

1 **Supplementary materials: Why do non-urgent patients in the emergency**

2 **department die: A Copenhagen Triage Algorithm substudy**

3 **Supplementary files 1**

Age
Sex
Triage system
Diagnosis at admission*
Other diagnoses *
Treatment*
In hospital/out of hospital death/ death in Intensive Care Unit*
Limitations in treatment e.g. no Intensive Care Unit or Do Not Resuscitate*
Days from admission to death
Cause of death*
Biomarkers
Hemoglobin
Leucocytes
Neutrophiles
Thrombocytes
Natrium
Potassium
Calcium
Creatinine
LDH
Albumin
ALAT
INR
CRP
Lactate
pH
pO2
Vitals
Systolic blood pressure
Heart rate
Arterial oxygen saturation
Temperature
Respiratory rate
Marital status*
Out of hospital care or nursing home*
Charlson Comorbidity index*

4 Data collection. Factors marked * were collected individually from the patients medical history.

5

6 **Supplementary files 2:**

7 **Case summary of deaths classified as preventable**

8 A female in her 90s with a medical history of severe osteoporosis and psychosis, was admitted due
9 to a trauma sustained during mobilization. A dislocated fracture of the knee was found on x-ray and
10 the patient was treated with bandages and discharged to her home. The patient died 1½ days after
11 the admission.

12 A female in her 70s with a tendency to fall and a previous medical history of atrial fibrillation,
13 Parkinsons disease and apoplexies, was admitted due to a fall in her home. No fractures were found
14 on x-ray and the patient was discharged. The patient was re-admitted 4 days later due to a new fall
15 and difficulty breathing, where she was diagnosed with pneumonia. During the admission her
16 clinical condition decreased continuously and she died 20 days after the primary admission.

17 A female in her 70s with a medical history of type 2 diabetes, hypertension and bypass surgery, was
18 admitted from her general practitioner because of an urinary tract infection, jaundice and pale stool.
19 A CT scan was ordered but due to a decrease in kidney function (eGFR=12) the CT scan was
20 performed without contrast. The scan showed intra and extrahepatic cholestasis. On day 5 of her
21 admission, the patients had an unwitnessed cardiac arrest, with return of spontaneous circulation
22 during resuscitation, but shortly after, she experienced another cardiac arrest with asystole and was
23 pronounced dead.

24 Female in her 80s admitted with dehydration due to a very low fluid and food intake the last week.
25 Patient was recently started on antidepressants. Biomarkers showed hyperkalemia (10,4), which was
26 attributed to prerenal kidney failure. Patient was treated with fluids and died 15 hours after
27 admission.

28 A female in her 80s with a medical history of hypothyroidism, ischemic heart disease and type 2
29 diabetes was admitted due to general weakness. She was diagnosed with a urinary tract infection
30 and antibiotic treatment was started. On day 5 of her admission she was found unresponsive and
31 sepsis was suspected. She died on day 11 of admission.

32 A male in his 70s with a medical history of mental retardation and type 2 diabetes, was admitted
33 due to constipation and abdominal pain and suspected of having subileus. The patient was
34 diagnosed with sigmoideum vulvulus and an endoscopic desufflation was performed. The patient
35 felt better afterwards and was discharged after a bowel movement on day 2. He was found dead in
36 his home on day 3 and a forensic autopsy was performed, where cause of death was deemed to be
37 atherosclerosis and ischemic heart disease.

38 A male in his 80's, with no previously known medical history, was admitted due to abdominal pain
39 and suspected of having ileus. A CT-scan was performed, showing air-fluid levels, but normal small
40 intestines and colon. It was assessed that there was no indication of surgery. After a decrease in pain

41 and a normal amount of flatulence, the patient was discharged. He was found dead in his home 5
42 days after admission. A forensic autopsy was performed, and the cause of death was deemed to be
43 pneumonia.

44 A male in his 80s with a medical history of dementia was admitted due to suspicion of having sat on
45 the toilet for up to 4 hours. The patient had no complaints at admission, but an elevated creatine
46 kinase was found, and patient was suspected of having an infection. He was treated for
47 rhabdomyolysis and pneumonia. The patient was discharged on day 9 but readmitted after 1 day due
48 to unsustainable living conditions. He was found dead in his room 11 days after primary admission.
49 Cause of death was unknown.

50 A male in his 80s, described with declining functional level, was admitted from his general
51 practitioner due to anemia and suspected infection. The patient refused admission and was
52 discharged with antibiotics. He died 29 days after admission.

