

ACGME February 28-March 2, 2008

A Tool for All Reasons: The Healthcare Matrix

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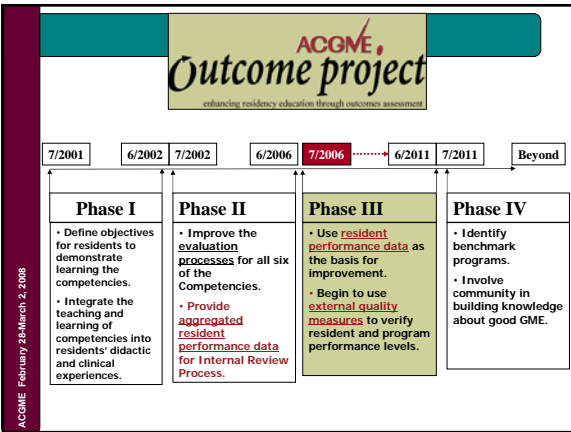
Objectives of Session:

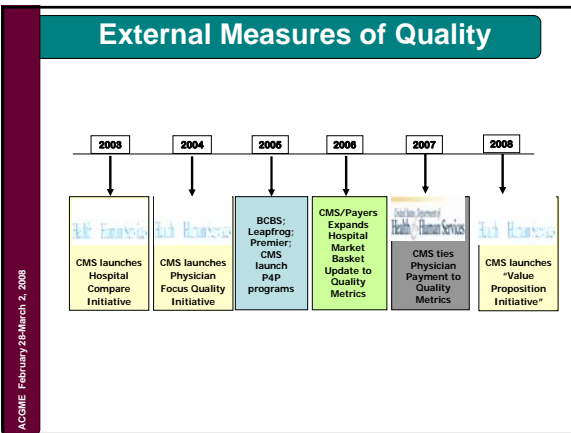
1. Understand the importance of the IOM Aims in framing improvement efforts especially related to Phase III of Outcomes Project.
2. Appreciate the Matrix as a framework for analyzing care of patients using the competencies.
3. Use the Matrix to analyze care of a simulated patient.
4. Demonstrate how residents have improved care of patients with the Matrix as a springboard.

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Aim for Workshop

To demonstrate the inter-professional application of the Healthcare Matrix to system improvement
and
as a means of achieving the Phase III of Outcomes Project





CMS Value-Based Purchasing

- Section 5001(b) of the Deficit Reduction Act of 2005
- Requires CMS to develop a plan for Value-Based Purchasing (VBP) Program for payments under the Medicare program beginning with FY 2009
- Plan must include the following:
 - Development, selection, and modification process for measures of quality and efficiency
 - Reporting, collection, and validation of quality data
 - Value-based payment adjustments
 - Disclosure of information on hospital performance

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President's Executive Order:

- Teeth to the Quality Movement: (8/06)
- Government programs directed to encourage:
 - Acquisition of interoperable HIT
 - Transparency of Quality & Pricing Information
 - Promote Quality and Efficiency Through P4P

Harmonization – The Quality Choir



Why IOM Aims?



Patient Care *should* be:

**Safe, Timely, Effective,
Efficient, Equitable, Patient-Centered
(STEEEP)**

Patient Healthcare Matrix: Care of Patient with....						
AIMS	SAFE (Injury or poorly injury)	TIMELY (Delay in hrs, days weeks)	EFFECTIVE (Outcomes, Evidence-based care)	EFFICIENT (Waste of resources)	EQUITABLE (Gender, ethnicity, race, SES)	PATIENT- CENTERED (Preferences, goals, values)
Assessment of Care						
PATIENT CARE (Overall Assessment) Yes/No						
MEDICAL KNOWLEDGE and SKILLS (What must we know?)						
INTERPERSONAL AND COMMUNICATION SKILLS (What must we say?)						
PROFESSIONALISM (How must we behave?)						
SYSTEM-BASED PRACTICE (What is the process? On whom do we depend? Who depends on us?)						
Improvement						
PRACTICE-BASED LEARNING AND IMPROVEMENT (What have we learned? What will we improve?)						
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Purpose of the Matrix

- Teach the competencies linked to the care of "my patient".
- Assess the residents understanding of the competencies as they relate to patient care.
- Collect data on care of patients.
- Identify opportunities for improvement.
- Have residents help improve care and learn the science of improvement.

