




UF UNIVERSITY of FLORIDA

Measuring Quality

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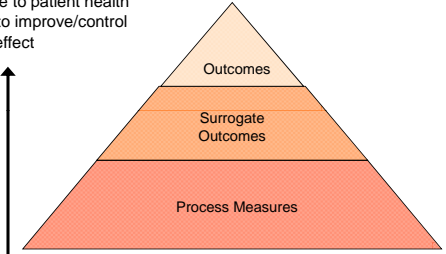

WHY MEASURE?

- Goals of quality measurement
 - Evaluation of QI initiatives
 - Benchmarking / performance evaluation / P4P
<http://www.cms.gov/apps/media/press/release.asp?Counter=133>
 - Most environments don't allow "absolute" performance
 - Practitioners are limited in what they can do; the higher the measure is in the hierarchy (process, surrogate outcome, morbidity/mortality), the more uncontrollable factors exist
 - No guideline is absolute – standards may be not indicated in certain cases
 - **Benchmarks:** Quality levels peers were able to accomplish




HIERARCHY IN QUALITY MEASURES (AND TARGETS)

- Relevance to patient health
- Difficulty to improve/control
- Delay in effect


PROCESSES RELATED TO DRUGS

- Lack of drug (access)
- Inappropriate drug (e.g., contra-indications, interactions, allergies)
- Wrong dose / frequency / duration
- Unnecessary drug
- Lack / incorrect diagnosis
- Monitoring
- Adequate counselling ...




OUTCOMES QUALITY MEASURES

- If drug therapy can improve certain types of morbidity and mortality,
 - Quality of drug therapy does as well
 - Some outcomes more sensitive than others
 - Sensitivity and frequency of outcome need to be considered when choosing quality measure



QUALITY MEASURE VALIDITY


- Do not have to be a "research instrument"
 - Quick and easy
 - Predominant use of secondary data sources
 - Process measures require simplification of clinical practice ("absolute guidelines")
 - Outcome measures reflect not only quality issues
 - There may be valid reasons for variation across providers or settings, which are not related to quality
 - Risk Adjustment may be needed



VALIDITY CRITERIA


(NQMC; [HTTP://WWW.QUALITYMEASURES.AHRQ.GOV/](http://www.qualitymeasures.ahrq.gov/))

- Level of evidence that support the measure
- Inclusion criteria should only reflect individuals who are at risk for quality deficit measured
- Provider/setting should be in control of the process or outcome the measure evaluates
- Measure specifications should allow little chance for measurement error / misclassification
- Measure should provide for fair comparisons across providers or settings (allows adjustments for differences in patient characteristics)
<http://www.hospitalcompare.hhs.gov/Hospital/Search/compareHospital.asp>
- Measure should truly reflect a quality issue
- Improvements in the measure should truly reflect an improvement in quality




SUMMARY

- For your purpose you should select a measure that is
 - Sensitive to your intervention or the causes for quality deficit you aim to explore
 - Meaningful to patient health
 - Able to detect change in a reasonable time frame
 - Rely on data that is feasible to ascertain
 - Reliable
- Remember that measures need to be specified according to
 - Data sources / ascertainment methods used
 - Summary method used to evaluate change / differences
 - Change that would be considered clinically significant




SCOPE OF ANTICOAGULATION QUALITY MEASURE (HEPARIN DRIP)

- Anticoagulation is achieved in patients with ACS and DVT/PE
 - PTT between 60-90 seconds for DVT/PE
 - PTT between 60-80 seconds for ACS
- Anticoagulation is achieved in a timely fashion
 - within 24 hours of initiation of heparin (after thromboembolic event; literature reports this is achievable with weight-based nomograms in ~70% of patients)
- Additional issues worth considering
 - Timeliness of initiating heparin
 - Maintenance of anticoagulation / adjustment to patient progress
 - Timely transition to warfarin, achievement / maintenance of therapeutic INRs



