

Selected Best Practices and Suggestions for Improvement

IQI: Mortality review of Select Procedures and Conditions

Why Focus on Mortality Review?

- The 1999 Institute of Medicine report *To Err is Human: Building a Safer Health System* focused the attention of the health care community and the public on the estimation that between 48,000 and 98,000 deaths from medical errors occur each year.
- Sixty percent of the sentinel events reported to the Joint Commission between 2004 and June 2013 resulted in a patient death.¹
- The National Quality Forum states: “Healthcare organizations must systematically identify and mitigate patient safety risks and hazards with an integrated approach in order to continuously drive down preventable patient harm.”²
- Structured, multidisciplinary review is required to identify system processes that may result in failures in care, adverse events, and mortality.
- Understanding of system processes is necessary to take proactive steps to reduce preventable deaths.
- Starting in 2014, a number of mortality rates that are relevant to the IQIs will be used for Medicare’s Hospital Value-Based Purchasing (as part of a composite indicator) that links quality to payment:
 - Acute Myocardial Infarction 30-Day Mortality Rate [similar to IQI 15 Acute Myocardial Infarction (AMI) Mortality Rate and IQI 32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases]
 - Heart Failure 30-Day Mortality Rate [similar to IQI 16 Heart Failure Mortality Rate]
 - Pneumonia 30-Day Mortality Rate [similar to IQI 20 Pneumonia Mortality Rate]
 - Acute Ischemic Stroke 30-Day Mortality Rate [similar to IQI 17 Acute Stroke Mortality Rate]
- The above mortality indicators are also reported on Medicare’s Hospital Compare as part of the Hospital Inpatient Quality Reporting Program (except for Acute Ischemic Stroke 30-Day Mortality Rate, which will begin in July 2014).

Recommended Practice	Details of Recommended Practice
Create a process for identifying cases	<ul style="list-style-type: none"> • 100% mortality case review is recommended. • Work with decision support staff or appropriate department to identify the IQIs using AHRQ software. (See Tool B.1 for additional detail.)
Conduct preliminary case review	Quality-trained clinicians perform initial case review to eliminate cases not needing further review and prepare selected cases for committee presentation and identify potential causative factors
Present case to mortality review committee	Case is presented to committee if appropriate.
Conduct systematic review of	Committee systematically reviews case to determine if any

case	followup actions are required.
Engage in action planning	Action planning may take two forms: <ul style="list-style-type: none"> • Counselling of staff • Performance improvement project to address systemic issues
Evaluate effectiveness of actions	Regularly assess actions taken to ensure that processes are being followed and the desired outcomes are achieved.

IQIs for Review:

This guideline will focus on an overview of a mortality review process that can be used to review the select procedures and conditions identified by AHRQ as reflecting the quality of care, as well as other mortality cases determined to require review:

Select procedures:

- IQI 08 Esophageal Resection Mortality Rate
- IQI 09 Pancreatic Resection Mortality Rate
- IQI 11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate
- IQI 12 Coronary Artery Bypass Graft (CABG) Mortality Rate
- IQI 13 Craniotomy Mortality Rate
- IQI 14 Hip Replacement Mortality Rate
- IQI 30 Percutaneous Coronary Intervention (PCI) Mortality Rate
- IQI 31 Carotid Endarterectomy Mortality Rate

Select Conditions:

- IQI 15 Acute Myocardial Infarction (AMI) Mortality Rate
- IQI 16 Heart Failure Mortality Rate
- IQI 17 Acute Stroke Mortality Rate
- IQI 18 Gastrointestinal Hemorrhage Mortality Rate
- IQI 19 Hip Fracture Mortality Rate
- IQI 20 Pneumonia Mortality Rate
- IQI 32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases

Best Processes/Systems of Care

Recommended Practice: Create a Process for Identifying Cases

- Decision support staff can identify IQI cases and all should be reviewed. Case numbers may be small so it may be beneficial to aggregate review results quarterly or biannually as appropriate to determine if there are trends in causative factors.

Recommended Practice: Conduct Preliminary Case Review

- Quality-trained clinicians perform initial case review to screen for cases not needing further review and prepare selected cases for committee presentation.
- The following algorithm should be used:

- Demographic information
 - Medical record number
 - Patient name
 - Age
 - Gender
 - Discharge status
 - Date of admission
 - Date of expiration
 - Admission status
 - Admission source
 - Principal diagnosis
 - Principal procedure
 - Attending
 - Service
 - Reviewer
- Case review
- Was the case sent to the medical examiner?
- Was an autopsy performed?
- Was the case an expected death?
 - Yes:
 - ◆ What was the condition on admission?
 - * Hospice
 - Do not resuscitate on admission
 - Stage 4 cancer
 - End stage AIDS
 - End stage chronic obstructive pulmonary disease
 - End stage congestive heart failure
 - End stage dementia
 - End stage liver disease
 - Other _____
- Was the case not an expected death on admission but expected at the time of death?
 - Yes:
 - ◆ Did any of the following occur during hospitalization?
 - * Death within 48 hours of admission or surgery
 - * Held in emergency department longer than 6 hours
 - * Return to ICU within 48 hours of transfer out of ICU
 - * Transfer from unit to ICU within 24 hours of admission

