Flex Monitoring Team Data Summary Report No. 8

Rural Hospital Emergency Department Quality Measures: Aggregate Data Report 2008-2009

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A Performance Monitoring Resource for
Critical Access Hospitals, States, and Communities

Flex Monitoring Team

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With funding from the federal Office of Rural Health Policy (PHS Grant No. U27RH01080), the Rural Health Research Centers at the Universities of Minnesota, North Carolina, and Southern Maine are conducting a performance monitoring project for the Medicare Rural Hospital Flexibility Program (Flex Program). The monitoring project is assessing the impact of the Flex Program on rural hospitals and communities and the role of states in achieving overall program objectives, including improving access to and the quality of health care services; improving the financial performance of Critical Access Hospitals (CAHs); and engaging rural communities in health care system development.

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Time frame of the report covers two quarters in 2008-2009. Hospital participants are located in Hawaii, New York, Ohio, and Pennsylvania.

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The Medicare Rural Hospital Flexibility Program

The Medicare Rural Hospital Flexibility Program (Flex Program), created by Congress in 1997, allows small hospitals to be licensed as Critical Access Hospitals (CAHs) and offers grants to States to help implement initiatives to strengthen the rural health care infrastructure. To participate in the Flex Grant Program, States are required to develop a rural health care plan that provides for the creation of one or more rural health networks; promotes regionalization of rural health services in the State; and improves the quality of and access to hospital and other health services for rural residents of the State. Consistent with their rural health care plans, states may designate eligible rural hospitals as CAHs.

CAHs must be located in a rural area (or an area treated as rural); be more than 35 miles (or 15 miles in areas with mountainous terrain or only secondary roads available) from another hospital or be certified before January 1, 2006 by the State as being a necessary provider of health care services. CAHs are required to make available 24-hour emergency care services that a State determines are necessary. CAHs may have a maximum of 25 acute care and swing beds, and must maintain an annual average length of stay of 96 hours or less for their acute care patients. CAHs are reimbursed by Medicare on a cost basis (i.e., for the reasonable costs of providing inpatient, outpatient and swing bed services).

The legislative authority for the Flex Program and cost-based reimbursement for CAHs are described in the Social Security Act, Title XVIII, Sections 1814 and 1820, available at http://www.ssa.gov/OP_Home/ssact/title18/1800.htm

I. Project Background

The University of Minnesota Rural Health Research Center (UMRHRC) developed a set of quality measures for Chest Pain, Acute Myocardial Infarction (AMI), and Patient Transfer Communication in previously funded work (UMRHCH, Stratis Health, and HealthInsight, 2005). The measures have been field-tested twice previously using train-the-trainer and direct training models. For this third field test, a mixed model of training that included train-the-trainer, direct training, and video training was used. The project goals are: 1) to adapt the emergency room quality measurement collection, dissemination, and training to be relevant and useful in the rural environment; 2) to provide rural hospitals with a more consistent way to measure and improve the quality and safety of the emergency care they deliver; and 3) to test the feasibility of electronic data collection on these important elements of rural health care delivery.

The set of emergency department rural-sensitive measures developed for the project were derived from existing quality indicator and performance measurement systems (e.g., those developed by JCAHO, AHRQ, National Quality Forum, CMS, and four rural-oriented ORYX performance measurement systems) with attention to high priority areas (e.g. emergency room stabilization and transfer).

The training method for this field test differs from the previous field tests with the addition of video training to the previously used train-the-trainer and direct-to-hospital training on the measures. Hospital abstractors and consultants were trained on the measures and on the inter-rater reliability (IRR) method of assuring comparability of measure understanding and data collection by measurement development staff. Data were sent to the consultants for data management and forwarded to UMRHRC for report generation.

Stroudwater Associates staff were trained by University of Minnesota and Stratis Health (the Minnesota QIO) staff in a one day training session in New York in October 2008. New York hospital staff were trained at the same time. Pennsylvania and Hawaii hospital staff were trained by Stroudwater Associates consultants in late 2008 and early 2009. Ohio hospital staff were trained via video conferencing in March 2009 by UMRHRC staff. After hospital staff training was completed, hospitals completed inter-rater reliability testing and then data collection began. Inter-rater reliability testing was completed by Stroudwater Associates and UMRHRC staff to assure consistency in data collection across hospitals. Data entry was done by hospitals and Stroudwater Associates staff using a web-based application, called EDManage^{+}, developed by Performance Management Institute.

All Critical Access Hospitals (CAH) in four states were invited and encouraged to participate via recruitment letters and phone calls. A total of 32 CAHs participated in the demonstration in New York, Pennsylvania, Ohio, and Hawaii. The Stroudwater Associates staff provided technical assistance to hospitals as they implemented emergency room measures of quality in chest pain and AMI assessment and treatment, and patient transfer communication.

