Guide to Finding Your Hospital’s Adverse Drug Event (ADE) Rates

Step-by-Step Data Collection Guide for Collecting the Six ADE Measures
Anticoagulation Outcome Measure

- International Normalized Ratio (INR) >5 per 1,000 Patient Days for Patients on Warfarin
  - **Numerator:** Count the number of days an INR reading is > 5. Throw out repeat same-day INRs > 5. In other words, a patient with multiple INRs above 5 on a single day is only counted once. A patient with multiple INRs above 5 on different days is counted once for each day the INR is elevated. Any INR above 5 after admission should count (exclude the emergency department).
  
  - **Denominator:** Count the number of inpatient days (i.e., length of stay) for patients on warfarin. The entire length of stay is counted for the patient even if warfarin is administered only on a subset of days. For example, if a patient received warfarin once during their 10-day stay, this would count as 10 patient days.
    - ALTERNATIVE: Count the number of total inpatient days.
  
  - **Calculate the rate** by taking numerator/denominator * 1,000. Numerators can be obtained from the lab or electronic health record (EHR), denominators can be obtained from the EHR, and the resulting rate can be calculated using the aforementioned formula.
  
  - For example, we can use the EHR/lab to find that, in the month of January, we had 50 INR readings > 5, but 10 of those were repeat same-day INRs > 5. So 40 is our numerator. Then we look at the number of inpatient days for patients on warfarin. We find that there are 500 patient days for patients that received warfarin. So the rate is 40/500 * 1000 = 80 INR > 5 per 1,000 patient days for patients on warfarin.
  
  - **Helpful Hint:** Very few situations other than warfarin can cause an INR > 5, so assuming all excessive INRs are from warfarin can eliminate the need to cross-check.
Anticoagulation Process Measure

• Percentage of Daily INR for Patients on Warfarin
  – **Numerator:** Count the number of days any INR lab result is available. Throw out repeat same-day INRs; in other words, a patient with multiple INRs on a single day is only counted once. Any INR available should count (can include the emergency department).
  – **Denominator:** Count the number of inpatient days (i.e., length of stay) for patients on warfarin. The entire length of stay is counted for the patient even if warfarin is administered only on a subset of days. For example, if a patient received warfarin once during their 10-day stay, this would count as 10 patient days.
    • ALTERNATIVE: Count the number of total inpatient days.
  – **Calculate the percentage** by taking the numerator/denominator *100.
  – For example, we can use the EHR/lab to find that, in the month of January, we had 200 INR lab results, but 45 were repeat same-day INRs. So 155 is our numerator. Then we look at the number of inpatient days for patients on warfarin. We find that there are 500 patient days for patients that received warfarin. So the percentage is 155/500*100 = 31% daily INR for Patients on warfarin.
Hypoglycemia Outcome Measure

• Blood Glucose (BG) < 50 per 1,000 Patient Days for Patients on Insulin
  – **Numerator:** Count the number of days blood glucose value is < 50 mg/dL. Throw out repeat same-day BGs < 50; in other words, a patient with multiple values below 50 on a single day is only counted once. A patient with multiple BGs below 50 on different days is counted once for each day the BG is low. Any BG below 50 should count (exclude the emergency department).
  – **Denominator:** Count the number of inpatient days (i.e., length of stay) for patients on any insulin. The entire length of stay is counted for the patient even if insulin is administered only on a subset of days. For example, if a patient received insulin once during their 10-day stay, this would count as 10 patient days.
  – **ALTERNATIVE:** Count the number of total inpatient days.
  – **Calculate the rate** by taking numerator/denominator *1,000. Numerators can be obtained from the lab or EHR, denominators can be obtained from the EHR, and the resulting rate can be calculated using the aforementioned formula.
  – For example, we can use the EHR/lab to find that, in the month of January, we had 100 BG readings < 50, but 15 of those were repeat same-day values. So 85 is our numerator. Then we look at the number of inpatient days for patients on insulin. We find that there are 600 patient days for patients that received insulin. So the rate is 85/600 *1000 = 141.6 BG < 50 per 1,000 patient days for patients on insulin.
  – **Helpful Hint:** Very few situations other than insulin can cause BG <50, so assuming all are from insulin can eliminate the need to cross-check.
Hypoglycemia Process Measure