- * Hospitalization that is a readmission within 30 days
 - * Return to emergency department within 3 days of discharge
 - * Death associated with drug reaction
 - * Death associated with adverse drug reaction
 - * Death associated with medication error
 - * Death associated with medical device
 - * Healthcare-associated infection
 - * Fall during hospitalization
 - * Procedural complication during hospitalization
 - * Restraints used
 - * Return to surgery
 - * Change in procedure
 - * Rapid response team activation
 - * Cardiac arrest
 - * Intubation/reintubation
 - * DNR activated during hospitalization
 - * Diagnostic studies for emboli or DVT
 - * PP > 100 or INR > 6
- o Was the case an unexpected death?
- Yes:
 - ◆ Did any of the following occur during the hospitalization (check all that apply)
 - * Death within 48 hours of admission or surgery
 - * Held in emergency department greater than 6 hours
 - * Return to ICU within 48 hours of transfer out of ICU
 - * Transfer from unit to ICU within 24 hours of admission
 - * Hospitalization that is a readmission within 30 days
 - * Return to emergency department within 3 days of discharge
 - * Death associated with drug reaction
 - * Death associated with adverse drug event
 - * Death related to medical device
 - * Healthcare-associated infection
 - * Fall during hospitalization
 - * Procedural complication during hospitalization
 - * Restraints used
 - * Return to surgery
 - * Change in procedure
 - * Rapid response team activation
 - * Cardiac arrest
 - * Intubation/reintubation
 - * DNR activated during hospitalization
 - * Diagnostic studies for emboli or DVT

* PP > 100 or INR > 6

- Is further review required?
 - Yes
 - ◆ Why?
- Review questions:
 - Causes for concern:
 - ◆ Diagnosis
 - ◆ Documentation/communication
 - ◆ Infection
 - ◆ Medication
 - ◆ Palliative care
 - ◆ Procedures
 - ◆ Prophylaxis
 - ◆ Resuscitation
 - ◆ Supervision/management
 - ◆ Triage/transitions
 - ◆ Human error
 - ◆ Other _____

Recommended Practice: Present Case to Mortality Review Committee

- Case should be presented and pertinent details from the preliminary case review shared.
- Facts should be presented without opinion.
- The committee should be multidisciplinary and at a minimum include hospital leadership, physicians, nursing staff, quality staff, and other patient care providers as indicated.
- The committee is committed to the confidentiality of the proceedings to enable honest discussion.

Recommended Practice: Conduct Systematic Review of Case

- Hold an open discussion with mortality review committee.
 - The discussion is conducted in a nonjudgmental and nonpunitive manner with input sought from all attendees regardless of hierarchy.³
 - “The ability to conduct objective, comprehensive, and holistic death reviews that involve all disciplines cannot be productive unless a blame-free culture is present.”⁴
 - “The incorporation of non-punitive reporting mechanisms also helps to identify areas in which change is needed and further encourages open dialogue.”⁵
 - Discussion is focused on causative factors and preventability³:
 - Causative factors:
 - ◆ Underlying disease

- ◆ Treatments and procedures, including iatrogenic events (intrinsic to usual procedures performed in accordance with standards of care) and nosocomial infections
 - ◆ Human error, including judgment, knowledge, and technical skills
 - ◆ Equipment malfunction, including equipment failure and inadequate equipment
 - ◆ Unit management factor (work environment) communication problems, failure to provide or enforce policy/protocol, absence of policy/protocol, understaffing, poor prioritization, inappropriate behavior or action, high stress situation
 - ◆ Other, including lack of communication/coordination between ICU and other departments, patient condition (agitation, confusion), fatigue or burnout of caregivers
 - ◆ Unidentified and independent of the disease process or ICU procedures
- Preventability:
 - ◆ Certainly preventable
 - ◆ Probably preventable
 - ◆ Probably not preventable
 - ◆ Certainly not preventable
- Focus on systems of care and medical management.
 - Find ways to prevent recurrence of the event if preventable.

Recommended Practice: Engage in Action Planning

- All participants participate in action planning based on causative factors.
- Recommendations are made to prevent recurrence of a similar event.
- Responsibility for implementation and education is assigned.

Recommended Practice: Evaluate Effectiveness of Actions

- Review of effectiveness is conducted in subsequent mortality review sessions.
- Aggregate results are reviewed regularly (quarterly or biannually) to determine if there is any recurrence of the event and remedial action is taken as needed.

IQI Specific Recommendations/Resources

Specific evidence-based recommendations to potentially reduce mortality and improve patient outcomes.

IQI 08 Esophageal Resection Mortality Rate

- Esophagectomy should be undertaken only in centers capable of carrying out careful case selection, with a large case volume and sufficient surgical and intensive care experience (grade B).
- The operative strategy should ensure that adequate longitudinal and radial resection margins are achieved whenever possible, along with a lymphadenectomy appropriate to the histological tumor type and its location (grade B).
 - Single layer manual or stapled anastomoses can be used (grade B).
 - Clinical anastomotic leakage should not exceed 5% (grade B).

