Hypoglycemia in inpatients receiving insulin (American Society of Health System Pharmacists Safe Use of Insulin measure)

This measure is part of a set aiming to increase medication safety and avoid adverse drug events. Adverse drug events are defined as any injuries resulting from medication use, including physical or mental harm, or loss of function. This is a measure of hypoglycemia in inpatients receiving insulin.

**Name and date of specifications used:** ADE-13, American Society of Health System Pharmacists (ASHP) Safe Use of Insulin measure endorsed by Health Research & Education Trust (HRET) Partnership for Patients program funded by CMS, and used by more than 1600 hospitals nationwide. It is reported by hospitals to the Oregon Association of Hospitals and Health Systems (OAHHS) as part of the Partnership for Patients program.

**URL of Specifications:** No formal specifications are available.

**Measure Type:**
- HEDIS
- Joint Commission
- Survey
- Other
- Specify: American Society of Health System Pharmacists Safe Use of Insulin and Partnership for Patients measure

**Data Source:** Hospitals will track these data internally (through electronic health records, chart abstractions, or another manual process). OAHHS will collect these data from DRG hospitals via its online reporting tool and report to OHA.

**Measurement Period:**
- Year One: October 1, 2013 – September 30, 2014 (baseline)
- Year Two: October 1, 2014 – September 30, 2015 (performance year)

**Benchmark:** 7% or below

The equation used is \((N/D)\times100\) and performance is reported as a percentage. Hospitals must submit numerators and denominators as detailed below.

**Improvement from Baseline Target:** Minnesota method with 1 percentage point floor

---

1 Additional information on surveillance of adverse drug events can be found here: [http://www.health.gov/hai/ade.asp#final](http://www.health.gov/hai/ade.asp#final).
2 OHA reserves the right to contact hospitals directly or through OAHHS with additional questions about data submitted as part of the program. Hospitals must be able to provide documentation of data submitted should it be requested.
3 Information on improvement target calculations can be found in the ‘Hospital Improvement Target Brief’, here: [http://www.oregon.gov/oha/Pages/Hospital-Baseline-Data.aspx](http://www.oregon.gov/oha/Pages/Hospital-Baseline-Data.aspx).
Measure Details

Note that data are tracked on a monthly basis, but at the end of the program monthly data will be aggregated across the 12 months of the performance year to assess performance against benchmark. Guidance on how data will be aggregated for baseline year are available here: [http://www.oregon.gov/oha/Pages/Hospital-Baseline-Data.aspx](http://www.oregon.gov/oha/Pages/Hospital-Baseline-Data.aspx).

**Data elements required denominator:** Distinct count of inpatient admissions in which the patient was administered insulin during the tracked month. Count is distinct per person *per admission*, and should be reported in the month in which the patient is discharged. See ‘Additional Information’ below for more detail. Inpatients receiving insulin during the tracked month.

**Required exclusions for denominator:** No emergency department patients; limited to inpatients.

**Deviations from cited specifications for denominator:** None.

**Data elements required numerator:** Hypoglycemia in inpatients receiving insulin (e.g. hypoglycemia defined as plasma glucose concentration of 50 mg per dl or less) during the tracked month. The numerator is a distinct count of admissions in which patients who have a plasma glucose concentration of 50 mg per dl or less at any time during their admission after receiving insulin; therefore, one patient with five low blood sugars during the same hospitalization is only counted once in the numerator.

**Required exclusions for numerator:** None.

**Deviations from cited specifications for numerator:** None.

**Explanation of Exclusions and Deviations**

List other required exclusions and or deviations from cited specifications not already indicated: None.

**Additional Information**

**Additional Denominator and Numerator Clarification:**

The denominator for this measure is a distinct count of admissions per patient in which insulin is administered (i.e., a patient is counted once per admission in which insulin is administered). The numerator is also a distinct count per admission per patient (after a patient receives insulin): A patient is counted in the numerator once if he or she receives insulin at any point in that admission and subsequently his/her plasma glucose concentration is 50 mg per dl.
or less.

For example, say a patient is admitted from June 1-20 and receives insulin three times. During this period the patient has a plasma glucose concentration \( \leq 50 \text{ mg per dl} \) two times after the insulin was administered. She would be counted once in the denominator (because she received insulin during this admission), and only once in the numerator (because the low blood sugar is only counted once per admission).

Say she is again admitted from August 16 – September 3 and receives insulin once, but her blood sugar is never below the threshold. In this case, she is again counted in the denominator for September (since she received insulin during this admission and was discharged in September), but is not counted in the numerator (as her blood sugar stayed at a safe level).

Over the course of the measurement year, this patient would be counted twice in the denominator (as she received insulin in two separate admissions), and only once in the numerator (as in only one admission did her plasma glucose concentration fall below the threshold).

**Additional Clarification on Timing between Administration of Insulin and Hypoglycemia:**

The episode of hypoglycemia in inpatients receiving insulin should be within the expected duration of the insulin given. For example, if a patient receives a dose of rapid acting insulin, you may expect to see a hypoglycemia event within 3-5 hours. If a patient receives intermediate-acting insulin, you may see a hypoglycemia event within the 18-24 hour duration of the medication.

### Version Control

- These specifications were updated on 3 December 2014 to include clarification on the numerator and denominator (to make clear that the count is per patient per admission), and to include information on the interval between administration of insulin and hypoglycemia. In addition, it was also noted that patients should be reported in the month in which they are discharged.

- These specifications were amended on 23 October 2014 to correct a typo incorrectly noting ‘high’ versus ‘low’ blood sugars.