This report presents the results of two quarters of data collection during calendar years 2008 and 2009. The report includes data on the quality measures for the sample of participating rural hospitals, with comparison data included as available. The Appendix includes a description of the specific rural hospital quality measures included in the report.

II. Emergency Department Measures

While emergency care is important in all hospitals, it is particularly important in rural hospitals. Because of their size, rural hospitals are less likely to be able to provide more specialized services. Because of their location, individuals needing care may be at a greater distance from a rural hospital and rural hospitals often are at a greater distance from facilities with specialized services. These size and geographic realities increase the importance of organizing triage, stabilization, and patient transfer communication in rural hospitals which suggests that measurement of these processes is an important issue for rural hospitals.

Relevant measures reflect: (a) decision-making and protocol availability and their use in decisions about where to treat a patient (in the local rural hospital or elsewhere) (b) processes for stabilizing and transporting patients and (c) care integration with referral hospitals and other care delivery systems. Frequent emergency department diagnoses that were targeted for this study are chest pain and AMI. In addition, data also are collected on several aspects of emergency department patient transfer communication.

A. Emergency Department Chest Pain and AMI Assessment and Treatment

The American Heart Association reported nearly 1.2 million heart attacks in 2006 with 34% death rate (American Heart Association, 2009). Efficient assessment of emergency department patients with chest pain or suspected acute myocardial infarction (AMI) leads to quick identification of AMI and appropriate timely treatment. This in turn may result in decreased morbidity and mortality.

To achieve appropriate diagnosis and timely treatment, a twelve-lead ECG must be done immediately upon presentation to a health care provider. A review of guidelines included in the National Guideline Clearinghouse (2009) shows that all stakeholders recommend a 12-lead ECG immediately upon arrival for patients with chest pain suspected of cardiac origin presenting to any health care provider including the emergency department.

Current guidelines recommend that upon contact with a health care provider, a patient with suspected AMI should immediately chew an aspirin unless contraindicated. Aspirin is beneficial by inhibiting platelet aggregation and further development of coronary thrombosis. Aspirin reduces mortality, re-infarction, and stroke (Antman et al., 2004). This indicator addresses aspirin administration at any time over the 24 hours prior to arrival or 24 hours after arrival at the hospital. CMS reported a national rate of aspirin administration to Medicare patients with AMI

within 24 hours of admission of 85.1% in 2000 and 95.3% in 2005. Hawaii, New York, Ohio, and Pennsylvania reported 2006 rates of 93%, 95%, 94%, and 92% respectively (Agency for Healthcare Research and Quality, 2007).

Evidence indicates that the timing of reperfusion is critical to the effective management of AMI patients and that the earlier therapy is initiated, the better the outcome. Patients presenting with AMI and ST segment elevation or left bundle branch block (LBBB) are at a relatively high risk of death. This risk may be reduced by thrombolytic therapy or PTCA but only if administered in a timely manner. The greatest benefits of thrombolytic therapy are evident in the first 30 minutes after the onset of symptoms but there is proven benefit for up to 12 hours after the onset of symptoms. CMS reported a 2006 national rate of 29% of Medicare inpatient AMI patients that received thrombolytics within 30 minutes of arrival. Hawaii, New York, Ohio, and Pennsylvania reported 2006 rates of 45%, 28%, 30%, and 28% respectively (Agency for Healthcare Research and Quality, 2007). CMS reported a median time to thrombolytics for these patients of 43 minutes in 2005. Hawaii, New York, Ohio, and Pennsylvania reported 2005 median time to thrombolytics of 44 minutes, 40 minutes, 41 minutes, and 38 minutes respectively (Agency for Healthcare Research and Quality, 2007).

Data from the hospitals was de-identified for analysis by the UMRHRC and is presented in Table 1. The AMI and Chest Pain measures are presented here with benchmark data from previous field tests. The observations from the previous field tests present AMI and chest pain measures together because these measures were originally presented as a single set of measurements. The AMI and Chest Pain measures are now accepted as separate measurement groups by CMS and NQF.