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Applications of the Matrix

- Individual Resident Learning
- Case Presentations
- M & M Conferences
- Linking to External Quality Metrics
- Curriculum Framework (Geriatrics)
- All clinical students

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Workshop

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Formation of team members (as well as team leaders)

- Learning occurs best when there is an “emotional” driver and it is “real” (Regehr, 2007)
- The Matrix takes a real patient situation (usually sub-optimal care) and makes the learners reflect on the causes of the problems in a systematic way (using IOM Aims and Competencies).
- The Matrix serves as a “forcing function” to examine how all the players were involved in the care and the dynamics of their interactions.

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Diagnosing Care Issues

- We have very little outcomes data on the results of the care we provide (Porter, 2006).
- Systems and care are imperfect. We hear the frustrations from residents, nurses, etc. but often lack a method to capture these issues in a systematic way (often causing a blaming).
- The Matrix provides a “biopsy” of the system of care as seen by those providing direct patient care (residents, nurses, intensivists, etc.)
- Analyzing data from multiple matrices is like taking multiple biopsies which will tell us the incidence and the prevalence of the issues (however, doing only biopsies will not improve the situation!)

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Example of Patient Presentation

- Delightful 70 year old has had recent heart attack, has diabetes and high blood pressure (neither well controlled), history of Cancer, and gastric reflux.
- She was recently discharged from the hospital after a heart attack. She had had chest pain for several days but thought it was reflux and has recently been readmitted because of her diabetes. Now she's a clinic patient and the resident is not making much progress getting her diabetes or BP under control. She attended diabetes education classes, but nothing has changed in her habits. She has outlived her siblings and her son and said she does not want to give up everything she loves. She comes to the clinic when symptoms are troublesome and want those taken care of.

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Example of Patient Presentation

- She cannot afford meds and relies on samples which requires the resident calling or trying to find what is currently available. This means having to change her meds depending on what is available.. Her eyesight is not very good so changing medications is very confusing.
- Her husband is a musician who works at night and she frequently follows him, making meals very erratic.
- Her church activities are very important to her which always includes eating good Southern food. Not really interested in changing her life style.

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Clinic Visit

- Patient arrives at clinic with complaints of fatigue and lightheadedness.
- Problem list is reviewed but not all the information is there (old medical records are missing). Medications she brought with her do not match the list in the computer.
- Patient has elevated BP and HbA1c. Resident tries to ascertain her knowledge of her chronic diseases but she does not seem to want to discuss "all that other stuff".
- The resident is frustrated and does not know what else she can do for this patient.

Notes from the Resident

- “By considering the care of this patient in terms of the IOM Aims for Care and the ACGME Core Competencies in a systematic fashion, I learned some significant things about my care for the patient:
 - I realized that on most levels, I have been well-trained from a standpoint of Medical Knowledge. It was in other areas where I observed either the holes in my training or the gaps in my understanding of how to truly care for my patients.

Notes from the Resident

- I realized that while I believed I was communicating with the patient well – I knew her well and had established a good rapport – I was likely NOT addressing her issues from a patient-centered standpoint. It was eye-opening to realize that I might not know what her goals were, and that they were probably strikingly different from my own. This might have played an enormous role in my effectiveness – if we could have addressed shared goals.


Notes from the Resident

- Finally, in comparing my care of this patient to the management of my entire patient panel, I realized that my care was much less systematic than I thought. It seemed that more often than not, I was looking at each patient as an "outlier". I have much to learn about systems-based practice, particularly regarding the management of a group of patients with chronic disease. Only when I understand how to apply this knowledge will I know how to effect systems-based learning and improvement.”

(Used with permission Dr. Melissa Hixon, Chief Resident)

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Quality Improvement Project: "Time-Out" and Medical Procedures



Jennifer Clune
Neil Sanghani
Viviana Terriño
Linsay Waller
Ben Womack

Internal Medicine Residents
August 2006

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The Matrix...

