

Adverse and Temporary Harm Events in Long-Term-Care Hospitals (LTCH) Designated in Office of Inspector General Report¹ as Clearly Preventable or Likely Preventable, by Clinical Category

Adverse Events Related to Infections

LTCH-acquired respiratory infections

- Pneumonia contributing to patient death
- Pneumonia contributing to patient death
- Respiratory syncytial virus (RSV) pneumonia associated with aspiration resulting in transfer to an acute-care hospital and contributing to death
- Pneumonia and respiratory failure with delayed recognition and treatment resulting in transfer to an acute-care hospital
- Cascade in which tracheal laceration led to decreasing oxygen saturation resulting in sending to an acute-care hospital for treatment
- Aspiration pneumonitis/pneumonia with inadequate preventive care
- Cascade with opioids (respiratory depressant) complicated by morbid obesity and sleep apnea leading to aspiration pneumonia
- Cascade with respiratory infection while on ventilator leading to acute kidney injury and hyperkalemia (K+ 6.2)
- Pneumonia while on ventilator
- Pneumonia with delayed recognition and treatment

Sepsis not associated with other event types

- Cascade with candidemia with widespread infection treated with ineffective medication for several days, leading to increased bruising, respiratory failure, and contributing to death
- Cascade with peritonitis in the wake of PEG placement followed by sepsis, hypotension, acute kidney injury, "shock liver," requiring treatment at an acute-care hospital and contributing to death
- Cascade with stage-4 infected pressure ulcer leading to septic shock and contributing to patient death
- Sepsis due to intra-abdominal sepsis associated with aspiration
- Sepsis with delayed recognition contributing to patient death
- Cascade with septic shock related to urinary catheter with delayed recognition leading to respiratory failure and profound electrolyte imbalance resulting in an acute-care hospital admission
- Cascade with non-antiseptic debridement of sacral decubitus leading to sacral infection followed by bloodstream infection requiring treatment at an acute-care hospital
- Sepsis with inadequate monitoring and delayed recognition
- Septicemia (MRSA and *Klebsiella*) with delayed recognition

¹U.S. Department of Health and Human Services, Office of Inspector General (OIG). *Adverse Events in Long-Term-Care Hospitals: National Incidence Among Medicare Beneficiaries*, OEI-06-14-00530, November 2018.

Vascular-catheter-associated infections

- Central line-related sepsis/fungemia contributing to death
- Fungal central line-associated bloodstream infection leading to acute renal failure and contributing to death
- Probable PICC line infection (persistent *Stenotrophomonas* bacteremia) leading to septic shock and death with concurrent urinary tract infection (*Acinetobacter* multi-drug resistance [MDR]) associated with a urinary catheter
- PICC line associated with *Enterococcus* and transfer to an acute-care hospital
- Prolonged PICC line placement associated with sepsis

Clostridium difficile infections

- Cascade with severe *Clostridium difficile* infection with delayed diagnosis leading to sepsis resulting in toxic metabolic encephalopathy, treatment at an acute-care hospital
- *Clostridium difficile* infection
- *Clostridium difficile* infection
- *Clostridium difficile* infection following antibiotics

Surgical site infections

- Abdominal wall abscess associated with dislodged feeding tube which required sending to an acute-care hospital for treatment
- PEG site infection resulting in PEG change in an acute-care hospital
- Soft tissue infection at PICC entrance site extending into axilla

Urinary tract infections associated with urinary catheters

- Cascade initiated by clinical urinary tract infection associated with urinary catheter leading to sepsis resulting in hypotension and admission to an acute-care hospital
- Cascade with clinical urinary tract infection associated with urinary catheter leading to septic shock
- CDC-defined catheter-associated urinary tract infection (CAUTI)