53 A male in his 50s with a history of alcohol abuse was found unresponsive on a bench. The patient
54 was admitted for detoxication. A chest x-ray showed signs of pneumonia. On day 12 of his hospital
55 admission, the patient experienced dyspnea during smoking, with subsequent cardiac arrest.
56 Resuscitation unsuccessful. Cause of death was assessed as a possible pulmonary embolism.

57 A female in her 70s with a history of bladder cancer, was admitted due to a rectal tumor found
58 during coloscopy. The patient was discharged the same day. On day 20 after first admission she was
59 admitted due to suspected ileus and a perforated coecum was found. The patient was septic after the
60 initial surgery and was admitted to the ICU. She was given palliative care and died 30 days after
61 primary admission.

62 A female in her 70s with a medical history of paranoid psychosis was admitted with pains in her leg
63 during the last 4 weeks. An x-ray showed an old fibula fracture and she was admitted for physical
64 therapy and pain management. On day 3 of admission, the patient experienced episodes of
65 desaturation and tachycardia. She had no chest pains and a normal ECG. On day 4 of admission the
66 patient went into cardiac arrest and aspirated. Cardiopulmonary resuscitation was ceased after 20
67 minutes.

68 A female in her 70s with a medical history of bipolar disorder and cerebral infarcts, was admitted
69 due to dehydration and a decline in her general health. It was suspected to be a side-effect of her
70 Olanzapine treatment, which was ceased and the patient treated with fluids and discharged. She was
71 readmitted on day 5 due to suspicion of a cerebral infarction. No new neurological problems were
72 found, however the patient had hypernatremia and was treated with fluids. The patient's clinical
73 status declined further, and she died on day 17.

74

75 **Case summaries of deaths classified as expected**

76 A male in his 70s with a medical history of atrial fibrillation, myelodysplastic syndrome, diabetes
77 complicated by nephropathy and dementia, was admitted with urinary retention and urinary tract
78 infection. The patient developed sepsis and hyperkalemia and was treated with relevant antibiotics
79 and resonium. Despite this, the patient continued to decline in clinical status and died on the third
80 day of admission.

81 A female in her 50s a medical history of disseminated cholangiocarcinoma was admitted from an
82 outpatient clinic due to dehydration and ascites. Seven liters of ascites was drained, and she went
83 home with an open admission. She came back several times due to diffuse abdominal pain. She
84 developed mild hepatic encephalopathy and died 22 days after first admission.

85 A male in his 90s with a medical history chronic subdural hematoma, neuropathy, pacemaker and
86 recurring urinary tract infections was admitted from his nursing home due to fever and general
87 weakness, suspected of an infection. The patient was described as bedridden and having been in
88 general physical decline for months. He refused any treatment and was discharged. The patient died
89 on the second day.

90 A female in her 70s with a medical history of recurrent T-cell lymphoma with central nervous
91 system involvement was admitted due to loss of strength in her lower extremities, developed after
92 radiation therapy. She was treated for shingles and was determined to be in the terminal phase of
93 her cancer. Palliative care was initiated, and the patient died on day 18.

94 A male in his 70s with a medical history of chronic lymphatic leukemia, prostate cancer, malignant
95 melanoma and spinal cord compression was admitted for pain management. Palliative care was
96 initiated, and the patient died on day 11.

97 A female in her 90s with a previous medical history of heart failure (LVEF 25), type 2 diabetes,
98 atrial fibrillation and pulmonary embolism, was admitted from her GP due to general weakness.
99 Biochemistry showed a TNI of 115. There were no signs of acute myocardial infarcts and the
100 patient wanted to leave and was discharged. She was readmitted the next day because she was unfit
101 to stay in her home. The patient died after 21 days.

102 A male in his 40s with a known alcohol abuse and decompensated cirrhosis was admitted to the ED
103 for detoxification. The patient developed hepatic encephalopathy, infection and respiratory failure
104 and died after 4 days.

105 A male in his 80s with a medical history of type 2 diabetes, as well as terminal kidney failure,
106 uremia and dementia, was admitted with urosepsis. The patient's clinical status initially improved
107 with antibiotic treatment. On the third day, the patient got more confused and needed more oxygen
108 therapy. He was suspected of having an aspiration pneumonia. The patient died on the 6th day of
109 admission.

110 A male in his 50s with a medical history of pulmonary cancer disseminated to liver, bones and
111 brain, was admitted to the hospital due to memory loss and fatigue. The patient was treated with

112 prednisolone and radiation and was discharged. He was readmitted due to being unresponsive for 8
113 days. The patient died 30 days after primary admission.

114 A female in her 90s with colon cancer and metastasis to the liver, who had refused further
115 treatment, was admitted to the ED after getting her leg stuck in a bed rail. The wound was washed
116 and sutured, and she was discharged with preventive antibiotics. The patient died on the 5th day
117 after first admission.