- Curative (R0) resection rates should exceed 30% (grade B).
- Overall hospital mortality for esophageal resection should be less than 10% (grade B).⁶

IQI 11 Abdominal Aortic Aneurysm (AAA) Repair Mortality Rate

- Using an individualized assessment of risk factors for each specific patient allows categorization of operative mortality risk into low (1%-3%), moderate (3%-7%), and high (at least 5%-10% or greater) categories, which may be useful on a practical clinical level in terms of decisionmaking. See Brewster DC, Cronenwett JL, Hallett, Jr. JW, et al. Guidelines for the treatment of abdominal aortic aneurysms: Report of a subcommittee of the Joint Council of the American Association for Vascular Surgery and Society for Vascular Surgery. *J Vasc Surg* 2003;37(5):1106-17. Available at: http://www.geraldawriemd.com/sections/aaa/jvs_aaa_treatment_guidlines.pdf (Table VII).

IQI 12 Coronary Artery Bypass Graft (CABG) Mortality Rate

- Refer to 2011 ACCF/AHA Guideline for Coronary Artery Bypass Graft Surgery: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. Available at: <https://circ.ahajournals.org/content/124/23/e652.full.pdf+html>.

IQI 14 Hip Replacement Mortality Rate

- Use SCIP (Surgical Care Improvement Project) measures, including physical therapy/occupational therapy assessment.
- Assess the following postoperatively: neurovascular status, transfusion need, cardiac and respiratory status, neuropsychiatric status for delirium, dementia, or confusion, nutritional status.

IQI 15 Acute Myocardial Infarction (AMI) Mortality Rate

- ASA at admission and discharge.
- Beta blocker, statin, ACE inhibitor/ARB (if EF<40%) at discharge.

IQI 16 Heart Failure Mortality Rate

- Evaluation of ejection fraction.
- If EF<40%, patient needs ACE inhibitor/ARB.

IQI 17 Acute Stroke Mortality Rate

- STK-1 Venous Thromboembolism (VTE) Prophylaxis
- STK-2 Discharged on Antithrombotic Therapy
- STK-3 Anticoagulation Therapy for Atrial Fibrillation/Flutter
- STK-4 Thrombolytic Therapy
- STK-5 Antithrombotic Therapy By End of Hospital Day 2
- STK-6 Discharged on Statin Medication
- STK-8 Stroke Education
- STK-10 Assessed for Rehabilitation

IQI 19 Hip Fracture Mortality Rate

- Fall prevention practices (PSI 08 Post-operative Hip Fracture Best Practice Detail Form)

IQI 20 Pneumonia Mortality Rate

- Blood cultures performed within 24 hours prior to or 24 hours after hospital arrival for patients who were transferred or admitted to the ICU within 24 hours of hospital arrival.
- Blood cultures performed in the emergency department prior to initial antibiotic receipt in hospital.
- Initial antibiotic selection for community-acquired pneumonia in immunocompetent patient.

IQI 30 Percutaneous Coronary Intervention (PCI) Mortality Rate

- Perform within 90 minutes of hospital arrival.

IQI 31 Carotid Endarterectomy Mortality Rate

- Refer to AHA Scientific Statement [Guidelines for Carotid Endarterectomy: A Statement for Healthcare Professionals From a Special Writing Group of the Stroke Council, American Heart Association](https://circ.ahajournals.org/content/97/5/501.full). Available at: <https://circ.ahajournals.org/content/97/5/501.full>.

IQI 32 Acute Myocardial Infarction (AMI) Mortality Rate, Without Transfer Cases

- ASA at admission and discharge.
- Beta blocker, statin, ACE inhibitor/ARB (if EF<40%) at discharge.

References

1. Summary data of sentinel events reviewed by The Joint Commission. Available at: http://www.jointcommission.org/assets/1/18/2004_to_2Q_2013_SE_Stats_-_Summary.pdf. Accessed February 25, 2014.
2. Safe practices for better healthcare – 2010 Update. Washington, DC: National Quality Forum; April 2010. Available at: http://www.qualityforum.org/Publications/2010/04/Safe_Practices_for_Better_Healthcare_%e2%80%93_2010_Update.aspx. Accessed February 25, 2014.
3. Adapted from: Ksouri H, Balanant P-Y, Tadié J-M, et al. Impact of morbidity and mortality conferences on analysis of mortality and critical events in intensive care practice. *Am J Crit Care* 2010 Mar;19(2):135-45. Available at: <http://ajcc.aacnjournals.org/content/19/2/135.long>. Accessed July 3, 2014.
4. Rachel MM, Stewart MW. Establishing a mortality review process. *J Nurs Care Qual* 2009;24(3):211-22.
5. Jarve K, Sultan R, Lee A, et al. Multi-professional mortality review: supporting a culture of teamwork in the absence of error finding and blame-placing. *Hosp Q* 2002;5(4):58-61.
6. Allum, WH et al. Guidelines for the management of oesophageal and gastric cancer. *Gut* 2002;50(Suppl V):v1-v23. Available at: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1867706/>. Accessed July 3, 2014.