Soft tissue or other nonsurgical infections

- Infected, necrotic chest wall wound

Ventilator-associated events

Other infection-related adverse events

- Meningoencephalitis with delayed recognition contributing to patient death

Adverse Events Related to Medication

Bleeding associated with anticoagulants

- Gastrointestinal bleeding while on anticoagulant (intravenous heparin) contributing to death
- Cascade with gluteal hematoma while on anticoagulant (warfarin) leading to anemia and acute kidney injury and sent to an acute-care hospital for treatment
- Cascade with hematuria (excessive bleeding) while on anticoagulant (warfarin) following self-removed urinary catheter injury leading to hypotension and eventually requiring an acute-care hospital admission
- Iatrogenic traumatic oropharyngeal bleeding related to suctioning in patient with tracheostomy
- Penile bleeding while over-anti-coagulated (INR 4.5) leading to catheter change

Hypoglycemic events

- Hypoglycemia with lethargy (blood glucose of 29, 46)
- Cascade with hypoglycemia with unresponsiveness and triggering a seizure (blood glucose of 22, 23, 25)
- Hypoglycemia requiring substantial administration of glucose (D50 x 2) followed by D10 infusion (blood glucose of 36, <20)
- Hypoglycemia with cool and clammy skin (blood glucose of 30, 33)
- Hypoglycemia with decreased responsiveness (blood glucose of 47, 37)
- Hypoglycemia with lethargy (blood glucose of 30)
- Hypoglycemia with lethargy on two separate occasions (blood glucose of 36, 22)
- Hypoglycemia with lethargy, clammy and cool to the touch (blood glucose of 22, 38, 29)
- Hypoglycemia with somnolence (blood glucose of 27, 37)
- Hypoglycemia with unresponsiveness (blood glucose of 32)
- Severe hypoglycemia with hypothermia and confusion (blood glucose of 39)

Delirium and other changes in mental status

- Cascade with oversedation while on multiple opioid medications leading to a fall resulting in a subdural hematoma, requiring acute-care hospital care, and ultimately death
- Altered mental status and respiratory failure secondary to opioids (hydromorphone and fentanyl)
- Lethargy with hypotension while on opioid pain medication (morphine immediate release)
- Cascade with confusion while on multiple psychotropic medications leading to fall with injury to shoulder
- Delirium while on antipsychotic medication (risperidone) and opioid (oxycodone)
- Failure to identify and treat delirium due to multiple medication (antihistamine [diphenhydramine] and anti-anxiety [benzodiazepine-alprazolam]) over several days
- Oversedation with hypotension due to multiple anti-anxiety and opioid medications
- Toxic metabolic encephalopathy due to opioid pain medication (oxycodone) with underlying renal and liver failure resulting in transfer to an acute-care hospital

Fluid, electrolyte, and metabolic disorders related to medication

- Severe hypothyroidism with inadequate treatment and contributing to death
- Volume overload with subsequent pulmonary edema in a patient unable to tolerate volume due to myxedema contributing to patient death
- Cascade with unrecognized and untreated hypothyroidism despite admission with thyroid-stimulating hormone of 28.2 (normal is 0.4-4) leading to myxedema resulting in cardiac arrest-pulseless ventricular tachycardia
- Hyponatremia secondary to medication (spironolactone); transferred to an acute-care hospital

Acute kidney injury or insufficiency

- Acute kidney injury due to vancomycin

Other medication-related adverse events

- Omission of appropriate care for life-threatening digoxin level
- Hypotension with bradycardia and unresponsiveness due to antihypertensive medication (lisinopril and clonidine)
- Unrecognized Stevens-Johnson Syndrome secondary to allopurinol

Adverse Events Related to Patient Care

Respiratory issues (other than infections)

- Cascade with aspiration with large amount of gastric contents in tracheal tube followed by cardiac arrest and failed resuscitation attempt contributing to death
- Respiratory distress associated with inadequate monitoring leading to intubation and death
- Aspiration leading to transient hypoxemia with reduced gas exchange and preexisting malignant pleural effusions requiring treatment at an acute-care hospital
- Cascade with significant pleural effusion with failure to recognize and treat leading to respiratory acidosis and cardiac arrest during hemodialysis
- Respiratory failure with delayed response resulting in an acute-care hospital admission

