2022 Hospitalist – Clinical Performance Registry (H-CPR)
Measure Specifications Manual

H-CPR (Hospitalist – Clinical Performance Registry) Measure #14
Adopted from 2017 Specifications Manual for National Hospital Quality Measure VTE-1

Measure Title: Venous Thromboembolism (VTE) Prophylaxis

Inverse Measure: No

Measure Description: Percentage of Adult Patients Who Had VTE Prophylaxis Ordered at the Time of Admission OR Have Documentation of Reason for No VTE Prophylaxis

National Quality Strategy Domain: Patient Safety

Care Setting: Inpatient/Hospital

Published Specialty: Critical Care; Hospitalist

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Patient Safety

Meaningful Measure Area: Preventable Healthcare Harm

Current Clinical Guideline: This measure is derived from National Hospital Quality Measure VTE-1

Clinical Category: VTE

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients who had VTE prophylaxis ordered at the time of admission OR have documentation of reason for no VTE prophylaxis orders

Numerator Options

- Performance Met (either of below qualify):
  - Acceptable VTE Prophylaxis (Note: This is not meant to be an inclusive list of all available anticoagulants; rather it represents current information available at the time of publication):
    - Pharmacologic Prophylaxis: Low dose unfractionated heparin (LDUH), Low molecular weight heparin (LMWH), Warfarin/Coumadin, IV Factor Xa Inhibitor such as Arixtra/Fondaparinux, Novel Oral Anticoagulant (NOAC)
    - Mechanical Prophylaxis: Intermittent pneumatic compression devices (IPC), Graduated compression stockings (GCS), Venous foot pumps (VFP), Sequential compression devices (SCD)
  - Acceptable Reason(s) For No VTE Prophylaxis:
    - There is explicit documentation indicating that the patient is at low risk for

VTE (i.e., Patient at low risk for VTE, No VTE Prophylaxis needed) OR
    - There is explicit documentation of a contraindication to both mechanical prophylaxis AND documentation of a contraindication to pharmacological prophylaxis.
- Performance Not Met: No VTE prophylaxis ordered at the time of admission AND no documentation of reason for no VTE prophylaxis order

Numerator Exclusions: None

Denominator:
- Inpatients greater than or equal to 18 years of age evaluated by the Eligible Professional (E/M Codes 99221-99223, 99231-99233, 99238-99239, 99291-99292 AND Place of Service Indicator: 21) PLUS
- LOS ≥ 2 days and ≤ 120 days
- Patients with Comfort Measures Only documented at time of admission are excluded
- Patients enrolled in clinical trials are excluded
- NOTE: This measure is to be submitted a minimum of once per hospitalization for patients seen during the performance period.

Denominator Exclusions: None

Risk Adjustment: No

Rationale:
(Adopted from 2017 Specifications Manual for National Hospital Quality Measure VTE-1) Hospitalized patients at high-risk for VTE may develop an asymptomatic deep vein thrombosis (DVT), and die from pulmonary embolism (PE) even before the diagnosis is suspected. The majority of fatal events occur as sudden or abrupt death, underscoring the importance of prevention as the most critical action step for reducing death from PE (Geerts, 2008).

The estimated annual incidence of deep-vein thrombosis (DVT) and pulmonary embolism (PE), known collectively as venous thromboembolism (VTE), is approximately 900,000 (Geerts, 2008). Approximately two-thirds of cases of DVT or PE are associated with recent hospitalization. This is consistent with the 2001 report by The Agency for Healthcare Research and Quality (AHRQ). AHRQ indicates that “the appropriate application of effective preventive measures in hospitals has major potential for improving patient safety by reducing the incidence of venous thromboembolism” (Shojania, 2001).

Despite its proven effectiveness, rates of appropriate thromboprophylaxis remain low in both medical and surgical patients. A recent analysis from the ENDORSE survey, which evaluated prophylaxis rates in 17,084 major surgery patients, found that more than one third of patients at risk for VTE (38%) did not receive prophylaxis and that rates varied by surgery type (Cohen, et al., 2008).

In a review of evidence-based patient safety practices, the Agency for Healthcare Research and Quality defined thromboprophylaxis against VTE as the "number one patient safety practice" for hospitalized patients (Shojania, 2001). Updated “safe practices” published by

the National Quality Forum (NQF) recommend routine evaluation of hospitalized patients for risk of VTE and use of appropriate prophylaxis (National Quality Forum. National Voluntary Consensus Standards for Prevention and Care of Venous Thromboembolism, 2006).

As noted by the ACCP, a vast number of randomized clinical trials provide irrefutable evidence that thromboprophylaxis reduces VTE events, and there are studies that have also shown that fatal PE is prevented by thromboprophylaxis (Geerts, et al. 2008).