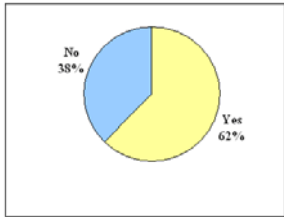
EVIDENCE-BASED PROTOCOL

- Retrospective study of current quality of heparin treatment in Acute Coronary Syndrome Protocol
 “Weight-based heparin protocols are efficacious...but are they effective?”
Cristin L Hogan, Pharm.D. Candidate, Almut G Winterstein, Ph.D., Thomas E Johns, Pharm.D., Joseph Layon, M.D., Millie Russin, R.N., Charles Klodell, M.D.
- 85 ACS admissions in summer 2005
 - Analysis of electronic laboratory values
 - Chart review of subsample (42)




ONLY 2/3 OF ACS PATIENTS ACHIEVED THERAPEUTIC APTTS WHILE ON HEPARIN

PERCENT PATIENTS REACHING THERAPEUTIC TARGET RANGE (N=42)



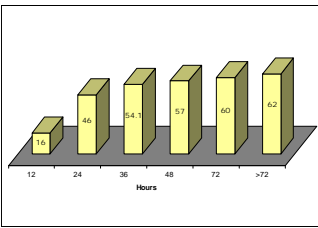
Response	Percentage
Yes	62%
No	38%

* Therapeutic range as defined by the ACS/Moderate Risk Patient Heparin Protocol is a measured aPTT value of 60-80 seconds




LESS THAN HALF OF ACS ADMISSIONS ACHIEVED TARGET WITHIN 24H

CUMULATIVE PERCENT PATIENTS ACHIEVING APTT TARGET BY TIME ON HEPARIN INFUSION (N=42)



Hours	Cumulative Percent
12	16
24	46
36	54.1
48	57
72	60
>72	62



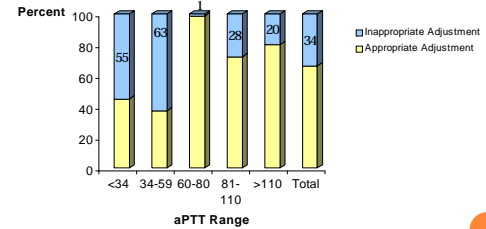
PRELIMINARY FINDINGS

Pass Rate	32%
Reasons for Failure	Cases
Bolus not match recommended by more than 10%	17
Start rate not match recommended by more than 10%	14
No order sheet	5
Bolus blank	5
No weight on protocol	2
Weight on protocol differs more than 10 kg from 1st official	2
Start rate blank	1
Recommended factors changed	0
Recommended targets changed	0
* May have multiple reasons per case	
Discrepancy from Weight Based Recommendations	%
Low	85%
High	15%



COMPLIANCE WITH DRIP ADJUSTMENTS DEPENDED ON APTT

Percent compliance with heparin drip adjustments by aPTT range (n=42)



Appropriateness of adjustments based on the nomogram; Doses within $\pm 10\%$ of the calculated dose were classified as "appropriate."

PROBLEMS

- Low proportion of patients reach therapeutic PTT (within 24h)
- Chosen PTT is too low.
- Standardized weight-based nomogram is altered, especially bolus dose is decreased or weight not considered
- Time to drip adjustment is faster for super-therapeutic PTT than supra-therapeutic
- Compliance with drip adjustments is better for super-therapeutic PTTs



FIRST ONGOING HEPARIN PROTOCOL MEASURE

Proportion of adults with DVT/PE or Acute Coronary Syndrome/Acute Myocardial Infarction receiving a Heparin infusion per an unaltered, ratified protocol.



SUBSEQUENT MEASURES

- Restriction to DVT/PE because
 - Spans across services
 - Development of measure should include cardiology
- Process-based
 - Appropriateness of target and of selected protocol / order to achieve this target
- Outcomes-based
 - Achievement of appropriate PTT target within 24h
- Not captured: maintenance after 24h



SUMMARY

- Personal impression and hard data are two very different pairs of shoes
- Without comprehensive measurement of processes quality improvement will remain draw of luck
- Data is very powerful and in guiding quality improvement and behavioral change
- Don't be afraid about developing a measure exactly for your specific question – everything can be measured
- Measure validity requires clinical and common sense – not statistics