Venous thromboembolisms, deep vein thrombosis, or pulmonary embolisms

- Acute pulmonary embolus with inadequate prevention contributing to death
- Deep vein thrombosis of bilateral lower extremities with inadequate preventive care
- Pulmonary embolism resulting in transfer to intensive care unit associated with subtherapeutic INR after premature stopping of heparin
- Right upper lobe pulmonary embolus

Fluid, electrolyte, and metabolic disorders (not medication-related)

- Hyperkalemia of 6.7 resulting in asystole/death
- Cascade with hyperkalemia (potassium of 6.2) leading to dysrhythmia due to failed hemodialysis and eventually resulting in related acute-care hospital admission
- Hyperkalemia ultimately treated successfully with fludrocortisone after delayed recognition

Pressure ulcers

- New sacrococcygeal pressure ulcer that progressed to stage 4 during LTCH stay
- Pressure ulcer of heel that progressed from stage 2 to unstageable during the LTCH stay
- Progression from stage 2 to stage 4 sacral pressure ulcer
- Heel pressure ulcer

Bleeding not associated with anticoagulants

- Cascade with gastrointestinal bleeding leading to hypotension, transfusion, and norepinephrine infusion with delay in sending to an acute-care hospital
- Acute gastrointestinal bleeding with delayed transfer to an acute-care hospital for treatment

Acute kidney injury or insufficiency

- Cascade initiated by failed catheter replacement resulting in urethral obstruction leading to renal failure and ultimately death (patient family refused dialysis)

Delirium and other mental status changes not associated with medication

- Inadequately treated and monitored patient with oliguric renal failure who self-removed four hemodialysis catheters leading to death
- Cascade beginning with delirium leading to the dislodgement of the tracheal tube by the patient resulting in desaturation, hypoxemia, replacement of the tube, and aspiration pneumonia

Fall with injury

- Fall with recurrent right hip fracture associated with inadequate monitoring

Volume overload

- Acute pulmonary edema due to volume overload from blood transfusion

Urinary retention

- Cascade with delayed diagnosis of urinary retention leading to nausea/vomiting and aspiration pneumonia

Temporary Harm Events Related to Medication

Hypoglycemic events

- Hypoglycemia (blood glucose of 38)
- Hypoglycemia (blood glucose of 40, 46, 47)
- Hypoglycemia (blood glucose of 44, 29)
- Hypoglycemia (blood glucose of 44, 45)
- Hypoglycemia (blood glucose of 45)
- Hypoglycemia (blood glucose of 45, 49)
- Hypoglycemia (blood glucose of 46)
- Hypoglycemia (blood glucose of 48, 40)
- Hypoglycemia (blood glucose 41, 40, documented as <40, 40, 46, 41, 30, 39)
- Hypoglycemia (blood glucose documented as <49)
- Hypoglycemia (blood glucose of 21, 45, 44, 45)
- Hypoglycemia (blood glucose of 32)
- Hypoglycemia (blood glucose of 33, repeat 38)
- Hypoglycemia (blood glucose of 34, 38, 41)
- Hypoglycemia (blood glucose of 36)
- Hypoglycemia (blood glucose of 39)
- Hypoglycemia (blood glucose of 40)
- Hypoglycemia (blood glucose of 41)
- Hypoglycemia (blood glucose of 41)
- Hypoglycemia (blood glucose of 42)
- Hypoglycemia (blood glucose of 42)
- Hypoglycemia (blood glucose of 44)
- Hypoglycemia (blood glucose of 46)
- Hypoglycemia (blood glucose of 47, 48)
- Hypoglycemia (blood glucose of 49)
- Hypoglycemia (blood glucose of 49, 37)
- Hypoglycemia with lethargy (blood glucose of 38)
- Hypoglycemia with lethargy (blood glucose of 39)
- Hypoglycemia with lethargy (blood glucose of 48)
- Hypoglycemia with near syncope (blood glucose of 51)

- Hypoglycemia with symptoms (blood glucose of 30)
- Hypoglycemia with weakness (blood glucose of 30)
- Hypoglycemic episode (blood glucose of 46)