Selected References: (Adopted from 2017 Specifications Manual for National Hospital Quality Measure VTE-1)

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #16
Referenced Society of Post-Acute and Long-Term Care Medicine's Policy D-14: Promotion of Physician's Orders for Life-Sustaining Treatment Paradigm and the Institute of Medicine of the National Academies: Key Recommendations on Addressing End of Life

Measure Title: Physician's Orders for Life-Sustaining Treatment (POLST) Form

Inverse Measure: No

Measure Description: Percentage of Patients Aged 65 Years and Older with Physician's Orders for Life-Sustaining Treatment (POLST) Forms Completed

National Quality Strategy Domain: Communication and Care Coordination

Care Setting: Post-Acute Care, Hospital, Emergency Department

Published Specialty: Critical Care; Emergency Medicine; Hospitalist; Post-Acute Care

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Care Coordination

Meaningful Measure Area: End of Life Care According to Preferences

Current Clinical Guideline: AMDA (The Society of Post-Acute and Long-Term Care Medicine) and the Institute of Medicine (IOM) of the National Academies support and promote the Physician's Orders for Life-Sustaining Treatment Paradigm

Clinical Category: End of Life Care

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients with a completed Physician's Orders for Life-Sustaining Treatment (POLST) form

Definitions:

- Physician's Orders for Life-Sustaining Treatment (POLST) form is defined as a legally recognized, transportable and actionable medical order – intended for seriously ill patients at high risk for mortality – that remains with the patient whether at home, in the hospital, or in a care facility; the form indicates patient-specified medical treatment preferences and is signed by the authorizing physician, physician assistant (PA), or nurse practitioner (NP)
- The following elements must be present and completed in the Physician's Orders for Life-Sustaining Treatment (POLST) form:
    - Legally recognized decision maker verification

    - Cardiopulmonary Resuscitation (CPR) preferences (e.g., attempt CPR, DNR)
    - Medical Intervention (e.g., full code, comfort measures, limited/selective treatments)
    - Signed by eligible healthcare provider (e.g., physician, PA, or NP)
- NOTE: The approved version and title of the Physician's Orders for Life-Sustaining Treatment (POLST) form may differ slightly from state to state; variations in forms are acceptable as long as the elements listed above are present

Numerator Options

- Performance Met:
    - Existing Physician's Orders for Life-Sustaining Treatment (POLST) form was acknowledged and documented in the medical record OR
    - Physician's Orders for Life-Sustaining Treatment (POLST) form was completed or updated and documented in the medical record OR
    - Documented reason for not acknowledging, completing or updating Physician's Orders for Life-Sustaining Treatment (POLST) form (e.g., patient refuses, patient is unresponsive or does not have capacity to complete, legally recognized decision maker is not present)
- Performance Not Met: Physician's Orders for Life-Sustaining Treatment (POLST) form was not acknowledged, completed or updated, reason not specified

Numerator Exclusions: None

Denominator:

- Adult patients aged ≥ 65 years evaluated by the Eligible Professional (E/M Codes 99221-99223, 99231-99233, 99238-99239, 99291-99292, 99304-99310, 99315, 99316)
- NOTE: This measure is to be submitted a minimum of once per hospitalization for patients seen during the performance period.

Denominator Exclusions: None

Risk Adjustment: No

Rationale:

For patients and their family caregivers, control over treatment decisions is a high priority with an illness diagnosed as serious and life-limiting. (Singer et al, 1999) The Physician Orders for Life-Sustaining Treatments (POLST) form is designed to supplement and build upon advanced care planning and advanced directives. Unlike advanced directives, which are often generalized and require intermediaries on the patient's behalf (Bomba et al, 2012), the POLST form allows patients to clearly communicate their wishes regarding medical treatment and ensure that those wishes are honored across the care continuum by codifying their advanced directives as portable medical orders. Clinicians are able to focus on treatments desired by patients and avoid treatments that are unwanted by patients.

These legally recognized, HIPAA-compliant forms follow the patients wherever they go (e.g., home, skilled nursing facility, acute care facility), and are intended to be completed for patients who are seriously ill and unlikely to recover (Moss et al., 2008). The POLST form includes key preferences (e.g., DNR status) that can be missed during patient transfers between facilities. The use of the POLST form prevents unwanted hospitalizations, readmissions and invasive medical procedures for patients who are near death. (Lee et al, 2000) AMDA (The Society of Post-Acute and Long-Term Care Medicine) and the Institute of Medicine (IOM) of the National Academies support and promote the Physician's Orders for Life-Sustaining Treatment Paradigm.

In a recent study, POLST completion was 49% in CA nursing home residents, identifying potential opportunity for quality improvement (Jennings).