- Systematic approach for identifying opportunities for improvement in education and care.
- The Core Competencies:
 - Patient Care
 - Medical Knowledge and Skills
 - Interpersonal and Communication Skills
 - Professionalism
 - System-Based Practice
 - Practice-Based Learning and Improvement

Patient Healthcare Matrix: Care of Patient with wrong sided thoracostomy						
AIMS Competencies	SAFE ¹ (Safety of patient for injury)	TIMELY ² (Delay in hrs, days weeks)	EFFECTIVE ³ (Evidence-based care and outcomes)	EFFICIENT ⁴ (Waste of resources)	EQUITABLE ⁵ (Gender, ethnicity, race, SES)	PATIENT-CENTERED ⁶ (Patient's needs, values)
Assessment of Care						
PATIENT CARE⁷ (Overall Assessment) Yes/No	No	?	No	No	Yes	No
MEDICAL KNOWLEDGE AND SKILLS⁸ (What must we know?)	Did not properly read x-ray. Lacking in skills to do procedure.	Initial care was timely, but delay occurred when plan for US guided procedure next day.	Lack of knowledge of protocol. No ultrasound guidance obtained as effusion large "can't miss it" resident was told.	Wrong sided procedure caused need for CR and additional time in hospital.		Pt was DNR, so what should we do in this situation?
INTERPERSONAL AND COMMUNICATION SKILLS⁹ (What must we say?)	Did not say out loud what procedure was to be done and on which side.		Did not have a back-up system comprised of pt, nurses, medical residents, and residents to speak when something is wrong.	Time and resources wasted having to call thoracic surgery for possible chest tube.		Brief verbal consent obtained but not had this in the past. Too much emphasis on doing procedure and not on patient.
PROFESSIONALISM¹⁰ (How must we behave?)						Pt and family were informed of what happened.
SYSTEM-BASED PRACTICE¹¹ (What is the process? On whom do we depend? Who depends on us?)	Did not have standard protocol for Time-out. Unit very busy. Nurses could have helped.	Whenever team is in a hurry, much greater chance of error.	Post-call team plans the procedure. X-ray not viewed as a team since team in hurry.			
Improvement						
PRACTICE-BASED LEARNING AND IMPROVEMENT¹² (What have we learned? What will we improve?)	Distribute protocol to all medicine residents, teach interns about TIME-OUT.		Initiate TIME-OUT protocol before any invasive procedure. Involve all team members.			

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Our Project

“Time-Out” for procedures in Internal Medicine...

...Do we really need them?

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The Case of Mrs. Jones*

Mrs. Jones is a 66 year old with known metastatic breast cancer. She presents to the ED with shortness of breath. An x-ray is obtained which reveals a large left-sided pleural effusion...

* Not her real name

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The Case of Mrs. Jones

- **History of malignant pleural effusions.**
- **Currently undergoing palliative treatment of her breast cancer.**
- **At the time of hospitalization she is short of breath and hypoxic (sats 90% on 4L NC).**
- **She desires therapeutic thoracentesis for symptomatic relief.**
- **Her code status is DNR/DNI.**

The Consent

- Post-call team plans for the procedure.
- Brief verbal consent is obtained as patient has had this procedure in the past.
- X-ray is not reviewed as team is in a hurry to get their work done.
- No ultrasound guidance obtained as effusion is large, "can't miss it."

The Procedure

- Resident attempts procedure and is unable to withdraw fluid, attributes this to lack of skill.
- Plan for ultrasound-guided procedure next day as patient is stable and comfortable at rest.

The Code

- Later that day, Mrs. Jones becomes increasingly more short of breath, hypoxic, and develops impending respiratory failure.
- Stat CXR shows large pneumothorax on the right and large pleural effusion on the left, unchanged from the previous x-ray.

The Newspaper

What will the headlines read?

"Careless Vanderbilt medicine resident gives terminal cancer patient collapsed lung while attempting thoracentesis on the wrong side..."

(Luckily this never hit the paper!)

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The Dilemma

- What do we do now for this patient who has expressed a wish to be DNR?
- Are we "careless" or do we lack the appropriate process for preventing "mistakes" like this one?

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Time-Out and Medicine

How common are "wrong-side" events?

↓

Difficult to estimate because many cases probably never reported.

