

Supplementary Tables

B37.5	Candidal meningitis	Invasive candidiasis
B37.6	Candidal endocarditis	Invasive candidiasis
B37.7	Candidal sepsis	Invasive candidiasis
B37.8	Candidiasis of other sites	Unspecified candidiasis
B37.9	Candidiasis, unspecified	Unspecified candidiasis
B44.0	Invasive pulmonary aspergillosis	Aspergillosis
B44.1	Other pulmonary aspergillosis	Aspergillosis
B44.2	Tonsillar aspergillosis	Aspergillosis
B44.7	Disseminated aspergillosis	Aspergillosis
B44.8	Other forms of aspergillosis	Aspergillosis
B44.9	Aspergillosis, unspecified	Aspergillosis
B45.0	Pulmonary cryptococcosis	Cryptococcosis
B45.1	Cerebral cryptococcosis	Cryptococcosis
B45.2	Cutaneous cryptococcosis	Cryptococcosis
B45.3	Osseous cryptococcosis	Cryptococcosis
B45.7	Disseminated cryptococcosis	Cryptococcosis
B45.8	Other forms of cryptococcosis	Cryptococcosis
B45.9	Cryptococcosis, unspecified	Cryptococcosis
B46.0	Pulmonary mucormycosis	Zygomycosis
B46.1	Rhinocerebral mucormycosis	Zygomycosis
B46.2	Gastrointestinal mucormycosis	Zygomycosis
B46.3	Cutaneous mucormycosis	Zygomycosis
B46.4	Disseminated mucormycosis	Zygomycosis
B46.5	Mucormycosis, unspecified	Zygomycosis
B46.8	Other zygomycoses	Zygomycosis
B46.9	Zygomycosis, unspecified	Zygomycosis
B49	Unspecified mycosis	Unspecified mycoses
Z16.32	Resistance to antifungal drug (s)	

Supplementary Table 1: International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) codes for sepsis for fungal causal agents

Organ System	ICD-10-CM Code	ICD-10-CM Code Description
Cardiovascular	I46	Cardiac arrest
	I95.1	Orthostatic hypotension
	I95.89	Other specified hypotension
	I95.9	Hypotension, unspecified
	R57.0	Shock without mention of trauma
	R57.9	Hypotension, transient
Hematologic	D65	Disseminated intravascular coagulation (Defibrination syndrome)
	D68	Other and unspecified coagulation defects
	D69	Purpura and other bleeding conditions
	R79.1	Abnormal coagulation profile
Hepatic	K72.0	Acute and subacute necrosis of liver
	K72.01, K72.91	Hepatic encephalopathy
	K75.9	Hepatitis (septic & not elsewhere classified)
	K76.3	Hepatic infarction
Neurologic	F06	Transient organic psychosis
	G93.1	Anoxic brain damage
	G93.4	Other and unspecified types of encephalopathy
	G31.2	Alcoholic encephalopathy
	G94	Other disorders of the brain in diseases classified elsewhere
	I67.4	Hypertensive encephalopathy
	R40	Drowsiness, stupor and coma
	4A00	Electroencephalography
Renal	N00	Acute glomerulonephritis
	N17	Acute renal failure
	N19	Renal shutdown, renal failure unspecified
	5A1D	Hemodialysis
	J95	Intraoperative and postprocedural complications and disorders of the respiratory system, not elsewhere classified
Respiratory	R06.81	Apnea
	R09.2	Respiratory arrest
	J96	Respiratory insufficiency
	5A19, 5A09	Ventilator management
	0BH1	Endotracheal intubation (emergency procedure)
	A09357, 5A09557, 5A09457	Continuous positive airway pressure
	E87.2	Acidosis, metabolic or lactic
	Metabolic	

Supplementary Table 2: International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) codes for acute organ dysfunction

