

Table S1 List of 109 ICD-10 codes included in logistic regression model and number of points awarded for each to create the hospital frailty risk score

ICD Code	ICD Description	Number with code in devt cohort (n = 22,139)	%	Number with code in frail group (n = 4,907)	%	Points awarded
F00	Dementia in Alzheimer's disease	664	3.0%	564	11.5%	7.1
G81	Hemiplegia	332	1.5%	240	4.9%	4.4
G30	Alzheimer's disease	1,107	5.0%	751	15.3%	4.0
I69	Sequelae of cerebrovascular disease (secondary codes)	509	2.3%	343	7.0%	3.7
R29	Other symptoms and signs involving the nervous and musculoskeletal systems (R29.6 Tendency to fall)	4,140	18.7%	2,429	49.5%	3.6
N39	Other disorders of urinary system (includes urinary tract infection and urinary incontinence)	3,852	17.4%	2,233	45.5%	3.2
F05	Delirium, not induced by alcohol and other psychoactive substances	1,328	6.0%	923	18.8%	3.2
W19	Unspecified fall	2,568	11.6%	1,462	29.8%	3.2
S00	Superficial injury of head	886	4.0%	569	11.6%	3.2
R31	Unspecified haematuria	708	3.2%	309	6.3%	3.0
B96	Other bacterial agents as the cause of diseases classified to other chapters (secondary code)	1,395	6.3%	918	18.7%	2.9
R41	Other symptoms and signs involving cognitive functions and awareness	2,037	9.2%	1,222	24.9%	2.7
R26	Abnormalities of gait and mobility	1,882	8.5%	1,114	22.7%	2.6
I67	Other cerebrovascular diseases	1,838	8.3%	1,050	21.4%	2.6
R56	Convulsions, not elsewhere classified	332	1.5%	206	4.2%	2.6
R40	Somnolence, stupor and coma	266	1.2%	177	3.6%	2.5
T83	Complications of genitourinary prosthetic devices, implants and grafts	244	1.1%	147	3.0%	2.4
S06	Intracranial injury	221	1.0%	128	2.6%	2.4

Adapted from Gilbert T, Neuburger J, Kraindler J, Keeble E, Smith P, Ariti C, et al. (2018) Development and validation of a Hospital Frailty Risk Score focusing on older people in acute care settings using electronic hospital records: an observational study. *Lancet* 391:1775-1782.

S42	Fracture of shoulder and upper arm	266	1·2%	142	2·9%	2·3
E87	Other disorders of fluid, electrolyte and acid-base balance	2,546	11·5%	1,251	25·5%	2·3
M25	Other joint disorders, not elsewhere classified	1,262	5·7%	648	13·2%	2·3
E86	Volume depletion	1,550	7·0%	893	18·2%	2·3
R54	Senility	332	1·5%	211	4·3%	2·2
Z50	Care involving use of rehabilitation procedures	354	1·6%	196	4·0%	2·1
F03	Unspecified dementia	2,701	12·2%	1,433	29·2%	2·1
W18	Other fall on same level	642	2·9%	363	7·4%	2·1
Z75	Problems related to medical facilities and other health care	642	2·9%	437	8·9%	2·0
F01	Vascular dementia	863	3·9%	491	10·0%	2·0
S80	Superficial injury of lower leg	244	1·1%	152	3·1%	2·0
L03	Cellulitis	863	3·9%	422	8·6%	2·0
H54	Blindness and low vision	642	2·9%	314	6·4%	1·9
E53	Deficiency of other B group vitamins	244	1·1%	123	2·5%	1·9
Z60	Problems related to social environment	487	2·2%	240	4·9%	1·8
G20	Parkinson's disease	487	2·2%	240	4·9%	1·8
R55	Syncope and collapse	1439	6·5%	633	12·9%	1·8
S22	Fracture of rib(s), sternum and thoracic spine	221	1·0%	113	2·3%	1·8
K59	Other functional intestinal disorders	2,590	11·7%	1,305	26·6%	1·8
N17	Acute renal failure	3,454	15·6%	1,713	34·9%	1·8
L89	Decubitus ulcer	775	3·5%	461	9·4%	1·7
Z22	Carrier of infectious disease	221	1·0%	132	2·7%	1·7
B95	Streptococcus and staphylococcus as the cause of diseases classified to other chapters	332	1·5%	182	3·7%	1·7
L97	Ulcer of lower limb, not elsewhere classified	797	3·6%	407	8·3%	1·6
R44	Other symptoms and signs involving general sensations and perceptions	221	1·0%	128	2·6%	1·6
K26	Duodenal ulcer	244	1·1%	98	2·0%	1·6
I95	Hypotension	1,727	7·8%	844	17·2%	1·6