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In Summary

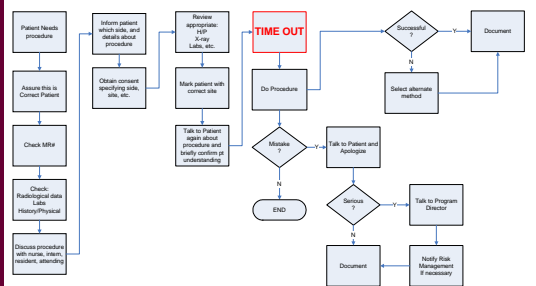
- Wrong-site procedures are uncommon, but devastating when they occur.
- Little literature available on the subject (90 Pubmed references).
- No literature available on Pubmed regarding non-surgical wrong site procedures.
- This is not a problem that is considered much; not considered at all in medicine.

So How Do We Improve?....

"Time-Out" for Medical Procedures

Internal Medicine Residents

Thursday, August 17, 2006



The Solution

- “Time-Out” Forms
- Check List for Nurses before starting procedure to help resident
- Integrate into Resident Training, e.g. during orientation of new Interns.

Figure 1. Universal Protocol For Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery

Wrong site, wrong procedure, wrong person surgery can be prevented. This universal protocol is intended to achieve that goal. It is based on the consensus of experts from the relevant clinical specialties and professional disciplines and endorsed by ...

Implementing this protocol, consensus was reached on the following principles:

- Wrong site, wrong procedure, wrong person surgery can and must be prevented.
- A shared approach—using multiple, complementary strategies—is necessary to achieve the goal of eliminating wrong site, wrong procedure, wrong person surgery.
- Active involvement and effective communication among all members of the surgical team is important for success.
- To the extent possible, the patient or legally responsible representative should be involved in the process.
- Consistent implementation of a standardized approach using a universal, consensus based protocol will be most effective.
- The protocol should be flexible enough to allow for implementation with appropriate adaptation when required to meet specific patient needs.
- A requirement for site marking should focus on cases involving right/left distinction, multiple structures (leg, foot, or hand), or body cavity.
- The universal protocol should be applicable or adaptable to all operative and other invasive procedures that expose patients to harm, including procedures done in settings other than the operating room.

In concert with these principles, the following steps, taken together, comprise the universal protocol for eliminating wrong site, wrong procedure, wrong person surgery:

- **Preoperative verification process**
 - Patients: To ensure that all the relevant documents and studies are available prior to the start of the procedure and that they have been reviewed and are consistent with each other and with the patient's expectations and with the team's understanding of the intended patient, procedure, site and, as applicable, any implants. Missing information or discrepancies must be addressed before starting the procedure.
 - Process: An ongoing process of information gathering and verification, beginning with the determination to do the procedure, continuing through all settings and interventions involved in the preoperative preparation of the patient, up to and including the time just before the start of the procedure.
- **Marking the operative site**
 - Patients: To identify unambiguously the intended site of incision or insertion.
 - Process: For procedures involving right/left distinction, multiple structures (such as leg and foot), or multiple levels (as in spinal procedures), the operative site should be marked such that the team will be unable after the patient has been prepared and draped.
- **Time-out immediately before starting the procedure**
 - Patients: To conduct a final verification of the correct patient, procedure, site, and, as applicable, implants.
 - Process: Active communication among all members of the surgical approach team, initiated by a designated member of the team, conducted in a "time-out" mode, i.e., the procedure is not started until any questions or concerns are resolved.

Joint Commission Perspectives on Patient Safety, November 2003, Volume 3, Issue 11
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Analyzing data from a Matrix

- The Matrix informs us how the learner;
 - Perceives the situation
 - Which issues (or competencies) are identified and which are ignored
 - Who is identified as the “team” in the system and the communication issues
 - What parts of the system failed
 - What improvements are needed

Analyzing data from Matrices

- Each of the **columns** provide valuable information about care.
- Each of the **rows** provide information on the competencies of individuals but also of the team effort.
- Multiple matrices can provide information about specialties, departments, medical conditions, or the organization.

