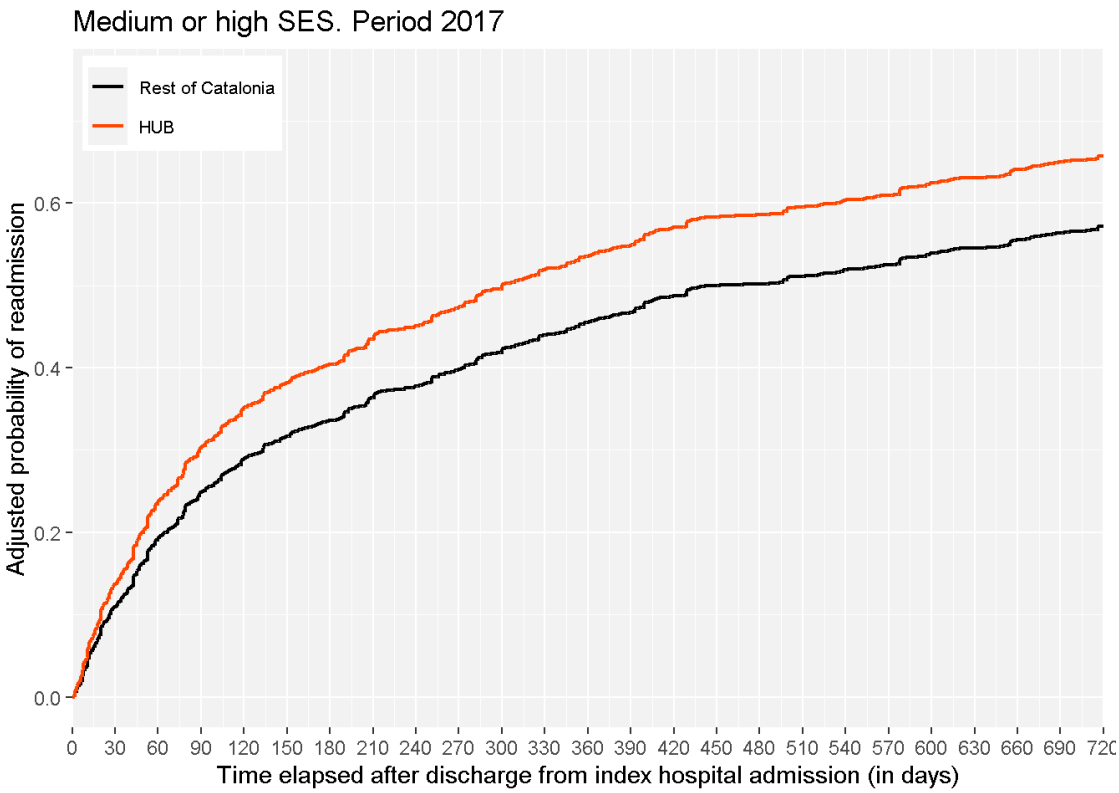

Period 2018-2019
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

Figure 5 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of clinically-related readmission according to health care setting (HUB-DELTA area vs the rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with medium or high SES.