References:

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #17
Referenced National Pressure Ulcer Advisory Panel's 2014 Prevention and Treatment of Pressure Ulcers: Clinical Practice Guidelines

Measure Title: Pressure Ulcers – Risk Assessment and Plan of Care

Inverse Measure: No

Measure Description: Percentage of Adult Post-acute Facility Patients That Had a Risk Assessment for Pressure Ulcers and a Plan of Care for Pressure Ulcer Prevention/Treatment Completed

National Quality Strategy Domain: Patient Safety

Care Setting: Post-Acute Care

Published Specialty: Post-Acute Care

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Patient Safety

Meaningful Measure Area: Preventable Healthcare Harm

Current Clinical Guideline: This measure aims to reduce the incidence of pressure ulcers which are included in the AHRQ PSI-90; it also supports the National Pressure Ulcer Advisory Panel's Prevention and Treatment of Pressure Ulcers Clinical Practice Guidelines

Clinical Category: Pressure Ulcers

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Adult Post-acute Facility Patients that Had a Risk Assessment for Pressure Ulcers and a Plan of Care for Pressure Ulcer Prevention OR Treatment Documented

Definitions

- Pressure ulcer: Localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear.
- Risk assessment:
    - Nationally recognized scale (e.g., Braden Scale or Braden Q Scale)
    - Nutrition
    - Activity and Mobility Limitations
    - History of skin breakdown

    - Cognition
- Plan of care – Prevention:
    - Scheduled skin integrity assessments
    - Minimize friction and shear
    - Minimize pressure with off-loading
    - Manage moisture
    - Maintain adequate nutrition and hydration
- Plan of care – Treatment:
    - Scheduled wound description/staging
    - Etiology of pressure (e.g., dementia, diapering)
    - Body repositioning
    - Nutritional status
    - Bacterial colonization/infection
    - Wound management (e.g., wound dressings, barrier creams, medicated creams, antibiotics, gauze)

Numerator Options

- Performance Met: Patients who did have pressure ulcer risk assessment AND a plan of care for pressure ulcer prevention or treatment documented
- Performance Not Met: Patients who did not have pressure ulcer risk assessment AND a plan of care for pressure ulcer prevention or treatment documented

Numerator Exclusions: None

Denominator:

- Adult patients aged ≥ 18 years evaluated by the Eligible Professional in the Post-acute Facility (E/M Codes 99304-99310, 99315, 99316)

Denominator Exclusions: None

Risk Adjustment: No

Rationale:
Pressure ulcers have been associated with an extended length of hospitalization, sepsis and mortality. About 60,000 United States patients are estimated to die yearly from hospital-acquired pressure ulcers and their complications. (Sullivan, 2013) Pressure ulcers cause deep muscle and tissue damage that can require lengthy recovery times, depending on various risk factors, including age, blood pressure, body temperature, and protein intake. Pressure ulcers are also associated with fatal septic infections. (Redelings et al., 2005; Brem et al., 2010; Lyder, 2003) In addition, the risk of pressure ulcer development increases among older patients and among patients with cardiovascular and endocrine diseases. The total cost for treatment of pressure ulcers in the United States is estimated at $11 billion per year (Ackroyd-Stolarz, 2011), with an approximate financial impact of $18.8 million of Medicare program payments annually. (Kandilov et al., 2014) In post-acute care facilities, pressure ulcers can cost Medicare as much as $15,000 in treatments (Kandilov et al., 2014) and can range between $500 to $40,000 per pressure ulcer treated. (Lyder, 2003)

The care provided by clinicians, which includes implementation of an effective risk

assessment and a plan of care for prevention of pressure ulcers or active treatment for patients with developing pressure ulcers, is critical to improving patient outcomes (Siem et al, 2003) and saving costs through comprehensive prevention efforts (Tippett, 2009). The National Pressure Ulcer Advisory Panel's recommendations state that clinicians are responsible for the following: reviewing risk factors and identifying potential causes for development of pressure ulcers; implementing focused interventions to reduce, stabilize, and remove risk factors; and implementing targeted pressure injury management protocols as needed.

Selected References:

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #18
Referenced NQF 0689: Percent of Residents Who Lose Too Much Weight

Measure Title: Unintentional Weight Loss – Risk Assessment and Plan of Care

Inverse Measure: No

Measure Description: Percentage of Adult Post-acute Facility Patients that Had a Risk Assessment for Unintentional Weight Loss and a Plan of Care for Unintentional Weight Loss Documented by Provider

National Quality Strategy Domain: Patient Safety

Care Setting: Post-Acute Care

Published Specialty: Post-Acute Care

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Patient Safety

Meaningful Measure Area: Preventive Care

Current Clinical Guideline: This measure is derived from NQF 0689: Percent of Residents Who Lose Too Much Weight

Clinical Category: Weight Loss

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Adult Post-acute Facility Patients that Had a Risk Assessment for Unintentional Weight Loss, Reason for Weight Loss (If Applicable) and a Plan of Care for Unintentional Weight Loss Documented

Definitions

- Weight loss episode: A loss of weight equal to or greater than 5% within a 30-day period or 10% within a 180-day period
    - Starting with the patient's weight closest to 30 days ago, the patient's current weight is equal to or less than 95%. Starting with the patient's weight closest to 180 days ago, the patient's current weight is equal to or less than 90%
- Risk Assessment:
    - Nationally recognized tool [e.g., Minimum Data Set (MDS) Swallowing/Nutritional Status, Mini Nutritional Assessment (MNA), Malnutrition Screening]
      Tool (MST)] which includes the following:

        - Weight
        - Height
        - Body Mass Index (BMI)
        - Recent Weight loss
        - Recent Intake (e.g. reduced intake, nutritional approach)
        - Swallowing Disorder
        - Severity of Disease
- Plan Of Care:
    - Oral nutrition support (e.g., therapeutic diet, mechanically altered diet, condition specific diet, fortified foods, and/or supplements)
    - Parenteral feeding
    - Enteral feeding tube
    - Patient-centered and/or condition-specific considerations (e.g., prescription of orexigenic alternatives to anorectic drugs, hydration and edema status, increased nutritional needs for patients at high risk of pressure ulcers, patient preferences and availability of choices for foods and fluids, feeding assistance by staff to enhance the resident's self-feeding ability, social stimulation throughout meal or snack period)

Numerator Options

- Performance Met: Patients who did have a risk assessment for unintentional weight loss, reason for weight loss (if applicable) AND a plan of care for unintentional weight loss documented
- Performance Not Met: Patients who did not have a risk assessment for unintentional weight loss, reason for weight loss (if applicable) AND a plan of care for unintentional weight loss documented

Numerator Exclusions: None

Denominator:

- Adult patients aged ≥ 18 years evaluated by the Eligible Professional in the Post-acute Facility (E/M Codes 99304-99310, 99315, 99316)
- NOTE: This measure is to be submitted a minimum of once per hospitalization for patients seen during the performance period.

Denominator Exclusions: None

Risk Adjustment: No

Rationale: Unintended and excessive weight loss is a significant problem among nursing home residents. CMS Nursing Home Compare reports that 7% of nursing home residents experience excessive weight loss nationally, and other studies report rates of up to 20% or 33% (Bell et al, 2016, Gaddey & Holder, 2014). Weight loss of 5% or more in one month or 10% or more over six months is considered unhealthy (Thomas et al., 2000), and studies have found an association between weight loss and increased morbidity and mortality (Sullivan et al., 2002; Stack et al., 2013; Keller et al., 2015).

Nutritional issues have been identified as a priority area for practice change and research in

long-term care (Keller et al., 2015; Morley et al., 2014; Rolland et al., 2011). In long-term care, the primary cause of malnutrition is poor food and fluid intake (Keller et al., 2014, Bell et al., 2013). Nursing home residents often have chronic diseases and functional impairments that may impair proper nutrition and hydration (Morley, 2007; Sloane et al., 2008; Bourdel-Marchasson, 2010) and require medical interventions (Morley, 2007). Various chronic illnesses are associated with malnutrition, including cancer, diabetes, depression, and chronic obstructive pulmonary disease (COPD) (Huffman, 2002). Medications, oral health problems (such as missing teeth), dysphagia, and dementia can complicate nutrition and hydration. Medications may cause nausea, anxiety, constipation, and lack of appetite. Depression has been identified as the "most common reversible illness" associated with malnutrition (Sloane et al., 2008). Dehydration is a major factor in weight loss in about 10% of nursing home residents (Kaldy et al., 2000; Feinsod et al., 2004; Smith, 2006). A review study demonstrated that weight loss is the most objective and reproducible marker of nutritious status for nursing home residents (Bell et al., 2013).

Elderly individuals with excessive and rapid weight loss are at higher risk for readmissions, extended stays (Stratton 2006), functional decline, hip fracture (Langlois et al., 2001; Ensrud et al., 2003) and mortality (Covinsky et al., 1999; Kiely & Flacker, 2000; Sullivan et al., 2002; Wedick et al., 2002; Keller & Ostbye, 2005; Amador et al., 2006; Stack et al., 2013). Detecting and preventing weight loss is central to ensure appropriate nutritional intake.

Care processes have been found to influence the nutritional intake and risk of weight loss for the elderly (Simmons et al., 2001; Altus, Engelman, & Matthews, 2002; Pelletier, 2004; Milne et al., 2009; Simmons et al., 2003). Nutrition and dining programs may potentially reduce the risk of weight loss for nursing home residents. For example, a Cochrane meta-analysis found that supplementation produces small but consistent weight gain in older people (Milne et al., 2009). Appropriate management of clinical conditions for people at higher risk for weight loss (e.g., those with depression) is also a potentially effective way to prevent unintended weight loss (Malone, 2005; Rigler et al., 2001).

Several national guidelines from organizations such as the American Dietetic Association, the Gerontological Society of America, the Council for Nutritional Strategies in Long-Term Care (Thomas 2000), the American Medical Directors Association, the National Institute for Health Care and Excellence (NICE 2006), the American Academy of Nutrition and Dietetics (White 2012), and the American Society of Parenteral and Enteral Nutrition (ASPEN) (Mueller 2011, White 2012), recommend nutritional risk assessments for unintentional weight loss and documented plans of care for inpatients, outpatients, skilled nursing and long-term care patients.