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Excel Spreadsheet for Matrix Analysis

Student ID	Aims	Competencies	Content	Diagnosis	Primary Code (positive, negative, improvement)	Secondary Code
3	Safe	Professionalism	Decisions were made based on accepted algorithms and consensus within the team.	Stroke	positive	EBM
19	Timely	Interpersonal Communication skills	Delays in communication increased the time it took to get an initial head CT and begin treatment.	Pregnancy intracerebral Hemorrhage	negative	Teamwork
4	Effective	Practice-Based Learning & Improvement	We could have taken the time to do a better initial H&P to better discern what the condition was like at initial presentation to compare it to discharge condition.	Stroke	improvement	Care Plan
18	Efficient	System-based	Repeated imaging and brain biopsies were unnecessary. Reduce switching of primary neurologists to avoid repeat testing.	Celiac Sprue	negative	EBM
12	Equitable	Interpersonal Communication skills	This patient spoke Spanish, Social interpreters were not available. Medical students and family were used of the as interpreters which was not ideal.	Hydrocephalus	negative	Translators
2	Patient-Centered	Medical Knowledge	Team took the time to know the patient and her desire for treatment.	Lung Cancer with Brain Mets	positive	

Healthcare Matrix: Care of Patient with....

Competencies	Aims	SAFE	TIMELY	EFFECTIVE	EFFICIENT	EQUITABLE	PATIENT-CENTERED
Assessment							
PATIENT CARE (Overall Assessment) Yes/No							
MEDICAL KNOWLEDGE (What must we know)							
INTERPERSONAL AND COMMUNICATION SKILLS (What must we say)							
PROFESSIONALISM (How must we act)							
SYSTEM-BASED PRACTICE (What is the Process? On whom do we depend and who depends on us)							
Improvement							
PRACTICE-BASED LEARNING AND IMPROVEMENT (What have we learned, what will we improve)							

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Key Safety Issues Identified for VUMC

Major themes across the Medical Center:

- COMMUNICATION
- TEAMWORK (especially relationship between specialties)
- WORKAROUNDS (time stealer)
- DOCUMENTATION

• Lesser themes:

- Unnecessary Variation
- Complexity of patients and limited clinic time
- Updated medication and problem lists critical for optimal care
- Getting lab values quickly and alerts for abnormal ones

Care of Patient(s) with :						
AIMS	Safe	Timely	Effective	Efficient	Equitable	Patient-Centered
COMPETENCIES	Assessment of Care					
Patient Care (Oversight/Assessment)	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE	<input type="radio"/> YES <input type="radio"/> NO <input type="radio"/> UNSURE
Medical Knowledge and Skills (What must we know?)	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT
Interpersonal and Communication Skills (What must we say?)	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT
Professionalism (How must we behave?)	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT

•A web-based Matrix allows it to be saved to portfolios and eventually linked to EMR.

•An Oracle Database collects data from each cell and allow analysis and reports to be generated by:

Department
Diagnosis
Any IOM Aim
Any Competency
Institution (future)

System-Based Practice (On whom do we depend?)	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT
Improvement						
Practice-Based Learning and Improvement (What have we learned? What will we improve?)	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT	ADD TEXT
<div style="border: 1px solid red; display: inline-block; padding: 2px;">ActionPlan</div>						

The PBLI row is automatically transferred to an action plan

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ACTION PLAN

Improvement:					
Item #	ACTION	By Whom?	By When?	Comments	Date Completed

NOTES:

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“A Tool for All Reasons”:

Who is happy with our healthcare system?

- Patients?
- Employers?
- Physicians?
- Other Health care providers?
- Health Plans?
- State Governments?
- Federal Government?

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A Move to “Value-Based Healthcare”

Michael E. Porter
Elizabeth Olmsted Teisberg

Redefining Health Care

*Creating
Positive-Sum Competition
to Deliver Value*

Core Themes from Dr. Porter's work:

- "The only way to truly reform healthcare is to reform the nature of competition."
- "Value in healthcare is the health outcome per dollar of cost expended."
- "Value in healthcare is determined in addressing the patient's particular medical condition over the full cycle of care from monitoring and prevention to treatment to ongoing disease management."
- "Mandatory measurement and reporting of results is perhaps the single most important step in reforming the healthcare system."

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Thank you!

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