Nervous

A17	Tuberculosis of meninges and central nervous system
A39.0	Meningococcal infection
A51.41	Acute syphilitic meningitis (secondary)
A52.1	symptomatic neurosyphilis
A52.2	Asymptomatic neurosyphilis
A52.3	Unspecified neurosyphilis
G00	Bacterial meningitis, not elsewhere classified
G04.2	Bacterial meningoencephalitis and meningomyelitis, not elsewhere classified
B45.1	Cerebral cryptococcosis
G02	Meningitis in other infectious and parasitic diseases classified elsewhere
G06	Central nervous system abscess
G08	Phlebitis of intracranial sinus
H44.0	Purulent endophthalmitis
H05.00	Acute inflammation of orbit
H60.20	Malignant otitis externa
H70.0	Acute mastoiditis

Circulatory

A52.00-A52.04	Cardiovascular syphilis
A52.06	Cardiovascular syphilis
A52.09	Cardiovascular syphilis
A54.83	gonococcal heart infection (endocarditis, pericarditis, myocarditis)
I01.2	Acute rheumatic myocarditis
I30	Acute pericarditis
I33	Acute or subacute endocarditis

Respiratory

A15	respiratory tuberculosis
A31.0	Pulmonary diseases due to other mycobacteria
A36	Diphtheria
A38	Streptococcal throat/scarlet fever
A54.5	Gonococcal infection of pharynx
B37.1	Candidiasis, of lung
B38.0	Acute pulmonary coccidioidomycosis
B38.1	Chronic pulmonary coccidioidomycosis
B39.5	Histoplasma duboisii pneumonia
B39.2	Histoplasma capsulatum pneumonia
B39.9	Histoplasmosis pneumonia unspecified
B45	Cryptococcus neoformans
B44	Aspergillosis
B59	Pneumocystosis
J01	Acute sinusitis
J02	Acute pharyngitis

J03	Acute tonsillitis
J04	Acute laryngitis/tracheitis
J06	Acute upper respiratory infection of multiple sites/not
J36	Peritonsillar abscess
J12	Viral pneumonia
J13	Pneumococcal pneumonia
J15	Other bacterial pneumonia
J16	Pneumonia due to another specified organism
J18	Pneumonia, organism not otherwise specified
J10	Influenza
J44.1	Acute exacerbation of obstructive chronic bronchitis
J47	Bronchiectasis
J86	Pyothorax
J85	Abscess of lung and mediastinum
	Digestive
A00	Cholera
A01	Typhoid/paratyphoid fever
A02	Other salmonella infection
A03	Shigellosis
A05	Other food poisoning
A04.0-A04.4	Intestinal infections due to <i>Escherichia coli</i>
A04.8	Other specified bacterial intestinal infections
A04.9	Bacterial intestinal infection, unspecified
A18.3	Tuberculosis of intestines peritoneum and mesenteric glands
B82	Intestinal parasitism unspecified
K04.7	Periapical abscess without sinus
K04.6	Periapical abscess with sinus
M27.2	Inflammatory conditions of the jaw
K11.3	Abscess of the salivary glands
K12.2	Cellulitis and abscess of oral soft tissue
K35	Acute appendicitis
K37	Appendicitis not otherwise specified
K36	Other appendicitis
K57.12	Diverticulitis of the small intestine without haemorrhage
K57.13	Diverticulitis of the small intestine with haemorrhage
K57.32	Diverticulitis of colon without haemorrhage
K57.33	Diverticulitis of colon with haemorrhage
K61.0	Anal abscess
K61.1	rectal abscess
K61.3	Ischiorectal abscess
K65	Peritonitis
K63.0	Intestinal abscess
K94.02	Infection of colostomy