Table 1
Emergency Department AMI and Chest Pain Assessment and Treatment Measures

Measure	Field Test 2009 32 hospitals in HI, NY, OH, PA AMI (N=122)	Field Test 2009 32 hospitals in HI, NY, OH, PA Chest Pain (N=457)	Field Test 2005-2006 18 Hospitals in WA AMI/Chest Pain (N=474)	Field Test 2004 22 Hospitals in MN, UT, NV AMI/Chest Pain (N=500)
ECG administered within 10 minutes	53%	49%	63%	51%
Median time to ECG	10 minutes	11 minutes	13 minutes	12 minutes
ASA within 24 hours	96%	94%	71%	60%
Thrombolytics administered within 30 minutes*	15% (N=27)	NA	8% (N=25)	33% (N=33)
Median time to thrombolytics	50 minutes	NA	90 minutes	50 minutes

***Note:** The data reported for thrombolytics include only those patients who received thrombolytics in the reporting hospital. The data for the previous field tests did not differentiate between AMI and Chest Pain cases.

Timely assessment of cardiac condition is an important precursor to appropriate cardiac treatment. Opportunities to improve the timing of essential emergency department cardiac assessment for patients with chest pain or AMI continue to exist. The percent of patients with chest pain that is considered cardiac in origin (including patients with documented AMIs) who received a timely assessment of their pain using an ECG is still only about 50%, though the median time to ECG has decreased across the field tests. The Institute for Health Care Improvement, the American College of Cardiology, and the National Guideline Clearinghouse provide resources and suggestions on ways to improve the timing of this important assessment (National Guideline Clearinghouse, 2009; Institute for Health Care Improvement, 2009).

Timely treatment for acute cardiac conditions is improving. Timely administration of ASA within 24 hours is at nearly 100%. This is a significant improvement from early field tests of the measure. Appropriate use of thrombolytics in small hospitals requires coordination with local consulting cardiologists and pharmacists. The results of this field test indicate little use of thrombolytics in these small rural hospitals. This is not necessarily an indication of poor quality since special procedures and skills must be available locally to use this therapy successfully and safely. If these special conditions are not met, administration of thrombolytics is not indicated.

B. Emergency Department Patient Transfer Communication

Timely and appropriate communication between health providers promotes continuity of care and may lead to improved patient outcomes. The patient transfer communication measures used in the study include components from the Federal Emergency Medical Treatment and Active Labor Act (EMTALA) and the Continuity of Care Record (CCR) (Center for Health Information Technology, 2005).

A Massachusetts-based expert panel including ASTM International (formerly known as the American Society for Testing and Materials), the Massachusetts Medical Society (MMS), the Health Information Management and Systems Society (HIMSS), and the American Academy of Family Physicians (AAFP) identified the need to organize and make transportable a set of basic patient information consisting of the most relevant and timely data about a patient's condition. The CCR is a standard specification developed jointly by ASTM International, the MMS, the HIMSS, and the AAFP. It is intended to foster and improve continuity of patient care, to reduce medical errors, and to assure at least a minimum standard of health information transportability when a patient is referred to, transferred to, or is otherwise seen by, another provider. These data include patient and provider information, insurance information, patient health status (e.g., allergies, medications, vital signs, diagnoses), recent care provided, as well as recommendations for future care (i.e. care plan) and the reason for referral or transfer. This minimum data set should enhance the continuity of care by providing a method for communicating the most relevant information about a patient. For this rural hospital project, the data collected include:

Category	Range of scale
• Pre-Transfer Communication Information Nurse communication with receiving hospital Physician communication with receiving physician	0-2
• Patient Identification Name Address Age Gender Significant others contact information Insurance	0-6
• Vital Signs Pulse Respiratory Rate Blood Pressure Oxygen Saturation Temperature Glascow score (trauma or neuro patients)	0-6
• Medication-related Information Medications Given Allergies Medications from home	0-3
• Practitioner generated information History and physical: Physical exam, history of current event, chronic conditions Physician orders and plan	0-2
• Nurse generated information Nurse documentation includes: Assessment/interventions/response Impairments Catheters Immobilizations Respiratory support Oral limitations	0-6
• Procedures and tests Tests and procedures done Tests and procedure results sent	0-2

The percent of charts that had documentation for each of the elements is reported in Table 2, along with the percent of charts that have all of the elements in each sub-category. National data on scoring is not available but we have provided comparable information from a prior field test.

