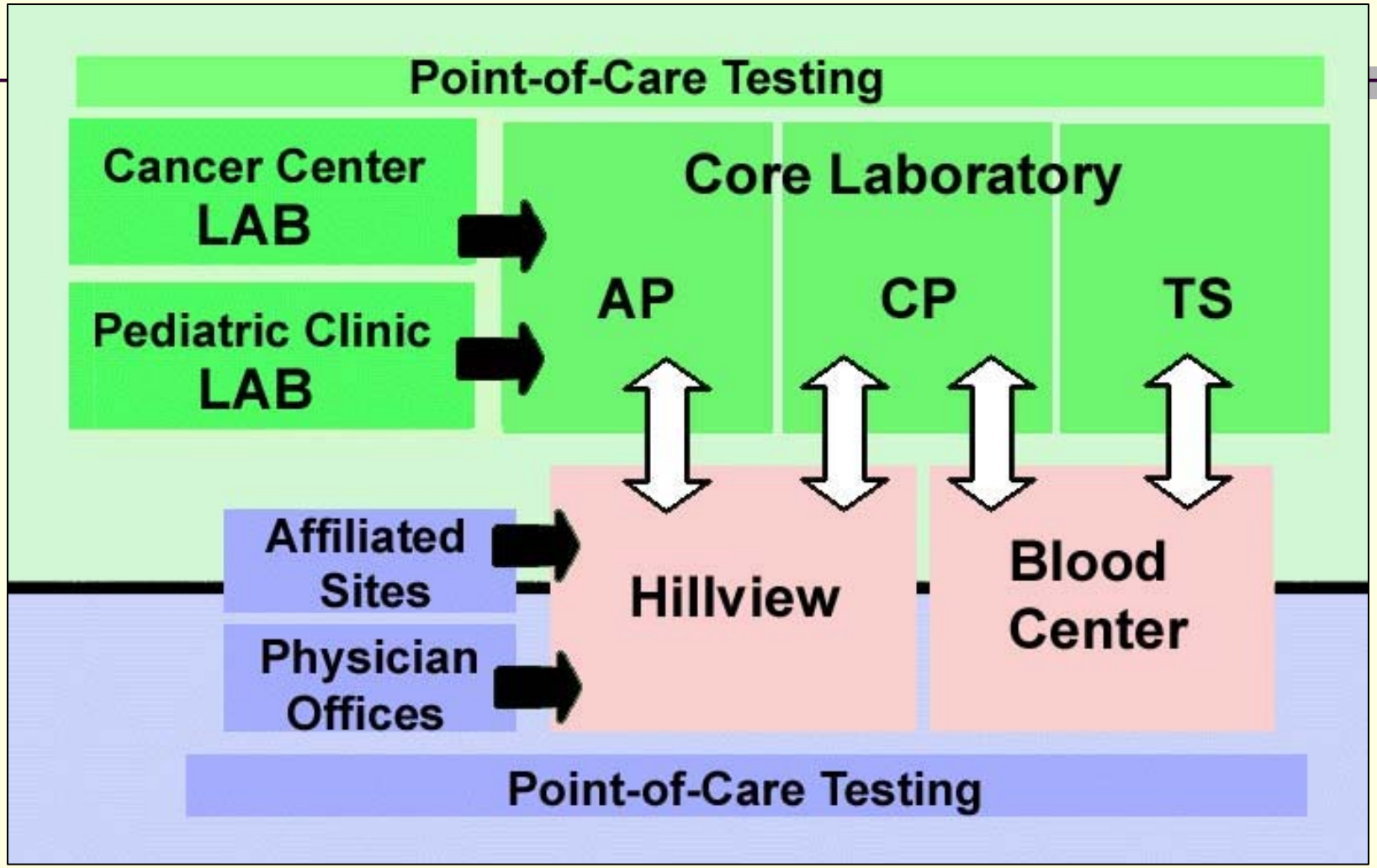
E pluribus unum:
Regulatory Perspectives on Validating Moderately Complex Test Performance Across Multiple Instruments

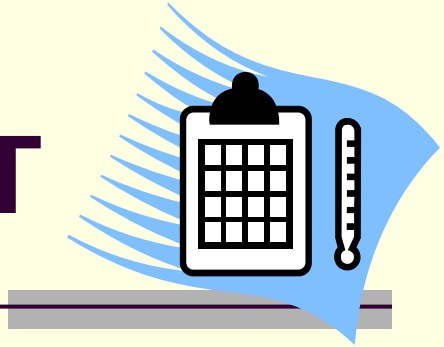
Bay Area POCC Spring Meeting
May 31, 2011
James D. Faix MD
Stanford University Medical Center

Is POCT Laboratory Testing?