Delirium and other changes in mental status

- Delirium while on multiple sedating medications (antipsychotic [ziprasidone] and anti-anxiety [lorazepam])
- Delirium while on pain and anti-anxiety medication (opioid and benzodiazepine [diazepam])
- Mental status changes due to opioid analgesics (intravenous hydromorphone)
- Somnolence due to anti-anxiety medications (lorazepam and clonazepam), nonstandard prescription of benzodiazepines
- Altered mental status while on anti-anxiety benzodiazepine (clonazepam) medication
- Cascade in which somnolence in a patient with history of respiratory failure and multiple sedating (psychotropic and pain) medications with frequent falls resulting in back pain
- Cascade with oversedation and hypotension while on multiple opioids (oxycodone/acetaminophen and fentanyl patch) resulting in multiple falls with pain
- Confusion while on antiemetic (treatment of vomiting) medication (scopolamine patch)
- Delirium due to multiple medications (opioids and antidepressants)
- Delirium due to multiple sedating medications, including opioid pain medication (intravenous hydromorphone), multiple psychotropic medications, and gabapentin
- Delirium while on opioid medication (fentanyl)
- Hallucinations and agitation while on opioid analgesic medication (fentanyl and meperidine)
- Insomnia and anxiety related to polypharmacy
- Lethargy due to anti-anxiety medication (chlordiazepoxide)
- Lethargy while on antipsychotic (haloperidol) medication
- Lethargy while on multiple psychotropic medications (quetiapine, lorazepam, alprazolam) and opioid (fentanyl)
- Lethargy while on opioid given for pain (fentanyl)
- Oversedation due to opioid analgesic (hydrocodone)
- Oversedation while on anti-anxiety benzodiazepine (alprazolam) medication
- Somnolence while on anti-anxiety medication (alprazolam)
- Somnolence while on opioids (intravenous meperidine, hydrocodone, codeine) and antihistamine(diphenhydramine) medication

Constipation, obstipation, or ileus

- Constipation with abdominal pain due to opioid pain medication
- Constipation with abdominal pain due to opioids and immobility
- Abdominal distension and discomfort while taking opioid analgesic (methadone)
- Constipation with abdominal distension while on opioid medication (morphine and hydrocodone)
- Constipation with abdominal distension and pain following opioid medication (hydrocodone and intravenous morphine)
- Constipation with abdominal distension while on opioid pain medication (hydrocodone)
- Constipation with abdominal pain while on iron sucrose
- Constipation with bloating and x-ray revealing abundant rectal stool while on opioid pain medication (oxycodone) and iron (ferrous sulfate)

- Constipation with distended abdomen while on prn (as needed) hydromorphone associated with inadequate care plan
- Constipation with fecal impaction and delayed diagnosis while on opioid pain medication (tramadol)
- Constipation/ileus with nausea while on opioids
- Fecal impaction with abdominal pain while on iron (ferrous sulfate)
- Constipation substantiated by x-ray with abdominal pain while on opioid medication (hydrocodone)

Bleeding associated with anticoagulants

- Bleeding from penis with catheter change due to anticoagulants (enoxaparin and warfarin)
- Gastrointestinal bleeding while on anticoagulant (heparin)
- Gastrointestinal bleeding while on anticoagulant (warfarin) with prolonged INR (excessive anticoagulation)

Acute kidney injury or insufficiency

- Acute kidney injury while on antibiotic (vancomycin) and angiotensin-convertor enzyme (ACE) inhibitor (lisinopril)
- Acute kidney injury while on diuretics (spironolactone and furosemide)

Allergic reactions

Diarrhea

- Diarrhea while on laxatives

Other medication-related temporary harm events

- Dizziness while on opioid (hydromorphone) medication
- Seizure related to withdrawal of anticonvulsant medication (levetiracetam)

Temporary Harm Events Related to Infections

Soft tissue or other nonsurgical infections

- Bacterial conjunctivitis
- Conjunctivitis
- Conjunctivitis
- Conjunctivitis, likely viral
- Fungal infection (axilla)
- Fungal infection/rash (scrotum and penis)
- Impetigo due to *Staphylococcus*
- Local infection at site of PICC insertion
- Skin infection - *Sarcoptes scabiei* var. *hominis* (Scabies mites)