Table 2
Emergency Department Patient Transfer Communication Measure

		2009 Field Test (N=1795)	Previous Field Test (2005-2006) in WA (N=616)
Subscale	**Measure**	**Score**	**Score**
Pre-Transfer Communication Information	Nurse Communication with Receiving Hospital	88%	84%
	Physician Communication with Receiving Hospital	96%	97%
	SUBSCALE ALL-OR-NONE	**85%**	—
Subscale	**Measure**	**Score**	**Score**
Patient Identification	Name	87%	87%
	Address	86%	74%
	Age	86%	86%
	Gender	86%	86%
	Significant Other Contact	77%	69%
	Insurance	77%	70%
	SUBSCALE ALL-OR-NONE	**72%**	—
Vital Signs	Pulse	84%	83%
	Respiratory Rate	84%	83%
	Blood Pressure	83%	80%
	Oxygen Saturation	74%	77%
	Temperature	83%	76%
	Glascow Score (trauma or neuro patients)	84%	89%
	SUBSCALE ALL-OR-NONE	**65%**	—
Medication-related Information	Medication Given	80%	80%
	Allergies	79%	83%
	Medication from Home	79%	81%
	SUBSCALE ALL-OR-NONE	**75%**	—
Practitioner Generated Information	History and Physical	62%	78%
	Physician Orders and Plan	81%	90%
	SUBSCALE ALL-OR-NONE	**60%**	—
Nurse Generated Information	Assessments/Interventions/Response	79%	80%
	Impairments	76%	84%
	Catheters	85%	81%
	Immobilizations	81%	88%
	Respiratory Support	82%	83%
	Oral Limitations	72%	80%
	SUBSCALE ALL-OR-NONE	**57%**	—
Procedures and Tests	Tests and Procedures Done	82%	82%
	Tests and Procedures Results Sent	81%	81%
	SUBSCALE ALL-OR-NONE	**80%**	—
OVERALL PATIENT TRANSFER COMMUNICATION	**ALL-OR-NONE**	**26%**	—
	Average Score (Std. Dev.) max=27	21.9 (7.9)	15.4 (6.5)

Significant opportunities exist to improve the communication of key patient information between providers. This lack of information can result in missed results, related tests, incomplete diagnostics, and increased costs. A previous field test reports comparable results in communication of individual communication elements as the current field test hospitals. Field test results may be due to quality improvement work completed prior to the field test at the participating hospitals. States also have different interpretations of the EMTALA requirements and these interpretations may impact the communication standards in individual states. Simple process improvements can be implemented to ensure consistent communication between health care providers. Resources and research on patient transfer care improvement (including communications) are available and provided in our reference list (American Academy of Family Physicians, 2009; U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, 2009; Coleman et al., 2006; Weingart et al., 2005; Kripalani et al., 2007; Schnipper et al., 2007).

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Appendix. Definitions of Rural Hospital Emergency Department Quality Measures

A. Emergency Department AMI/Chest Pain Assessment		
Measurement Description	**Numerator**	**Denominator**
Time to ECG – Time of arrival at ED until time of first 12 lead ECG. Includes pre-hospital EKG at 0 minutes. ACC and AHA standard of 10 minutes is used for the standard.	—	Includes all AMI/Chest Pain (presumed to be cardiac in origin) Emergency Department patients
Proportion of AMI/Chest Pain patients in the ED without aspirin contraindications who received aspirin within 24 hours before or after hospital arrival	AMI/Chest Pain patients in the ED who received aspirin within 24 hours before or after hospital arrival	AMI/Chest Pain patients without aspirin contraindications. Included Populations: Discharges with an ICD-9 Code for AMI of 410. Excluded Populations: Patients less than 18 years of age, received in transfer from another hospital including another emergency department, patients discharged on day of arrival, who expired on day of arrival or who left against medical advice on day of arrival.
Median time to thrombolytics for emergency room AMI patients with ST elevation on ECG who received thrombolytics.	—	Included Populations: Discharges with an ICD-9 Code for AMI of 410 who received thrombolytics at this hospital. Excluded Populations: Patients less than 18 years of age; patients received in transfer from another hospital including another emergency department; patients discharged on day of arrival, who expired on day of arrival or who left against medical advice on day of arrival; who did not receive fibrinolytic administration within 30 minutes and had a reason for delay in fibrinolytic therapy as defined in the data dictionary.
Proportion of emergency room AMI patients with ST elevation on ECG whose time from hospital arrival to thrombolysis is 30 minutes or less.	Number of AMI emergency room patients with a time from hospital arrival to thrombolysis of 30 minutes or less.	Included Populations: Discharges with an ICD-9 Code for AMI of 410 who received thrombolytics at this hospital. Excluded Populations: Patients less than 18 years of age; patients received in transfer from another hospital including another emergency department; patients discharged on day of arrival, who expired on day of arrival or who left against medical advice on day of arrival; who did not receive fibrinolytic administration within 30 minutes and had a reason for delay in fibrinolytic therapy as defined in the data dictionary.
B. Emergency Department Patient Transfer Communication		
ED patient transfer communication	Number of information elements sent with transfer patients in 7 categories (pre-transfer communication, patient identification, vital signs, medication – related information, practitioner generated information, nurse generated information, and procedures and tests).	All ED patients that are transferred to another acute facility.