Several national risk assessment instruments have also been validated and endorsed by national organizations. The Minimum Data Set (MDS 3.0) Nursing Home Comprehensive Item Set Chapter K: Swallowing/Nutrition Status is required by the Centers for Medicare and Medicaid Services (CMS) for all skilled nursing facility prospective payment system patients to assess both swallowing and nutritional status as well as a care plan. The Mini Nutritional Assessment (MNA), both the full assessment and the short form (SF) classifies older people as well-nourished, at risk for malnutrition or malnourished. The Alliance to Advance Patient Nutrition has developed the Malnutrition Screening Tool (MST) and an entire toolkit of resources for physicians, nurses and patients to improve patient's nutritional status. Both

risk assessment and care planning involves establishing a course of action with input from the clinician, nursing, dieticians, and the resident (as well as resident's family and/or guardian or other legally authorized representative) to improve their nutritional status.

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #20

Measure Title: Clostridium Difficile – Risk Assessment and Plan of Care

Inverse Measure: No

Measure Description: Percentage of Adult Patients Who Had a Risk Assessment for C. difficile Infection and, If High-Risk, Had a Plan of Care for C. difficile Completed on the Day Of or Day After Hospital Admission

National Quality Strategy Domain: Patient Safety

Care Setting: Inpatient/Hospital

Published Specialty: Critical Care; Hospitalist

Telehealth?: Yes

Type of Measure: Process, High Priority

Meaningful Measure Area: Healthcare-associated Infections

Current Clinical Guideline: This preventive screening is supported by the CDC, IDSA, SHEA, AHA, and Joint Commission.

Clinical Category: C. Diff

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients that had a risk assessment for C. difficile infection and, if high-risk, a plan of care documented on the day of or day after hospital admission

Definitions:

- Risk assessment (e.g., IDSA score, SHEA score, ZAR criteria):
  - Previous C. difficile infection
  - Recent antibiotic use (60-90 days prior to current admission)
  - Recent contact with healthcare facility (60-90 days prior to current admission)
  - Age ≥ 65
  - Recent use of proton pump inhibitor (PPI) or histamine receptor 2 antagonists (H2RA)
  - Diagnosis and procedure history (e.g., IBD, immunosuppression or hemodialysis)
- Plan of Care
  - Contact precautions if diarrhea is present
  - Stool assay
  - Initiation of antibiotics if indicated

Numerator Options:

- Performance Met: Patients who did have a C. difficile infection risk assessment, AND if high-risk, a plan of care for C. difficile documented on the day of or day after hospital admission
- Medical Performance Exclusion (Denominator Exception): Patients who did not have a C. difficile infection risk assessment, AND if high risk, a plan of care for C. difficile for medical reasons documented by the Eligible Professional (e.g., C. difficile infection already documented prior to hospital admission, patients unable to provide history, patients on comfort measures)
- Performance Not Met: Patients who did not have a C. difficile infection risk assessment, AND if high risk, a plan of care for C. difficile documented on the day of or day after hospital admission, no reason specified

Denominator:

- Any patient ≥ 18 years of age evaluated by the Eligible Professional (E/M Codes 99221- 99223, 99231- 99233, & 99291-99292 AND Place of Service Indicator: 21)
- Transferred, eloped or AMA patients are excluded

Denominator Exclusions: None

Risk Adjustment: No

Rationale:

Clostridium difficile is recognized as one of the most challenging pathogens in hospital and community healthcare settings, with a steadily rising global incidence of infection and concordant increase in mortality. (Tavetin 2013, LoVechio 2012) The Centers for Disease Control and Prevention (CDC) has assigned *C. difficile* infections (CDI) as an urgent threat because of its association with antibiotic use and high mortality and morbidity. (CDC 2013) Approximately 83,000 of the half a million patients who developed C. difficile in 2011 experienced at least one recurrence, and 29,000 died within 30 days of the initial diagnosis (CDC 2013). Hospitalized CDI patients have a 2.5 times increased 30-day mortality rate compared to in-patients without diarrhea; the CDI-related mortality is approximately 10%. (CDC 2013)

C. difficile infections can be prevented by using infection control recommendations and more careful antibiotic use. Numerous guidelines from the Centers for Disease Control and Prevention (CDC), the Infectious Diseases Society of America (IDSA), the Society for Healthcare Epidemiology of America (SHEA), the American Hospital Association (AHA), European Society of Clinical Microbiology and Infectious Diseases (ESCMID), and the Joint Commission recommend risk assessment of hospitalized patients to guide prevention and treatment. (Dubberke 2014, Cohen 2010, Bauer 2009). Multiple risk assessment tools have been developed (Cohen 2010, Tabak 2015, Kuntz 2016, Smith 2014) and different hospitals implement these assessments according to local protocols. Key risk factors identified in these assessment tools include previous CDI, recent contact with a healthcare facility, recent antibiotic use, immune status, and stomach acid reducing medications.