A



B


Medium or high SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

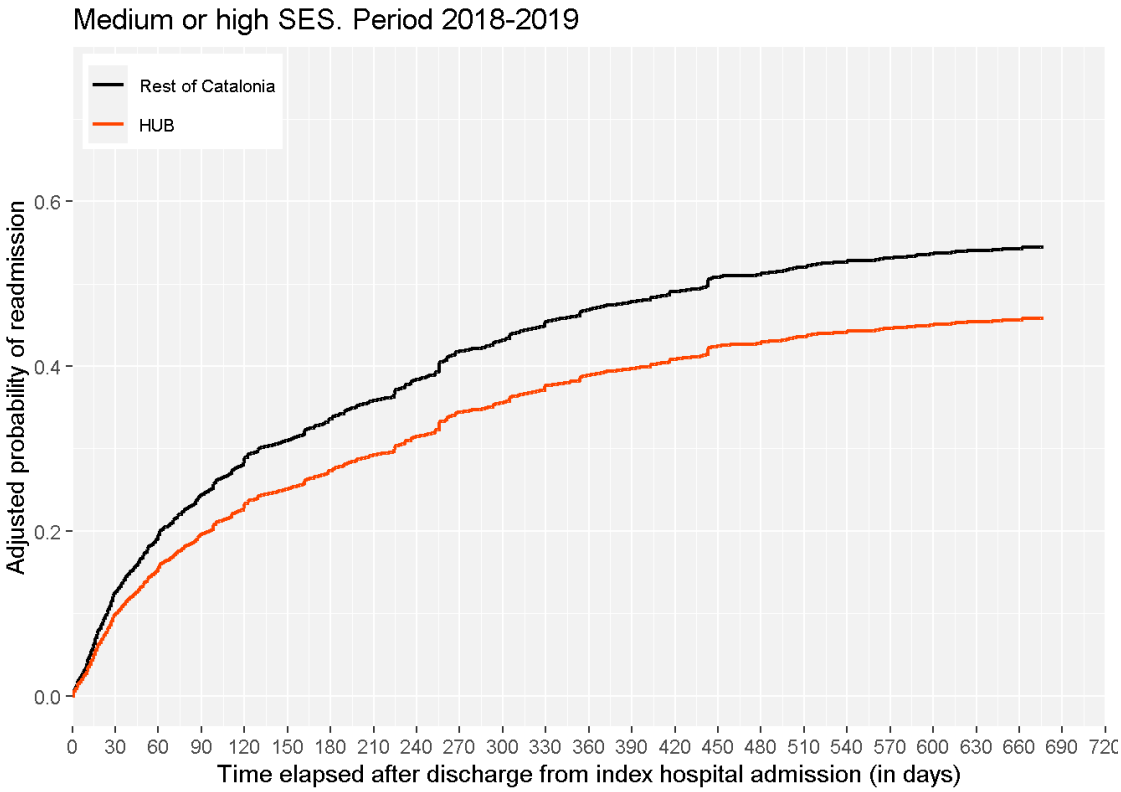
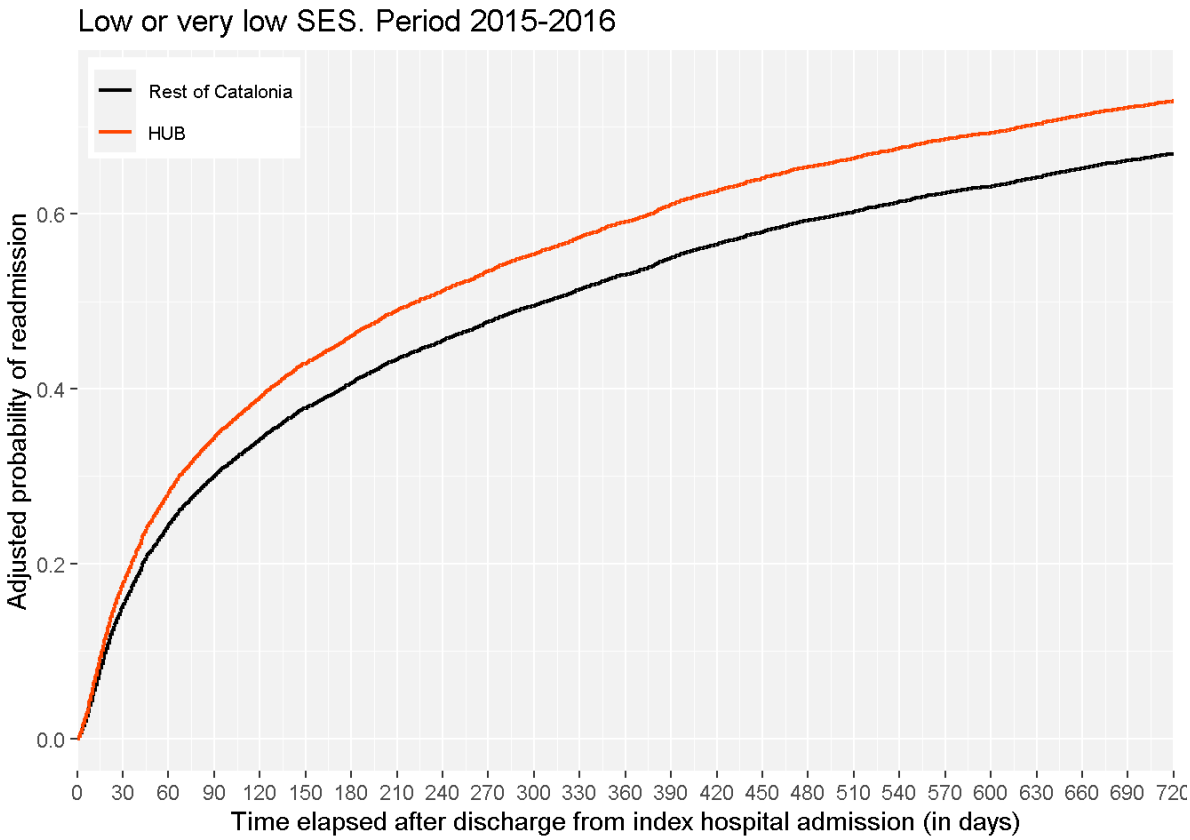
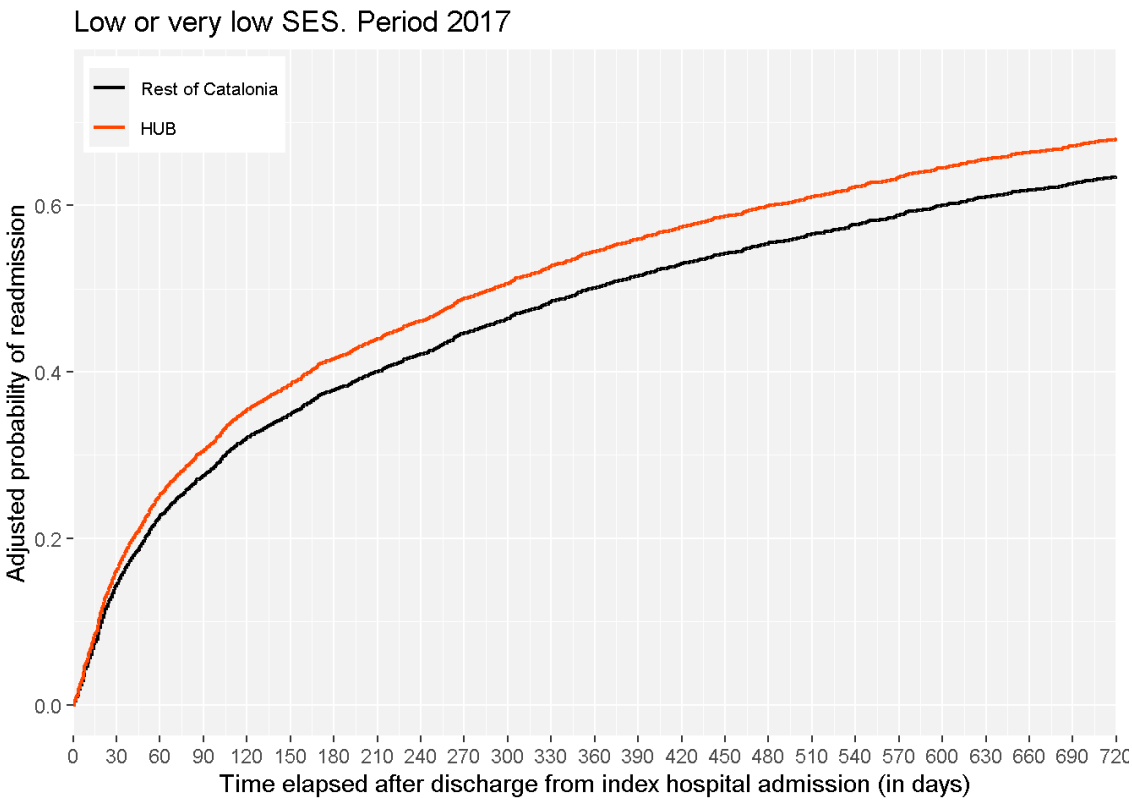


Figure 6 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of clinically-related readmission according to health care setting (HUB-DELTA area vs the rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with low or very low SES.