• Percentage of Use of Basal-Bolus Insulin for Glycemic Control in Patients on Insulin
  – **Numerator:** Count the number of days a basal-bolus insulin regimen (which means a long/intermediate-acting insulin is included) was given. Throw out repeat same-day doses; in other words, a patient with multiple doses of basal insulin on a single day is only counted once. A patient with multiple doses of basal insulin on different days is counted once for each day the basal insulin is given. Any insulin that is not short/fast-acting should count in the numerator.
  – **Denominator:** Count the number of inpatient days (i.e., length of stay) for patients on any insulin. The entire length of stay is counted for the patient even if insulin is administered only on a subset of days. For example, if a patient received insulin once during their 10-day stay, this would count as 10 patient days.
    • **ALTERNATIVE:** Count the number of total inpatient days.
  – **Calculate the percentage** by taking the numerator/denominator *100.
  – For example, we can use the EHR/lab to find that, in the month of January, we administered 200 doses of basal-bolus insulin, but 80 were repeat same-day doses. So 120 is our numerator. Then we look at the number of inpatient days for patients on any insulin. We find that there are 500 patient days for patients that received insulin. So the percentage is 120/500 * 100 = 24% use of basal-bolus insulin for patients on insulin.
Opioid Outcome Measure

- **Naloxone Use for Reversal of Opioid Over-Sedation per 1,000 Patient Days**
  - **Numerator**: Count the number of days where naloxone was given. Throw out repeat same-day doses; in other words, a patient with multiple doses of naloxone on a single day is only counted once.
  - **Denominator**: Count the number of inpatient days (i.e., length of stay) for patients on any opioid. The entire length of stay is counted for the patient even if an opioid is administered only on a subset of days. For example, if a patient received an opioid once during their 10-day stay, this would count as 10 patient days.
    - **ALTERNATIVE**: Count the number of total inpatient days.
  - **Calculate the percentage** by taking the numerator/denominator *100.
  - For example, we can use the EHR/lab to find that, in the month of January, we administered 90 doses of naloxone, but 30 were repeat same-day doses. So 60 is our numerator. Then we look at the number of inpatient days for patients on any opioid. We find that there are 600 patient days for patients that received an opioid. So the percentage is 60/600*100 = 10% naloxone use for patients on opioids.
  - **Helpful Hint**: Although naloxone is also used for reversal of opioid over-sedation after procedures, the effort required to identify and eliminate those situations would create an unnecessary burden. This measure is “good enough” to track improvement over time.
Opioid Process Measure

• Percentage of Opioid Risk Assessment in Patients on an Opioid Agent
  – **Numerator:** Count the number of days where an opioid risk assessment (e.g., Pasero Opioid-Induced Sedation Scale [POSS] or Richmond Agitation and Sedation Scale [RASS]) was used for adult patients on an opioid agent (exclude the emergency department and operating rooms).
  
  – **Denominator:** Count the number of inpatient days (i.e., length of stay) for adult patients on an opioid agent, excluding the emergency room and operating rooms. The entire length of stay is counted for the patient even if an opioid is administered only on a subset of days. For example, if a patient received an opioid once during their 10-day stay, this would count as 10 patient days.
    • ALTERNATIVE: Count the number of total inpatient days.
  
  – **Calculate the rate** by taking numerator/denominator *1,000. Numerators and denominators can be obtained from the EHR and the resulting rate can be calculated using the aforementioned formula.

  – For example, we can use the EHR to find that, in the month of August, we had 280 risk assessments completed, so 280 is our numerator. Then we look at the number of inpatient days for patients on opioids. We find that there are 1,300 patient days for patients that received opioids. So the rate is 280/1,300 *1,000 = 215 naloxone use for reversal of over-sedation per 1,000 patient days for patients on opioids.
Technical Assistance
Measure Support
contact via email:
measurehelp@hsaghiin.org
or via telephone at:
844.472.4269