K94.12	Infection of enterostomy
K63.1	Perforation of intestine
K75.0	Abscess of liver
K75.1	Portal pyaemia
K81.0	Acute cholecystitis
	Genitourinary
A18.1	Tuberculosis of genitourinary system
A54.24	Gonococcal salpingitis specified as acute
B37.4	Candidiasis of other urogenital sites
N10	Kidney infection
N39.0	Urinary tract infection not otherwise specified
N41	Prostatic inflammation
N45	Orchitis and epididymitis
N73	Female pelvic inflammation disease
N71	Uterine inflammatory disease
N75.1	Abscess of Bartholin's gland
N76.4	Other abscess of vulva
	Pregnancy
O03	Spontaneous abortion
O04	Complications after (induced) termination of pregnancy
O08	Complications following abortion and ectopic and molar pregnancies
O23	Infections of genitourinary tract in pregnancy
O41.1	Infection of amniotic cavity
O85	Major puerperal infection
N61.1	Abscess of breast
	Skin, soft tissue, or bone
A02.24	Salmonella osteomyelitis
A18.0	Tuberculosis of bones and joints
A18	Tuberculosis of other organs
A31.1	Cutaneous diseases due to other mycobacteria
A146	Erysipelas
A39.83	Meningococcal arthropathy
A48.0	Gas gangrene
A52.77	Syphilis of bone
A54.5	Gonococcal infection of joint
L03	Cellulitis and acute lymphangitis
L05.01	Pilonidal cyst, with abscess
L08	Other local skin infection
M00	Pyogenic arthritis
M72.6	Necrotizing fasciitis
M86	Osteomyelitis
	Other

R78.81	Bacteraemia
T79.8XXA	Post-traumatic wound infection, not elsewhere classified
T82.7	Infection or inflammation of device/graft
T81.4	Postoperative infection

Supplementary Table 3: International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) codes for the site of infection causing sepsis”.

	aOR (CI95%)	p-value
Sepsis	10.094 (9.478-10.748)	<0.001
Surgery	8.793 (8.220-9.406)	<0.001
Obesity	1.338 (1.237-1.446)	<0.001
Chronic obstructive pulmonary disease	1.286 (1.191-1.388)	<0.001
Gender male	1.105 (1.042-1.171)	<0.001
Age	1.004 (1.002-1.006)	<0.001

Supplementary Table 4: Independent risk factors for the onset of fungal infection. Stepwise logistic regression model. Meaning of the acronyms: aOR: adjusted odds ratio, CI 95%: 95% confidence interval.

	NCI	CI	p-value
Gender (male)	234414 (57,23%)	778 (71,97%)	<0.001
Mean Age (years)	65.42 ± 18,17	64.87 ± 10,39	0.084
Charlson Index			
0 comorbidities	213107 (52.02%)	624 (57.72%)	
2 comorbidities	68109 (16.63%)	201 (18.59%)	
≥3 comorbidities	68939 (16.83%)	129 (11.93%)	<0.001
1 comorbidity	59472 (14.52%)	127 (11.75%)	
Comorbidities			
Arterial hypertension	166040 (40.53%)	397 (36.73%)	0.011
Diabetes	80403 (19.63%)	197 (18.22%)	0.246
Obesity	45943 (11.22%)	164 (15.17%)	<0.001
Chronic obstructive pulmonary disease	56837 (13.88%)	140 (12.95%)	0.380
Heart disease	29584 (7.22%)	56 (5.18%)	0.010
Liver disease	17222 (4.20%)	38 (3.52%)	0.259
Cancer	17794 (4.34%)	37 (3.42%)	0.138
Abuse of tobacco	15148 (3.70%)	33 (3.10%)	0.261
Peripheral vascular disease	9210 (2.25%)	17 (1.57%)	0.134
Digestive system diseases	1174 (0.29%)	2 (0.19%)	0.776
Human immunodeficiency virus	864 (0.21%)	2 (0.19%)	1.000
Organ failure			
1 organ failure	174509 (42.60%)	634 (58.65%)	<0.001
2 organ failure	45334 (11.07%)	296 (27.38%)	<0.001
≥3 organ failure	9340 (2.28%)	139 (12.86%)	<0.001
No organ failure	180444 (44.05%)	12 (1.11%)	<0.001
Mechanical ventilation	29722 (7.26%)	967 (89.45%)	<0.001
Sepsis	34411 (8.40%)	815 (75.39%)	<0.001
Surgery	11112 (2.71%)	610 (56.43%)	<0.001
Length of stay (days)	10.95 ± 12.82	52.40 ± 36.35	<0.001
In-hospital death	59970 (14.64%)	499 (46.16%)	<0.001