A


Low or very low SES. Period 2015-2016
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

B


Low or very low SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

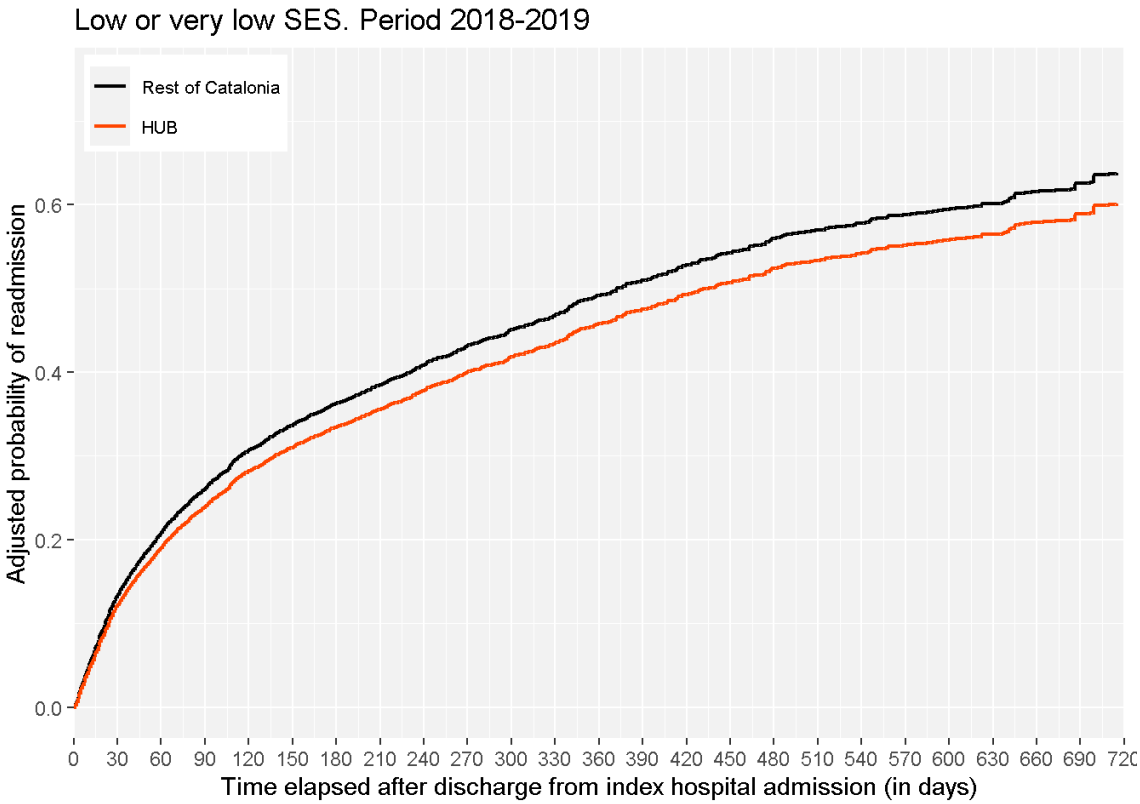
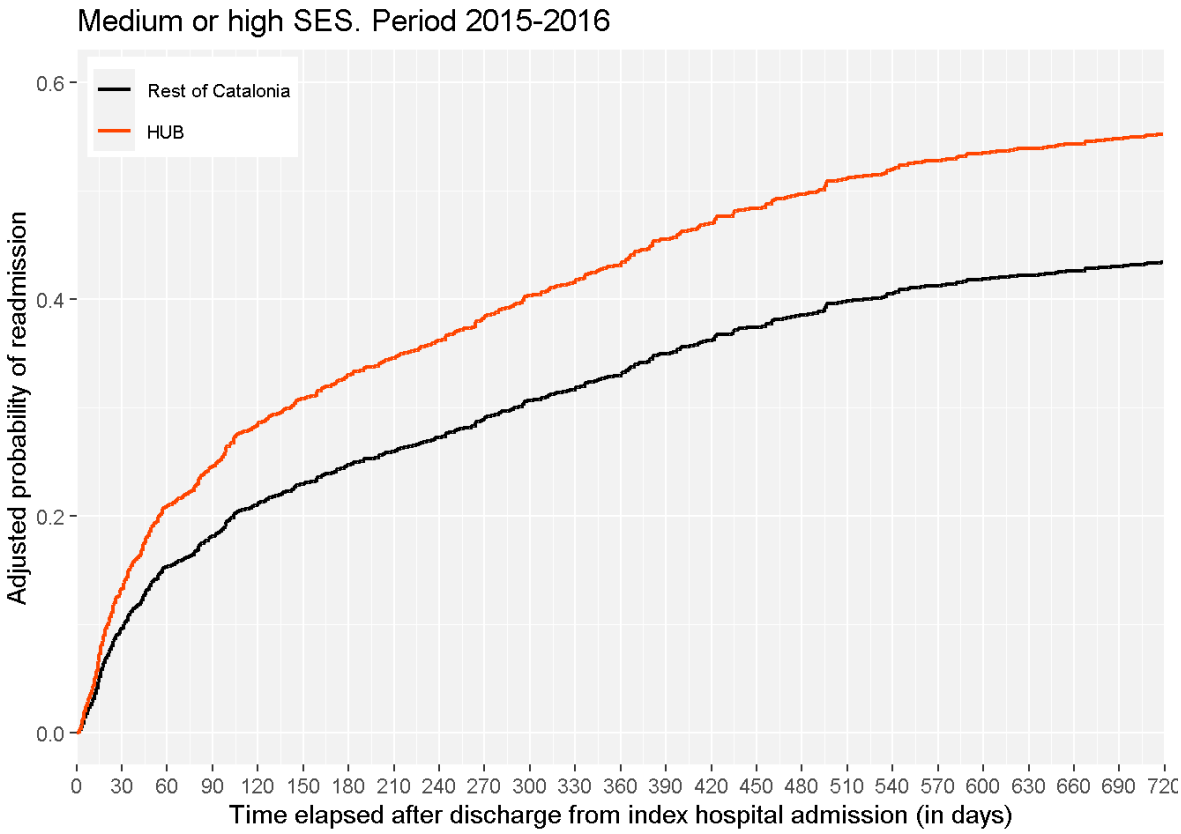
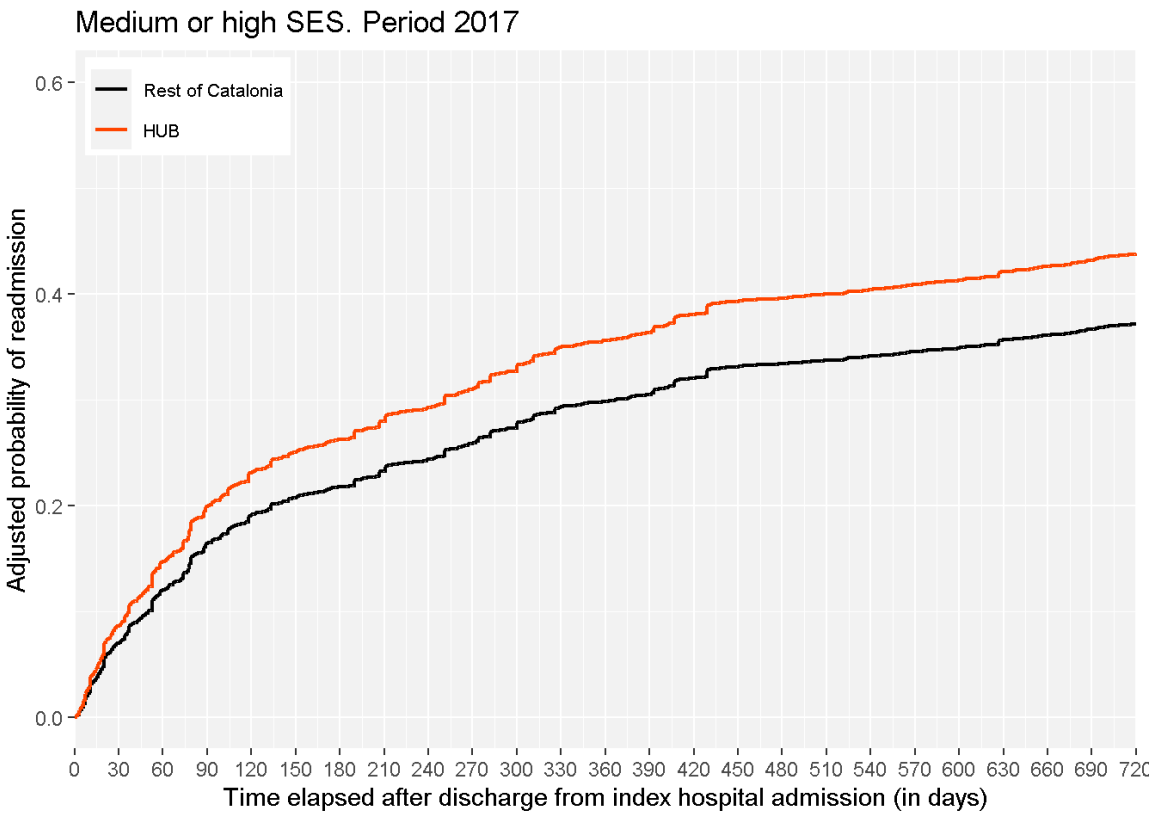