In the United States, the proportion of hospital discharges in which a patient received a discharge diagnosis for CDI more than doubled between 2000 and 2009. (Lucado 2012)

Approximately 96% of patients with symptomatic C. difficile infection had received antimicrobials within the 14 days before the onset of diarrhea and that all had received an antimicrobial within the previous 3 months. (Olson 1994) There is an increased risk of CDI that can persist for many weeks after cessation of antimicrobial therapy and which results from prolonged perturbation of the normal intestinal flora. (Anand 1994) Evidence also suggests that CDI resulting from exposure to C. difficile in a healthcare facility can have onset after discharge. (Palmore 2005, Chang 2006, Mayfield 2006). Advanced age is also an important risk factor for CDI, as evidenced by the several fold higher age-adjusted rate of CDI among persons more than 64 years of age. (McDonald 2006, Pepin 2004). Immunosuppression (chemotherapy, HIV, etc) is another risk factor for CDI. (Bilgrami 1999, Gorshulter 2001, Sanchez 2005) Epidemiologic associations with CDI have also been found for acid-suppressing medications such as histamine-2 blockers (HR2A) and proton pump inhibitors (PPI). (Dial 2005, Cunningham 2003, Dial 2004).

The CDC, IDSA, and SHEA currently recommend placing patients with diarrhea under contact precautions while C. difficile testing is pending. To decrease transmission, it is essential to place symptomatic patients under contact precautions as soon as diarrhea symptoms are recognized, as this is the period of greatest C. difficile shedding and Contamination (Sethi 2010, Dubberke 2014) Contact precautions should remain in place for the duration of CDI illness when caring for patients with CDI, and some experts recommend continuing contact precautions for at least 48 hours after diarrhea resolves. (Sethi 2010). Assuring that patients with CDI are receiving appropriate severity-based treatment for their infection should be an additional goal for antimicrobial stewardship programs and may improve clinical outcome of CDI in these patients. (Dubberke 2014).

Despite recent CDI infection and control efforts, CDI remains at historically high rates. (Dubberke 2014) The CDC's *2015 Annual Report for the Emerging Infections Program for Clostridium difficile Infection* reported the incidence of healthcare associated CDI to be 82 per 100,000, community acquired to be 65 per 100,000, and the overall incidence rate to be 148 per 100,000. (CDC 2015) Multiple states have reported increased rates of C. difficile infection and mortality, noting more severe disease that is more virulent, and more resistant to traditional antibiotics for treatment. (CDC 2017 Fact Sheet)

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #22

Measure Title: Critical Care Transfer of Care – Use of Verbal Checklist or Protocol

Inverse Measure: No

Measure Description: Percentage of Adult Patients Transferred from the Critical Care Service to a Non-critical Care Service Who Had Documented Use of a Verbal Protocol for the Transfer of Care Between the Transferring Clinician and the Accepting Clinician

National Quality Strategy Domain: Communication and Care Coordination

Care Setting: Inpatient/Hospital

Published Specialty: Critical Care

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Care Coordination

Meaningful Measure Area: Transfer of Health Information and Interoperability

Current Clinical Guideline: The Joint Commission and AHRQ have identified improved patient hand-offs as a national patient safety goal

Clinical Category: Care Coordination

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients transferred from the critical care service to a non-critical care service for whom a verbal (in person or telephonic) checklist or protocol which includes the key transfer of care elements was utilized

Definitions:

- Transfer of Care Checklist or Protocol – The key transfer of care elements include:
  - Review of the overall ICU hospital course
  - Results of pertinent labs and imaging studies
  - Pending studies such as imaging and labs not yet resulted for follow-up by the accepting clinician
  - Pending consults or procedures
  - Medication changes (e.g., need to stop or re-start medications)

Numerator Options:

- Performance Met: Patients who did have utilization of a verbal (in person or telephonic) checklist or protocol documented

- Performance Not Met: Patients who did not have utilization of a verbal (in person or telephonic) checklist or protocol documented

Denominator:
- Any patient ≥ 18 years of age evaluated by the Eligible Professional (E/M Codes 99221- 99223, 99231- 99233, & 99291- 99292 AND Place of Service Indicator: 21) PLUS
- Patients transferred from critical care service to non-critical care service
- Patients discharged from the hospital directly from critical care service are excluded
- Transferred, eloped, AMA or expired patients are excluded

Denominator Exclusions: None

Risk Adjustment: No

Rationale:
Hospital handoffs are believed to be a key locus of communication breakdown that can endanger patient safety and undermine quality of care. (Cohen 2012) The Joint Commission has identified improving hand-offs as a national patient safety goal, citing problems with communication as a frequent cause of medical errors. (TJC 2007) Similarly, the Agency on Healthcare Research and Quality (AHRQ) has identified improving handoffs in care as a priority in nationwide efforts to improve patient safety. (AHRQ 2016). Transfers from intensive care units to acute care units represent a complex care transition for hospitalized patients. (Halvorson 2016)

The Society for Critical Care Medicine recommends that a standardized process for discharge from the Intensive Care Unit (ICU) be used and that both oral and written formats for the report may reduce readmission rates. (Nates 2016) At an urban teaching hospital, institution of a discharge process that included a transfer phone call, charted care summary, and discharge physical re-examination by the discharging provider resulted in a decrease in readmission rate from 41% to 10%. Of those readmitted cases, 30% were found to be noncompliant with the new processes. (Frankel 2006) In another study, the institution of ICU discharge phone reports by the ICU physician or nurse practitioner, nurse, and respiratory therapist also resulted in a significant decrease in readmissions. (Hess 2010)