Supplementary Table 5: Characteristics of patients admitted in Spain during the years 2020 and 2021 due to SARS-CoV-2 infection, comparing candida infection (CI) and non-candida infection (NFI) groups. Values are expressed as absolute number (percentage) and mean (standard deviation).

	aOR (CI95%)	p-value
Sepsis	13.882 (11.818-16.306)	<0.001
Surgery	10.288 (8.914-11.874)	<0.001
Gender Male	1.506 (1.312-1.727)	<0.001

Supplementary Table 6: Independent risk factors for the onset of invasive candidiasis infection. Stepwise logistic regression model. Meaning of the acronyms: aOR: adjusted odds ratio, CI 95%: 95% confidence interval.

	NAI	AI	p-value
Gender (male)	234266 (57.22%)	926 (72.91%)	<0.001
Mean Age (years)	65.42 ± 18.17	65.40 ± 10.18	0.951
Charlson Index			
0 comorbidities	213118 (52.05%)	613 (48.27%)	<0.001
2 comorbidities	68056 (16.62%)	254 (20%)	
1 comorbidity	59382 (14.50%)	217 (17.09%)	
≥3 comorbidities	68882 (16.82%)	186 (14.65%)	
Comorbidities			
Arterial hypertension	165962 (40.53%)	475 (37.40%)	0.023
Diabetes	80355 (19.63%)	245 (19.29%)	0.765
Chronic obstructive pulmonary disease	56749 (13.86%)	228 (17.95%)	<0.001
Obesity	45885 (11.21%)	222 (17.48%)	<0.001
Heart disease	29566 (7.22%)	74 (5.83%)	0.055
Cancer	17759 (4.34%)	72 (5.67%)	0.020
Liver disease	17194 (4.20%)	66 (5.20%)	0.077
Abuse of tobacco	15137 (3.70%)	44 (3.50%)	0.661
Peripheral vascular disease	9190 (2.24%)	37 (2.91%)	0.108
Human immunodeficiency virus	860 (0.21%)	6 (0.47%)	0.054
Digestive system diseases	1171 (0.29%)	5 (0.39%)	0.422
Organ failure			
1 organ failure	174402 (42.60%)	741 (58.35%)	<0.001
2 organs failure	45276 (11.06%)	354 (27.87%)	<0.001
≥3 organs failure	9325 (2.28%)	154 (12.13%)	<0.001
No organ failure	180435 (44.07%)	21 (1.65%)	<0.001
Mechanical ventilation	29590 (7.23%)	1099 (86.54%)	<0.001
Sepsis	34469 (8.42%)	757 (59.61%)	<0.001
Surgery	11112 (2.71%)	610 (48.03%)	<0.001
Length of stay (days)	10.95 ± 12.86	46.65 ± 31.85	<0.001
In-hospital death	59779 (14.6%)	690 (54.33%)	<0.001

Supplementary Table 7: Characteristics of patients admitted in Spain during the years 2020 and 2021 due to SARS-CoV-2 infection, comparing Aspergillus infection (AI) and non-Aspergillus infection (NAI) groups. Values are expressed as absolute number (percentage) and mean (standard deviation).

	aOR (CI95%)	p-value
Surgery	10.658 (9.285-12.235)	<0.001
Sepsis	6.476 (5.642-7.432)	<0.001
Gender Male	1.648 (1.451-1.871)	<0.001
Chronic obstructive pulmonary disease	1.466 (1.265-1.698)	<0.001
Obesity	1.428 (1.230-1.659)	<0.001
Cancer	1.299 (1.018-1.657)	0.035

Supplementary Table 8: Independent risk factors for the onset of invasive aspergillosis infection. Stepwise logistic regression model. Meaning of the acronyms: aOR: adjusted odds ratio, CI 95%: 95% confidence interval.