Figure 7 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of HF readmission according to health care setting (HUB-DELTA area vs rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with medium of high SES.

A


Medium or high SES. Period 2015-2016
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

B


Medium or high SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

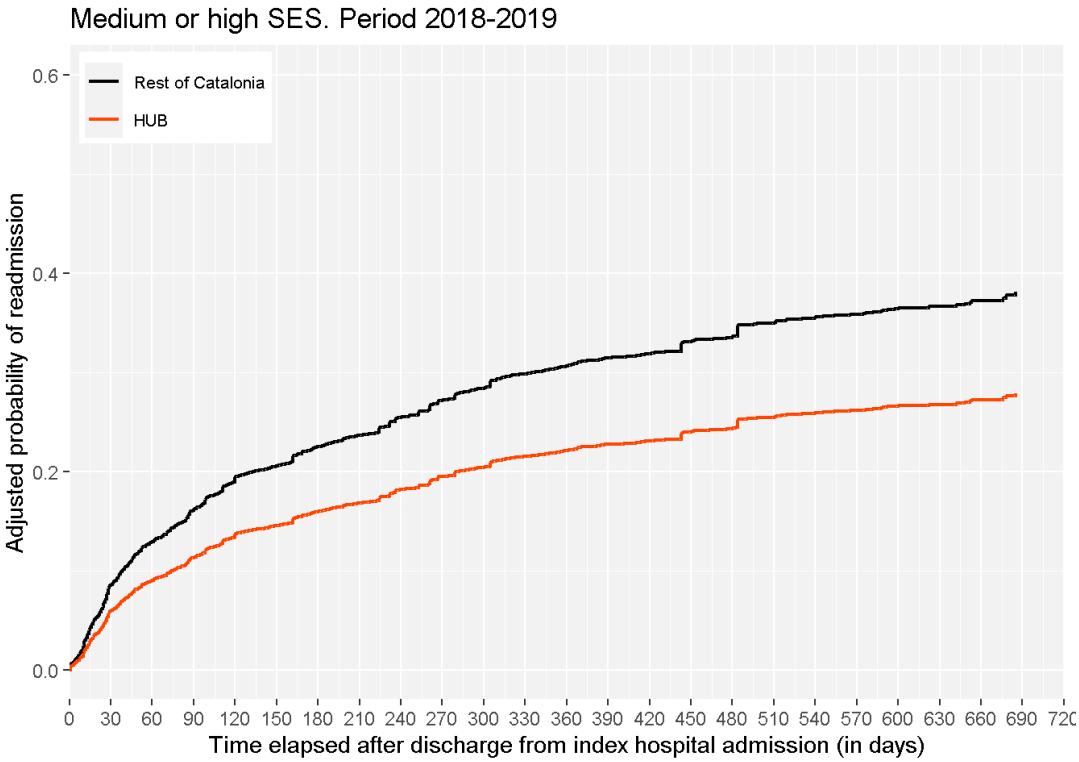
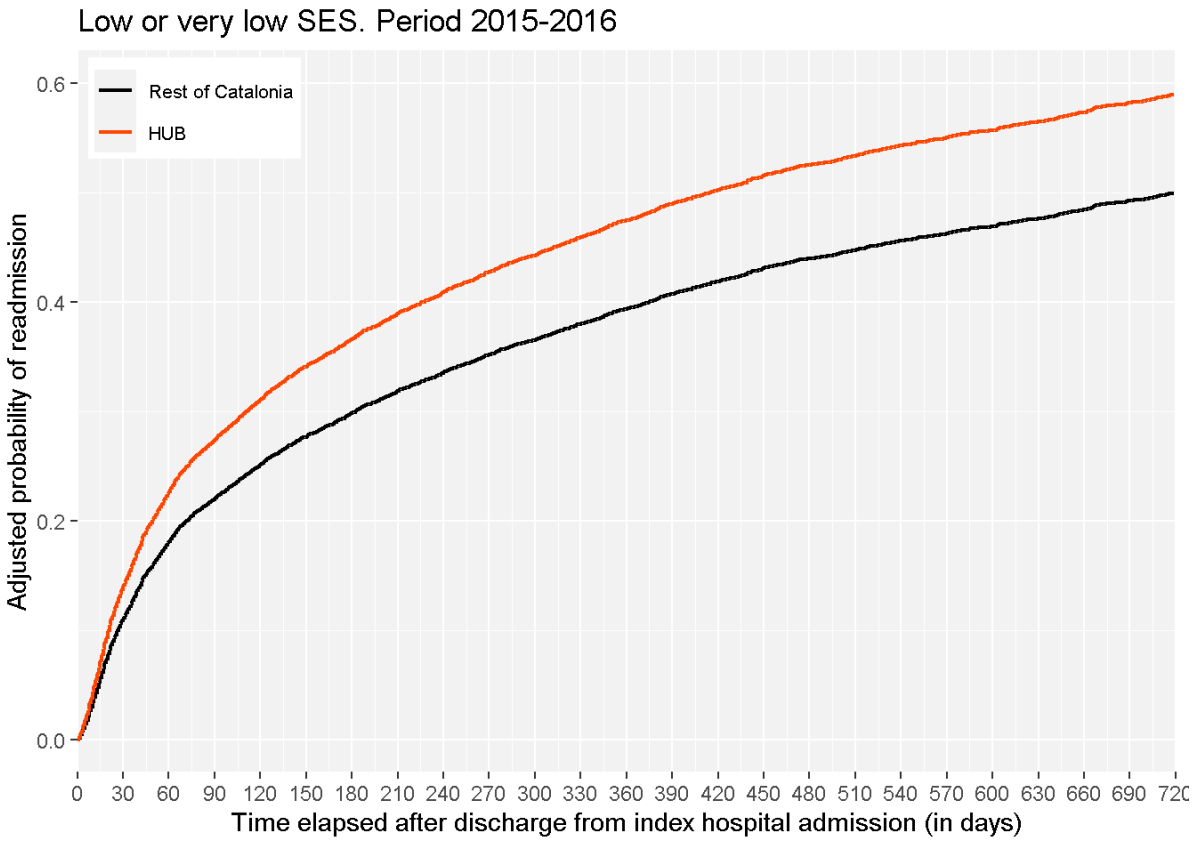
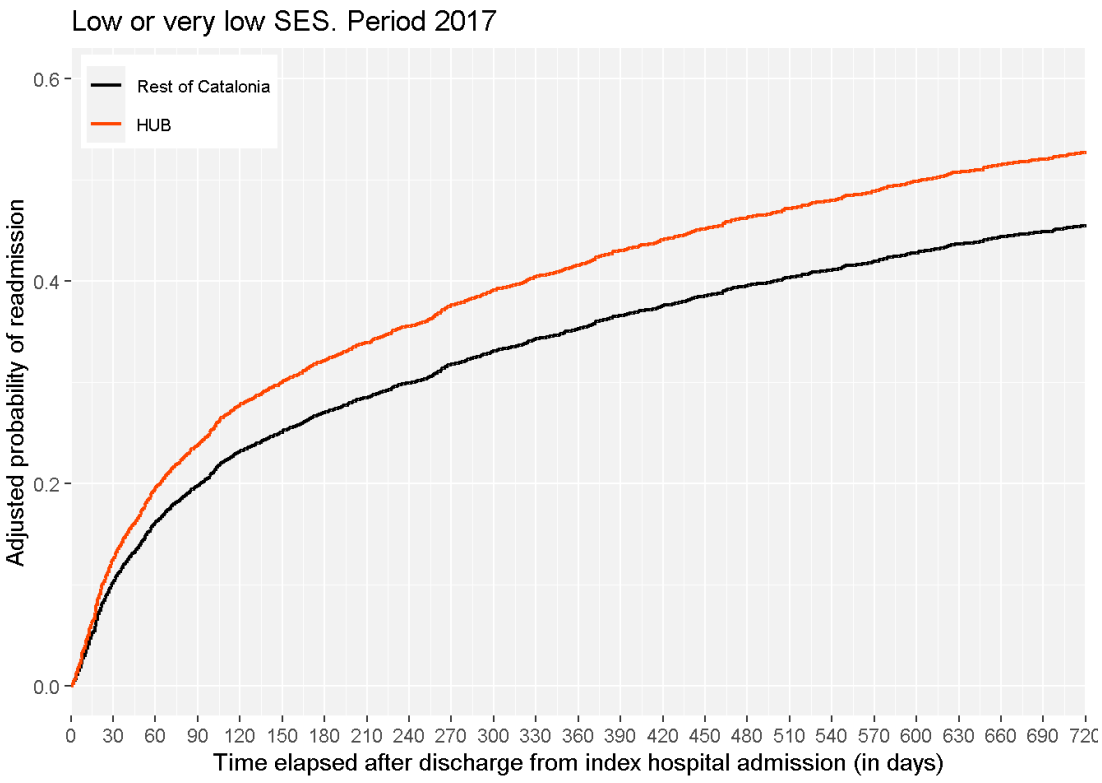