Several tools for patient hand-off have been studied. (Arora 2005, Bump 2012, Wheat 2012) Effective interventions include improved communication and coordination of care to facilitate timely, complete and accurate handover information. Effective interventions result in improved continuity of care and in reduced adverse events. (van Sluisveld 2015, Cohen 2012) While the primary objective of a handoff is to provide accurate information to the accepting clinician about a patient's care, treatment, current condition and any recent or anticipated changes, a standardized approach to hand-off communications that includes an opportunity to ask and respond to questions is valuable. (Arora 2006, TJC 2007)

There is mounting evidence that communication and hand-off failures are a root cause of two-thirds of sentinel events in hospitals. (Fryman 2017)

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #23

Measure Title: Avoidance of Echocardiogram and Carotid Ultrasound for Syncope

Inverse Measure: No

Measure Description: Percentage of Patients Presenting with Syncope Who Did Not Have an Echocardiogram or Carotid Ultrasound Ordered

National Quality Strategy Domain: Efficiency and Cost Reduction

Care Setting: Inpatient/Hospital

Published Specialty: Hospitalist

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Appropriate Use

Meaningful Measure Area: Appropriate Use of Healthcare

Current Clinical Guideline: American College of Cardiology, American Heart Association, European Society of Cardiology

Clinical Category: Syncope

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients That Did NOT Have an Echocardiogram or Carotid Ultrasound Ordered

- Performance Met**:** Echocardiogram AND Carotid Ultrasound NOT ordered
- Medical Performance Exclusion (Denominator Exception): Cardiac Etiology of Syncope Suspected or Determined (i.e., abnormal cardiac exam (new murmur, bruit), abnormal EKG, cardiac dysrhythmia, abnormal cardiac biomarkers, chest pain, shortness of breath, known heart disease, known or suspected structural heart disease); Neurologic Etiology of Syncope Suspected or Determined (i.e., abnormal neurologic exam, focal neurologic deficit)
- Performance Not Met: Echocardiogram and/or Carotid ultrasound Ordered

Numerator Exclusions: None

Denominator:

- Any patient ≥ 18 years of age evaluated by the Eligible Professional PLUS
- Admitted or Placed in Observation Status PLUS

- Diagnosis of Syncope
    - ICD-10: R55
- Transferred, eloped, AMA or expired patients are excluded

Denominator Exclusions: None

Risk Adjustment: No

Rationale:
Syncope, defined as a transient loss of consciousness with rapid spontaneous recovery, is a common condition for which patients seek medical attention. It accounts for up to 6% of all hospital admissions. Given the broad range of causes (neurologic, vascular, metabolic, cardiac, psychologic, etc.) for syncope, clinicians may pursue many different diagnostic tests as part of their evaluation. Several studies have shown that many of these tests, including routine use of echocardiography and carotid ultrasonography, can be unnecessary and unlikely to contribute to the etiologic diagnosis and management of syncope. In a study of 2106 patients who received a battery of diagnostic testing during admission following a syncope episode, only 2% of echocardiograms performed revealed findings that contributed to the syncopal episode. An even smaller percentage of performed carotid ultrasounds affected the diagnosis or helped to determine the etiology of syncope. (Mendu) Another retrospective review of 128 patients admitted for syncope found that "for patients without suspected cardiac disease after history, physical examination, and electrocardiography, the echocardiogram did not appear to provide additional useful information." (Recchia) Another study of 1038 patient records coded as "syncope" revealed that only 0.94% of performed echocardiograms and 0% of performed carotid ultrasounds helped to establish the cause of syncope. (Johnson)

Per the 2017 ACC/AHA/HRS Guideline for the Evaluation and Management of Patients with Syncope, "routine cardiac imaging [transthoracic echocardiography] is not useful in the evaluation of patients with syncope unless cardiac etiology is suspected on the basis of an initial evaluation, including history, physical examination, or ECG." Also, carotid artery imaging is not recommended in the routine evaluation of patients with syncope in the absence of focal neurological findings that support further evaluation. "The evidence suggests that routine neurologic testing [including carotid ultrasound] is of very limited value in the context of syncope evaluation and management; the diagnostic yield is low, with very high cost per diagnosis." (Shen)

According to the 2018 European Society of Cardiology (ESC) Guidelines for the Diagnosis and Management of Syncope, echocardiogram is only indicated if there is previous known heart disease or data suggestive of structural heart disease or syncope secondary to cardiovascular cause. (Brignole)

Selected References:

Brignole M, Moya A, de Lange FJ, et al. 2018 ESC Guidelines for the Diagnosis and Management of Syncope. European Heart Journal. 39(21) 01 Jun 2018; 1883-1948.