N19	Unspecified renal failure	221	1·0%	93	1·9%	1·6
A41	Other septicaemia	952	4·3%	515	10·5%	1·6
Z87	Personal history of other diseases and conditions	2,790	12·6%	1,197	24·4%	1·5
J96	Respiratory failure, not elsewhere classified	886	4·0%	353	7·2%	1·5
X59	Exposure to unspecified factor	354	1·6%	196	4·0%	1·5
M19	Other arthrosis	2,635	11·9%	1,040	21·2%	1·5
G40	Epilepsy	443	2·0%	211	4·3%	1·5
M81	Osteoporosis without pathological fracture	1,660	7·5%	682	13·9%	1·4
S72	Fracture of femur	1,107	5·0%	530	10·8%	1·4
S32	Fracture of lumbar spine and pelvis	266	1·2%	128	2·6%	1·4
E16	Other disorders of pancreatic internal secretion	421	1·9%	211	4·3%	1·4
R94	Abnormal results of function studies	531	2·4%	236	4·8%	1·4
N18	Chronic renal failure	3,564	16·1%	1,354	27·6%	1·4
R33	Retention of urine	1,705	7·7%	824	16·8%	1·3
R69	Unknown and unspecified causes of morbidity	177	0·8%	103	2·1%	1·3
N28	Other disorders of kidney and ureter, not elsewhere classified	399	1·8%	172	3·5%	1·3
R32	Unspecified urinary incontinence	841	3·8%	461	9·4%	1·2
G31	Other degenerative diseases of nervous system, not elsewhere classified	686	3·1%	417	8·5%	1·2
Y95	Nosocomial condition	753	3·4%	447	9·1%	1·2
S09	Other and unspecified injuries of head	288	1·3%	157	3·2%	1·2
R45	Symptoms and signs involving emotional state	443	2·0%	260	5·3%	1·2
G45	Transient cerebral ischaemic attacks and related syndromes	244	1·1%	88	1·8%	1·2
Z74	Problems related to care-provider dependency	332	1·5%	201	4·1%	1·1
M79	Other soft tissue disorders, not elsewhere classified	930	4·2%	402	8·2%	1·1
W06	Fall involving bed	310	1·4%	186	3·8%	1·1

S01	Open wound of head	753	3·4%	407	8·3%	1·1
A04	Other bacterial intestinal infections	221	1·0%	108	2·2%	1·1
A09	Diarrhoea and gastroenteritis of presumed infectious origin	1,417	6·4%	618	12·6%	1·1
J18	Pneumonia, organism unspecified	3,830	17·3%	1,644	33·5%	1·1
J69	Pneumonitis due to solids and liquids	487	2·2%	250	5·1%	1·0
R47	Speech disturbances, not elsewhere classified	421	1·9%	236	4·8%	1·0
E55	Vitamin D deficiency	310	1·4%	157	3·2%	1·0
Z93	Artificial opening status	443	2·0%	162	3·3%	1·0
R02	Gangrene, not elsewhere classified	155	0·7%	83	1·7%	1·0
R63	Symptoms and signs concerning food and fluid intake	1,328	6·0%	564	11·5%	0·9
H91	Other hearing loss	1,151	5·2%	466	9·5%	0·9
W10	Fall on and from stairs and steps	266	1·2%	103	2·1%	0·9
W01	Fall on same level from slipping, tripping and stumbling	686	3·1%	270	5·5%	0·9
E05	Thyrotoxicosis [hyperthyroidism]	199	0·9%	74	1·5%	0·9
M41	Scoliosis	288	1·3%	123	2·5%	0·9
R13	Dysphagia	731	3·3%	324	6·6%	0·8
Z99	Dependence on enabling machines and devices	399	1·8%	167	3·4%	0·8
U80	Agent resistant to penicillin and related antibiotics	288	1·3%	177	3·6%	0·8
M80	Osteoporosis with pathological fracture	177	0·8%	83	1·7%	0·8
K92	Other diseases of digestive system	1,018	4·6%	388	7·9%	0·8
I63	Cerebral Infarction	863	3·9%	324	6·6%	0·8
N20	Calculus of kidney and ureter	133	0·6%	54	1·1%	0·7
F10	Mental and behavioural disorders due to use of alcohol	221	1·0%	93	1·9%	0·7
Y84	Other medical procedures as the cause of abnormal reaction of the patient	332	1·5%	147	3·0%	0·7
R00	Abnormalities of heart beat	1,284	5·8%	481	9·8%	0·7

J22	Unspecified acute lower respiratory infection	2,059	9·3%	878	17·9%	0·7
Z73	Problems related to life-management difficulty	421	1·9%	250	5·1%	0·6
R79	Other abnormal findings of blood chemistry	819	3·7%	324	6·6%	0·6
Z91	Personal history of risk-factors, not elsewhere classified	443	2·0%	182	3·7%	0·5
S51	Open wound of forearm	177	0·8%	103	2·1%	0·5
F32	Depressive episode	1395	6·3%	613	12·5%	0·5
M48	Spinal stenosis (secondary code only)	487	2·2%	177	3·6%	0·5
E83	Disorders of mineral metabolism	288	1·3%	132	2·7%	0·4
M15	Polyarthrosis	288	1·3%	113	2·3%	0·4
D64	Other anaemias	2,125	9·6%	829	16·9%	0·4
L08	Other local infections of skin and subcutaneous tissue	155	0·7%	83	1·7%	0·4
R11	Nausea and vomiting	1,196	5·4%	451	9·2%	0·3
K52	Other noninfective gastroenteritis and colitis	244	1·1%	93	1·9%	0·3
R50	Fever of unknown origin	354	1·6%	147	3·0%	0·1