Figure 8 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on the adjusted probability of HF readmission according to health care setting (HUB-DELTA area vs rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with low or very low SES.

A


Low or very low SES. Period 2015-2016
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

B


Low or very low SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of readmission
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

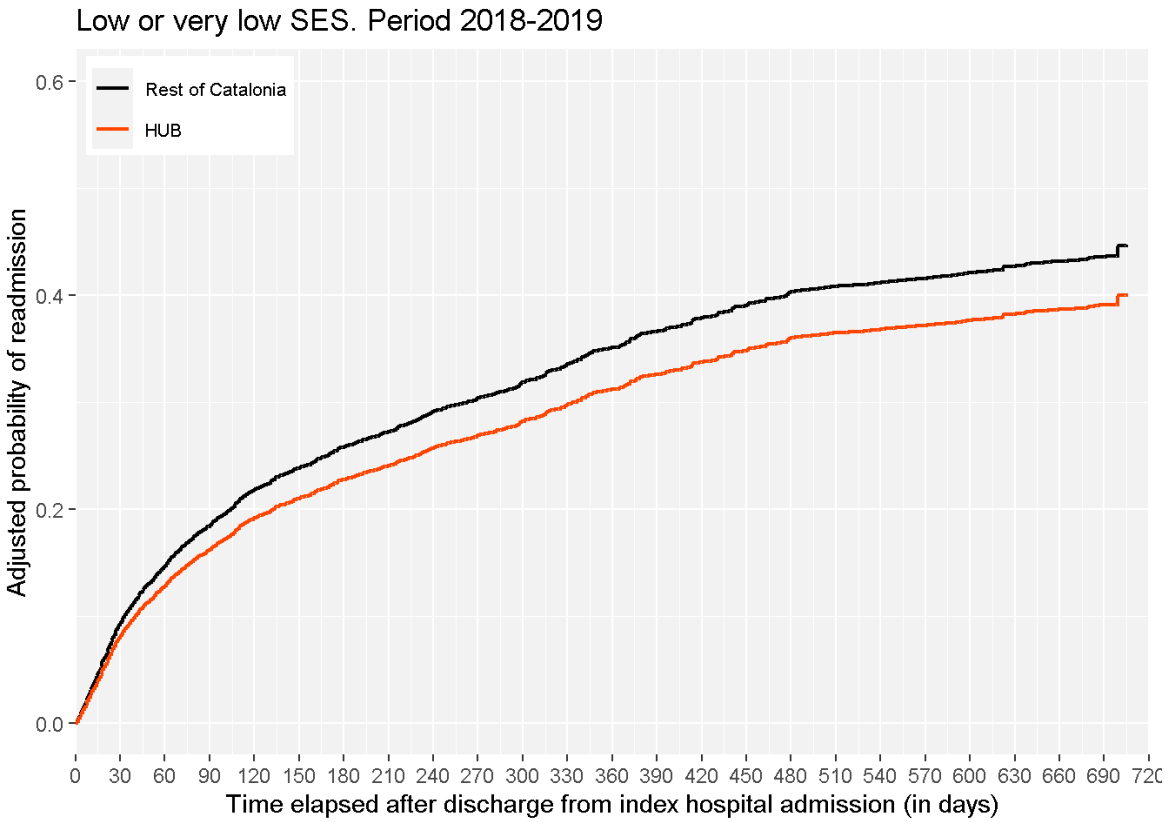
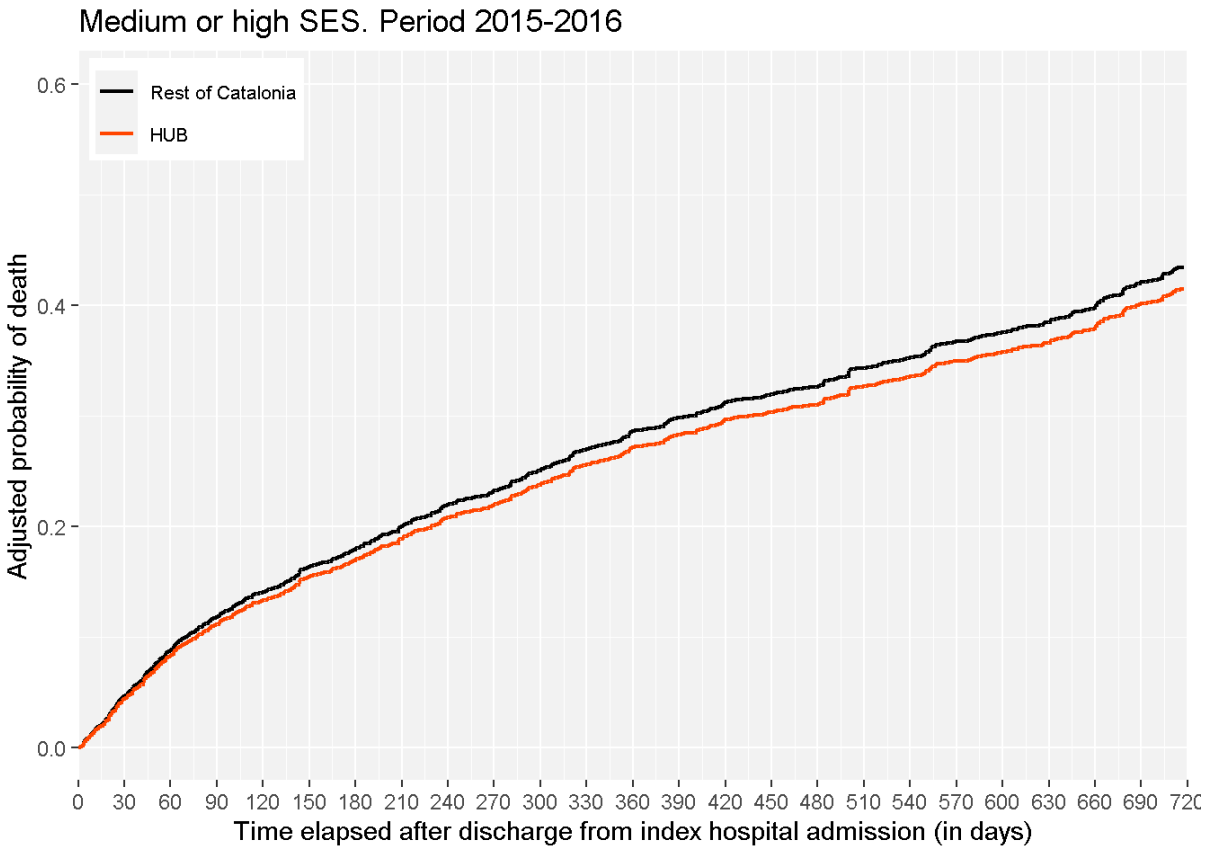
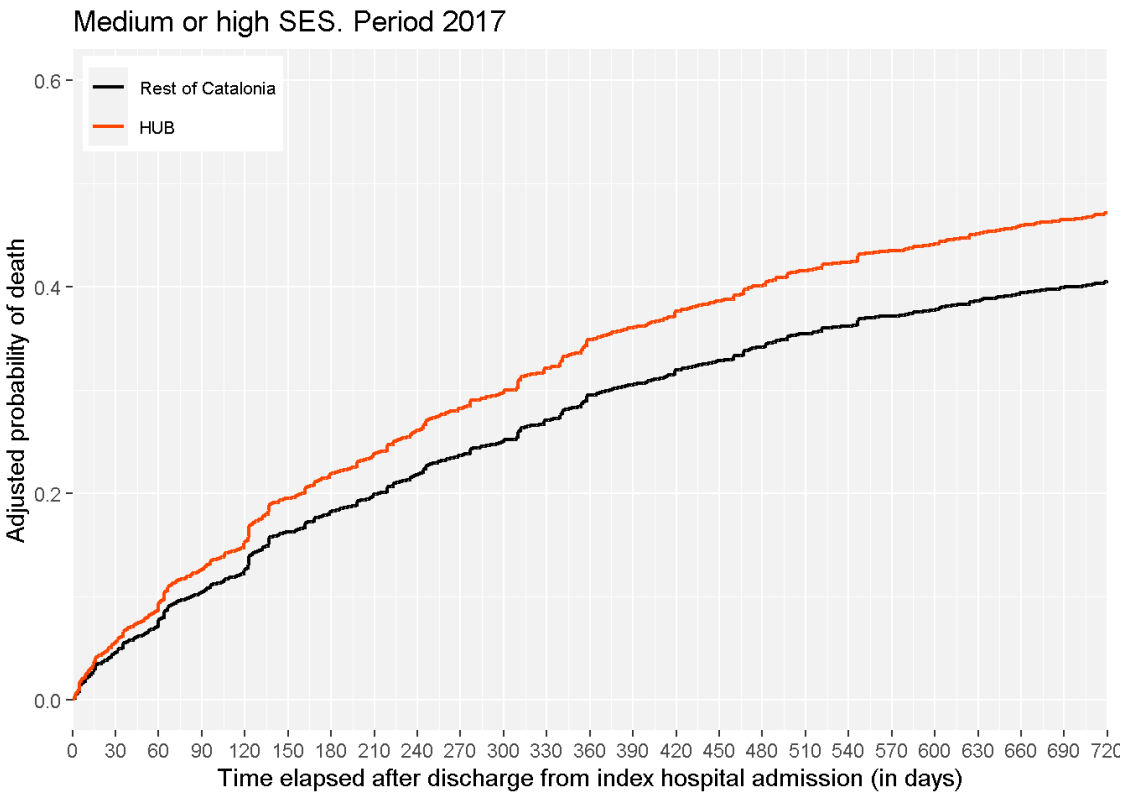


Figure 9 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of all-cause death according to health care setting (HUB-DELTA area vs rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with medium of high SES.

