**Supplementary data**

**Supplementary eAppendix 1: Codes associated with infection**

**Codes associated with infection**

**Gastrointestinal infection**

001, Cholera;

002, Typhoid/paratyphoid fever;

003, Other salmonella infection;

004, Shigellosis;

005, Other food poisoning;

008, Intestinal infection not otherwise classified;

009, Ill-defined intestinal infection;

562.01, Diverticulitis of small intestine without hemorrhage;

562.03, Diverticulitis of small intestine with hemorrhage;

562.11, Diverticulitis of colon without hemorrhage;

562.13, Diverticulitis of colon with hemorrhage;

**Tuberculosis**

010, Primary tuberculosis infection;

011, Pulmonary tuberculosis;

012, Other respiratory tuberculosis;

013, Central nervous system tuberculosis;

014, Intestinal tuberculosis; 015, Tuberculosis of bone and joint; 016, Genitourinary tuberculosis;

017, Tuberculosis not otherwise classified;

018, Miliary tuberculosis;

**Zoonosis**

020, Plague;

021, Tularemia;

022, Anthrax;

023, Brucellosis;

024, Glanders;

025, Melioidosis;

026, Rat-bite fever;

027, other bacterial zoonoses;

**Other mycobacterial disease**

030, Leprosy;

031, Other mycobacterial disease;

**Syphilis**

090, Congenital syphilis;

091, Early symptomatic syphilis;

092, Early syphilis latent;

093, Cardiovascular syphilis;

094, Neurosyphilis;

095, Other late symptomatic syphilis;

096, Late syphilis latent;

097, Other and unspecified syphilis;

102, Yaws;

103, Pinta;

104, Other spirochetal infection;

**037, Tetanus;**

**Other bacterial diseases**

040, Other bacterial diseases;

041, Bacterial infection in other diseases not otherwise specified;

**Systematic fungal infection**

110, Dermatophytosis;

111, Dermatomycosis not otherwise classified or specified;

112, Candidiasis;

114, Coccidioidomycosis;

115, Histoplasmosis;

116, Blastomycotic infection;

117, Other mycoses;

118, Opportunistic mycoses;

117.9, Disseminated fungal infection

112.5, Dissemintaed candidal infection

112.81, Disseminated fungal endocarditis

039, Actinomycotic infections;

**CNS infection**

320, Bacterial meningitis;

322, Meningitis, unspecified;

324, Central nervous system abscess;

325, Phlebitis of intracranial sinus;

036, Meningococcal infection;

**Cardiovascular infection**

420, Acute pericarditis;

421, Acute or subacute endocarditis;

451, Thrombophlebitis;

**Upper respiratory tract infection**

461, Acute sinusitis;

462, Acute pharyngitis;

463, Acute tonsillitis;

464, Acute laryngitis/ tracheitis;

465, Acute upper respiratory infection of multiple sites/not otherwise specified;

101, Vincent’s angina;

034, Streptococcal throat/scarlet fever;

032, Diphtheria;

**Lower respiratory tract infection**

481, Pneumococcal pneumonia;

482, Other bacterial pneumonia;

485, Bronchopneumonia with organism not otherwise specified;

486, Pneumonia, organism not otherwise specified;

491.21, Acute exacerbation of obstructive chronic bronchitis;

494, Bronchiectasis;

510, Empyema;

513, Lung/mediastinum abscess;

033, Whooping cough;

484, Pneumonia classified in elsewhere

483, Pneumonia by other pathogens

**Intra-abdominal infection**

540, Acute appendicitis;

541, Appendicitis not otherwise specified;

542, Other appendicitis;

566, Anal and rectal abscess;

567, Peritonitis;

569.5, Intestinal abscess;

569.83, Perforation of intestine;

572.0, Abscess of liver;

**Biliary tract infection**

572.1, Portal pyremia;

575.0, Acute cholecystitis;

**Genitourinary tract infection**

590, Kidney infection;

597, Urethritis/urethral syndrome;

599.0, Urinary tract infection not otherwise specified;

601, Prostatic inflammation;

098, Gonococcal infections;

**Gynecological infection**

614, Female pelvic inflammation disease;

615, Uterine inflammatory disease;

616, Other female genital inflammation; 681, Cellulitis, finger/ toe;

098, Gonococcal infections;

**Skin and appendix structure infection**

682, Other cellulitis or abscess;

683, Acute lymphadenitis;

686, Other local skin infection;

035, Erysipelas;

**Musculoskeletal infection**

711.0, Pyogenic arthritis;

730, Osteomyelitis;

**Primary bacteremia**

790.7, Bacteremia;

**Catheter related bloodstream infection**

996.6, Infection or inflammation of device/graft;

**Post-operative complication**

998.5, Postoperative infection;

**Nosocomial infection**

999.3, Infectious complication of medical care not otherwise classified.

**Septicemia**

038.0, Streptococcal septicemia

038.1, Staphylococcal septicemia

038.2, Pneumococcal septicemia [Streptococcus pneumoniae septicemia]

038.3, Septicemia due to anaerobes

038.4, Septicemia due to other gram-negative organisms

038.8, Other specified septicemias

* 1. Excludes: septicemia (due to):
		1. anthrax (022.3)
		2. gonococcal (098.89)
		3. herpetic (054.5)
		4. meningococcal (036.2)
		5. septicemic plague (020.2)

038.9, Unspecified septicemia

995.92, Severe sepsis

**Supplementary eAppendix 2: ICD-9-CM codes of organ dysfunction associated with sepsis**

**Cardiovascular dysfunction/Shock**

785.5, Shock

458, Hypotension

**Acute respiratory dysfunction**

96.7, Mechanical ventilation

57001B, 57002B, 57023B, 57029C, use of ventilators

**Central nervous system dysfunction**

348.3, Neurologic Encephalopathy

293, Transient organic psychosis

348.1, Anoxic brain damage

**Hematologic system dysfunction**

287.4, Hematologic Secondary thrombocytopenia

287.5, Thrombocytopenia, unspecified

286.9, Other/unspecified coagulation defect

286.6, Defibrination syndrome

**Hepatic system dysfunction**

570, Hepatic Acute and subacute necrosis of liver

572.2, Hepatic encephalopathy

572.4, Hepatorenal syndrome

572.8, Other squeal of chronic liver disease

573.4, 573.8, Hepatic infarction

V42.7, Liver replaced by transplant

**Renal system dysfunction**

584, Acute renal failure

58014C, Use of CVVH

**Metabolic system dysfunction**

250.1, Diabetic ketoscidosis

250.2, Hyperosmolar hyperglycemic state

**Supplementary efigure1**. Standardized difference graph before and after propensity score matching.



Supplementary eFigure 2. Secular trend of the incidence of sepsis and septic shock, stratified by source of admission (ED-admitted vs. Non-ED admitted)



Supplementary eFigure 3. Trend of mortality for patients with sepsis and septic shock, stratified by source of admission.