Thrush

Urinary tract infections associated with urinary catheters

- CDC-defined catheter-associated urinary tract infection (CAUTI)
- CDC-defined CAUTI
- CDC-defined CAUTI
- CDC-defined CAUTI
- CDC-defined CAUTI

- CDC-defined CAUTI
- CDC-defined CAUTI
- CDC-defined CAUTI
- CDC-defined CAUTI
- Clinical urinary tract infection associated with urinary catheter
- Urinary tract infection associated with catheter

Clostridium difficile infection

- *Clostridium difficile* infection

LTCH-acquired respiratory infections

Surgical-site infections

- Cellulitis at PEG site
- Infection at site of ankle surgery
- Late wound infection and subsequent partial dehiscence due to inadequate wound care
- Wound infection of below knee amputation suture line with small dehiscence (rupture)

Vascular-catheter associated infections

- Cellulitis/abscess at PICC site
- Central line infection followed by sepsis
- PICC line associated with septicemia (*Klebsiella*)

Other infection-related temporary harm events

- Cascade with sepsis leading to acute kidney injury leading to mental status changes

Temporary Harm Events Related to Patient Care

Pressure ulcers

- Stage 2 nasal pressure ulcer associated with face mask
- Deep tissue injuries related to ace wraps
- New stage 2 sacral pressure ulcer
- Progression of stage 2 to stage 3 sacral pressure ulcer
- Sacral pressure ulcer
- Stage 1 coccygeal pressure ulcer
- Stage 1 facial pressure ulcer associated with BiPAP mask
- Stage 1 pressure ulcer heel
- Stage 1 pressure ulcer on sacrum
- Stage 1 sacral pressure ulcer

- Stage 2 pressure ulcer of sacrum
- Stage 2 pressure ulcer of sacrum
- Suspected deep tissue injury of sacral area
- Suspected deep tissue injury of the sacrum
- Worsening pressure ulcer of sacrum

Bleeding not directly associated with anticoagulants

- Gross hematuria due to trauma from urinary catheter placement
- Bleeding at insertion site of venous catheter due to cap falling off PICC line while on anticoagulant medication (warfarin) and antibiotic (linezolid)
- Bleeding from tracheostomy with hardware-induced soft tissue injury
- Hematuria (blood in urine) associated with traumatic urinary catheterization
- Hematuria, likely mechanical from the Foley catheter while on anticoagulants (enoxaparin, clopidogrel, and aspirin)
- Inadequate monitoring of gastrointestinal bleeding with blood loss anemia (developing over 8 days) requiring transfusions
- Traumatic catheterization with bleeding following non-function of urinary catheter

Venous thromboembolism, deep vein thrombosis, or pulmonary embolism

- Deep vein thrombosis of the lower extremity with inadequate preventive care
- Deep vein thrombosis of upper extremity with suspected infection at intravenous site

Skin tear, abrasion, or breakdown

- Urethral erosion with bloody drainage with catheter in place
- Skin maceration from gastric secretions due to PEG leak
- Skin tear and abrasion on sacral area
- Skin tear forearm

Fall with injury

- Fall with laceration forehead
- Fall with soft tissue hematoma over left maxillary sinus

Acute kidney injury or insufficiency

- Hyperkalemia secondary to acute kidney injury

Respiratory issues (other than infections)

- Aspiration of tube feeding

Volume overload

- Episode of congestive heart failure from fluid overload
- Lower extremity edema due to fluid overload in patient with latent congestive heart failure

Constipation, obstipation, or ileus

- Ileus on abdominal x-ray with abdominal pain and inadequate monitoring

Fluid, electrolyte, and metabolic disorders (not medication related)

- Cascade with diarrhea leading to electrolyte imbalance leading to ventricular tachycardia
- Hyperkalemia (potassium of 6.2)

Other patient-care-related temporary harm events