A


Medium or high SES. Period 2015-2016
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

B


Medium or high SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C

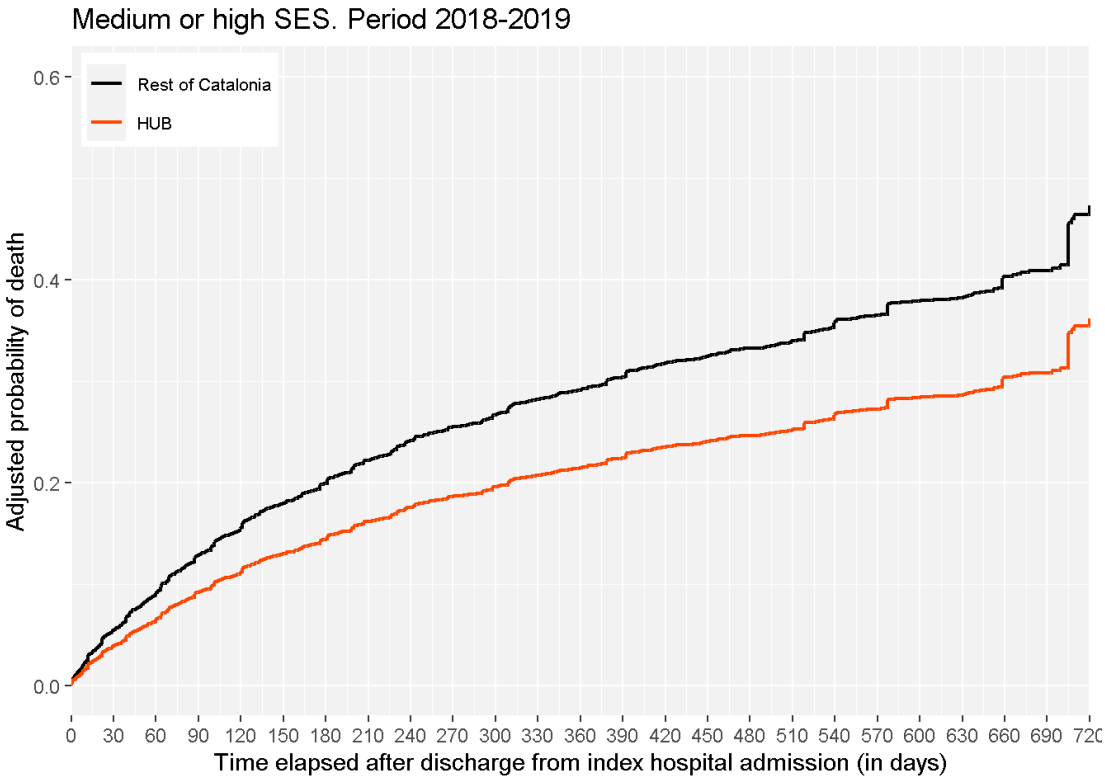
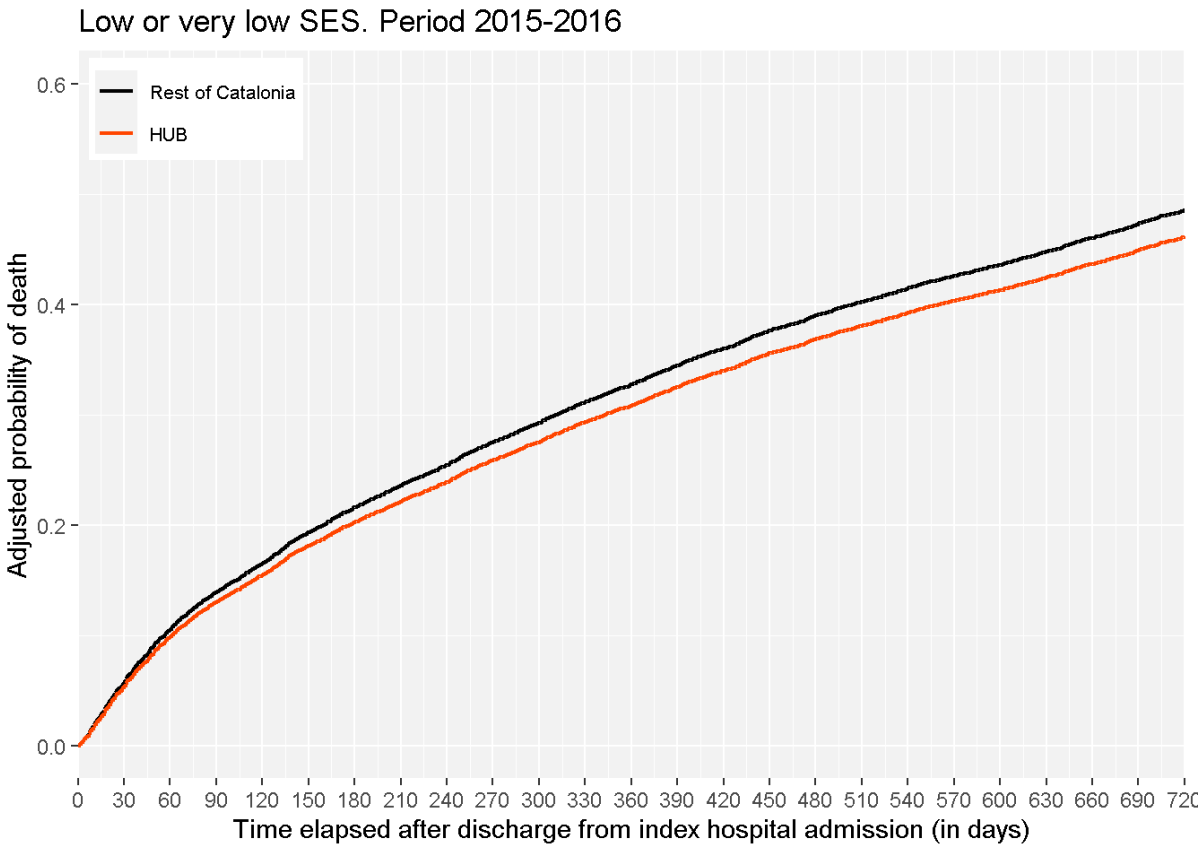
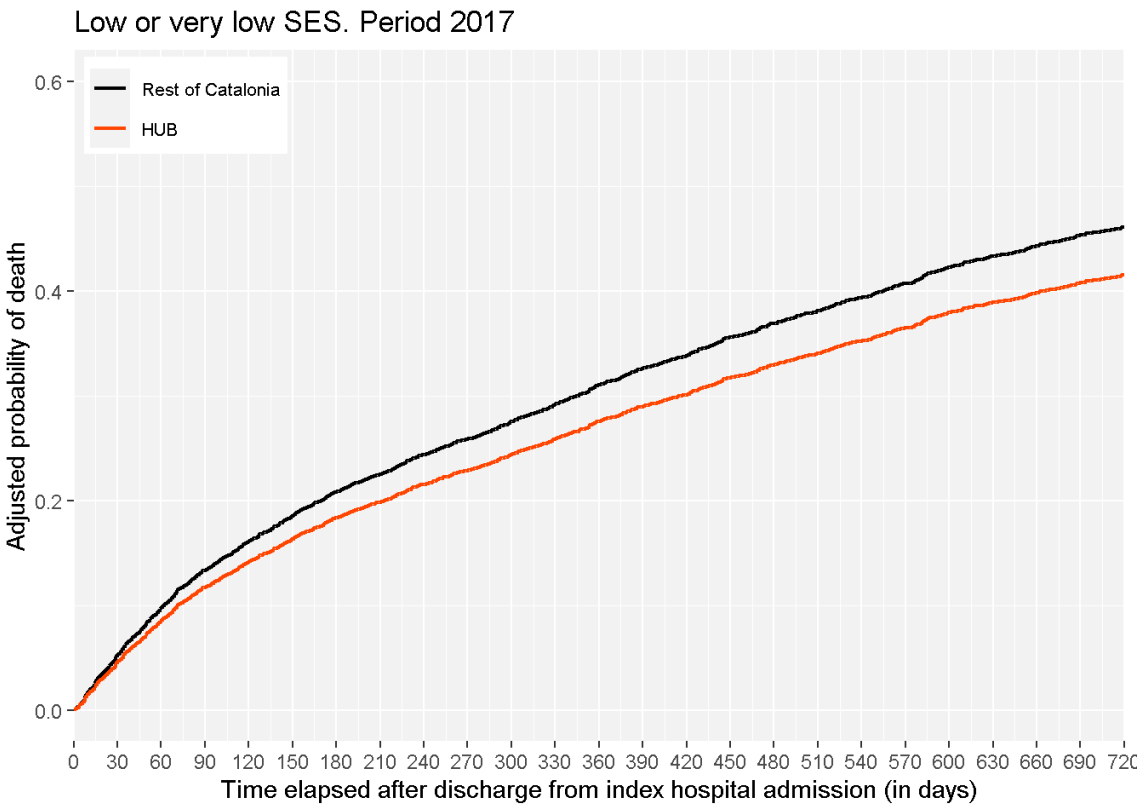