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H-CPR (Hospitalist – Clinical Performance Registry) Measure #24

Measure Title: Appropriate Utilization of Vancomycin for Cellulitis

Inverse Measure: No

Measure Description: Percentage of Patients with Cellulitis Who Did Not Receive Vancomycin Unless MRSA Infection or Risk for MRSA Infection Was Identified

National Quality Strategy Domain: Efficiency and Cost Reduction

Care Setting: Emergency Department and Services, Hospital; Hospital Inpatient

Published Specialty: Acute Care; Critical Care; Emergency Medicine; Hospitalist

Telehealth?: Yes

Type of Measure: Process, High Priority

High Priority Type: Appropriate Use

Meaningful Measure Area: Appropriate Use of Healthcare

Current Clinical Guideline: IDSA Guidelines

Clinical Category: Cellulitis

Number of Performance Rates: 1

Measure Scoring: Proportion

Numerator: Patients who did NOT have Vancomycin ordered unless known MRSA infection was identified or specific risk for MRSA infection was indicated.

- Performance Met**:**
    - Vancomycin not ordered OR Vancomycin discontinued at admission
      OR
    - Vancomycin ordered AND MRSA infection identified or risk for MRSA infection documented (i.e., nasal colonization, prior MRSA infection, recent hospitalization, recent antibiotics, penetrating injury, IVDU, purulent cellulitis, SIRS criteria, sepsis, impaired host defense)
- Medical Performance Exclusion (Denominator Exception): None
- Performance Not Met: Vancomycin ordered AND no MRSA infection identified OR no risk for MRSA infection documented

Numerator Exclusions: None

Denominator:

- Any patient greater than or equal to 18 years of age evaluated by the Eligible Professional PLUS
- Admitted or Placed in Observation Status PLUS (E/M Codes 99218-20, 99234-36, 99281-85, 99291-92) PLUS
- Diagnosis of Cellulitis
    - A48.0, H05.011, H05.012, H05.013, H05.019, H60.10, H60.11, H60.12, H60.13, J34.0, J36, J38.3, J38.7, J39.1, K12.2, K13.0, K61.0, K61.1, L03.011, L03.012, L03.019, L03.031, L03.032, L03.039, L03.111, L03.112, L03.113, L03.114, L03.115, L03.116, L03.119, L03.211, L03.212, L03.213, L03.221, L03.311, L03.312, L03.313, L03.314, L03.315, L03.316, L03.317, L03.319, L03.811, L03.818, L03.90, L98.3, N48.22, N49.9, N61.0, N73.0, N73.1, N73.2
- Transferred, eloped, AMA or expired patients are excluded

Denominator Exclusions: None

Risk Adjustment: No

Rationale:

The emergence of community-associated Methicillin-Resistant Staphylococcus Aureus (CA-MRSA) contributed to a significant increase in the incidence and severity of skin and soft tissue infections (SSTIs). A nearly 30% increase in hospital admissions for SSTIs occurred between 2000 and 2004. Annually, over 6 million visits to physician's offices are attributable to SSTIs. From 1993 to 2005, the number of annual emergency department visits for SSTIs increased from 1.2 million to 3.4 million. (Stevens) As a result of the emergence of community-associated MRSA, clinicians increased use of antibiotics targeted at MRSA. According to data from the National Hospital Ambulatory Medical Care Survey (NHAMCS), by 2010, 74% of all antibiotic regimens prescribed at emergency department visits for skin infections included an agent typically active against CA-MRSA. (Pallin)

Despite the drastic increase in use of antibiotics active against CA-MRSA, beta-hemolytic streptococci are still thought to be the predominant cause for non-purulent SSTIs. A large prospective investigation performed in the current era of CA-MRSA found that beta hemolytic streptococci remain the primary cause of diffuse, nonculturable cellulitis. Additionally, the use of antibiotic polypharmacy including vancomycin, if unnecessary, leads to increased drug reactions, risk for renal toxicity, increased medication costs, and emergence of antibiotic resistant bacteria. (Jeng)

In 2014, the Infectious Diseases Society of America (IDSA) updated practice guidelines regarding management of SSTIs and addressed the appropriate use of antibiotics active against CA-MRSA. According to the guidelines, non-purulent cellulitis due to MRSA is uncommon and treatment for MRSA is typically not necessary. The indications for MRSA coverage include penetrating trauma, injection drug use, purulent drainage, evidence of MRSA infection elsewhere, nasal colonization with MRSA, prior MRSA infection, recent hospitalization, recent antibiotic use, markedly impaired host defenses, and patients with SIRS. (Stevens)

Per a multicenter, double-blind, randomized superiority trial conducted by Moran et al., for patients with uncomplicated cellulitis, the addition of an antibiotic for CA-MRSA coverage did not result in higher rates of clinical resolution of cellulitis as compared to coverage for beta-hemolytic streptococcus alone. (Moran)

Despite the emergency of CA-MRSA, beta-hemolytic streptococci remain the predominant cause of non-purulent SSTIs (e.g. cellulitis) and universal treatment for these infections with an antibiotic active against CA-MRSA, such as vancomycin, is not necessary and may contribute to adverse drug reactions, increased medical costs, and the further emergence of antibiotic resistance.

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