

## Supplemental Digital Content 1

### Examples of adverse events and errors.

#### Adverse events

##### Case 1

A 72-year-old man with diabetes was seen in the emergency department (ED) due to disturbed consciousness. He had congestive heart failure and received maintenance hemodialysis for chronic renal failure. A bedside blood sugar test revealed hypoglycemia. The patient was treated with 800 cc of intravenous glucose over 6 hours. He was discharged once his consciousness and blood glucose levels returned to normal. The patient revisited the ED 12 hours later with severe dyspnea and received emergency hemodialysis for acute pulmonary edema. He recovered from mechanical ventilator support 3 days later and was discharged home after 5 days of hospital treatment.

Physical impact: Temporary severe harm

Type: Clinical performance

##### Case 2

A 65-year-old woman visited the ED with dizziness and a sensation of facial numbness. She was discharged home 3 hours later with the diagnosis of peripheral type vertigo. She was referred to the ED by a neurologist's clinic within 1 day due to persistent dizziness and ataxia. A brain imaging study revealed acute infarction in the pons and cerebral peduncle for which she was admitted to the intensive care unit. She was discharged home 1 week later without neurological sequelae.

Physical impact: No detectable harm

Type: Clinical performance

#### Errors

##### Case 3

A 67-year-old woman was boarded in the observation area awaiting ward admission. Fever developed and septic work-up examinations were ordered. Blood samples for two blood culture bottles were collected from a single vein puncture site.

Type: Clinical performance

##### Case 4

A 45-year-old man was seen in ED with flank pain. The clinical diagnosis was urolithiasis. The intramuscular injection of a pain control drug was delayed for 45 minutes because of short staffing during the lunch hour.

Type: Clinical performance

#### Events identified as not adverse event or error

##### Case 5

A 55-year-old man visited the ED with a 3-week history of left-sided weakness and strange behavior. **An examination by the neurology team** was arranged on the same day and the patient was referred back to

the ED by a neurologist for a stroke survey. A brain imaging study revealed a tumor in the frontal lobe. The patient was admitted for further management. He underwent tumor resection, and a pathology examination revealed no malignant tissue.

Reason: Natural disease course, usual clinical practice

#### Case 6

A 52-year-old man visited the ED with upper abdominal pain and vomiting. Physical and laboratory examination findings of blood tests and urinalysis were normal. He received pain control medication and was discharged **4 hours later once free of symptoms**. He revisited the ED 3 days later for recurrent abdominal pain. Abdominal distention and mild right-sided abdominal tenderness were noted. An abdominal computed tomography examination revealed a small right renal infarction. He was admitted and treated with heparin. The patient was discharged 5 days later without any renal function impairments.

Reason: Natural disease course, rare presentation