Figure 10 of the supplementary data. Survival curves estimated from multivariate (adjusted) Cox models evaluating the impact on adjusted probability of all-cause death according to health care setting (HUB-DELTA area vs rest of CatSalut) across predefined periods: 2015 to 2016 (panel A), 2017 (panel B), and 2018 to 2019 (panel C) in patients with low or very low SES.

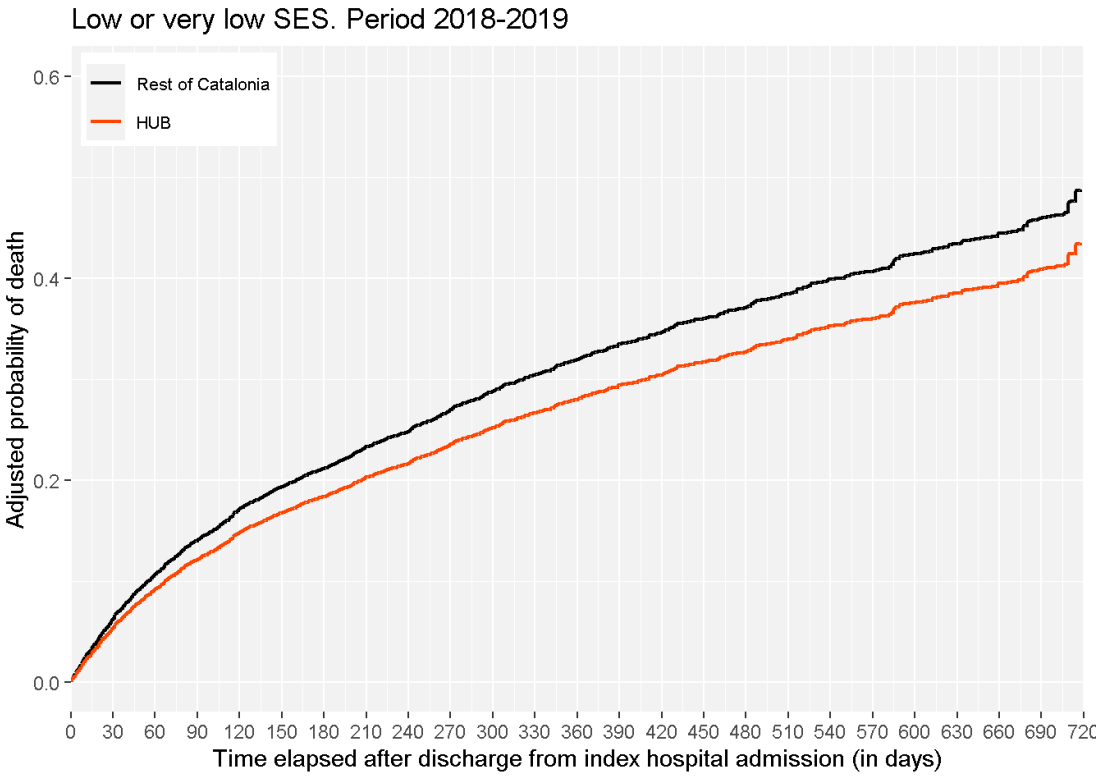
A


Low or very low SES. Period 2015-2016
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

B


Low or very low SES. Period 2017
Rest of Catalonia
HUB
Adjusted probability of death
0.0
0.2
0.4
0.6
0 30 60 90 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660 690 720
Time elapsed after discharge from index hospital admission (in days)

C



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