Modeled after S.R. Middleton, AACC Lab Automation Forum, 2000

CAP Definition of POCT

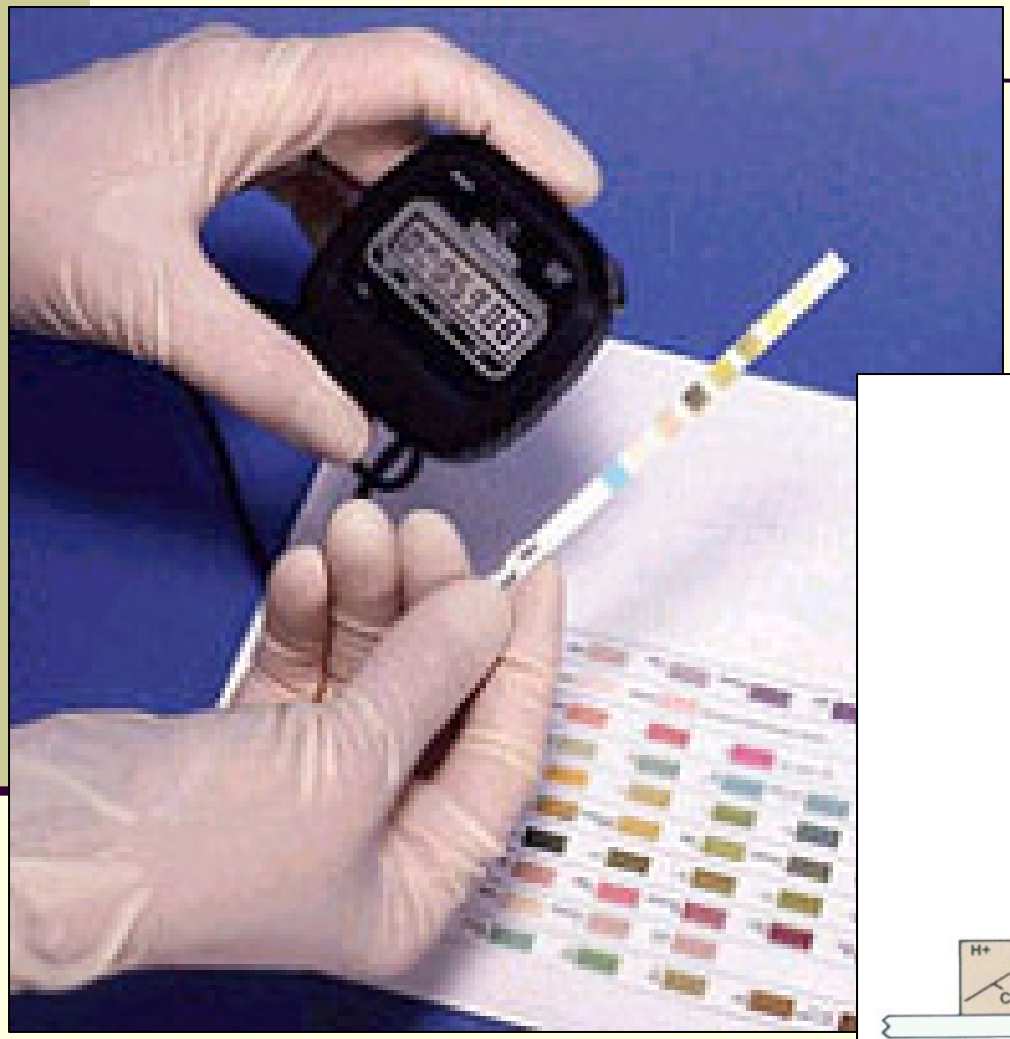


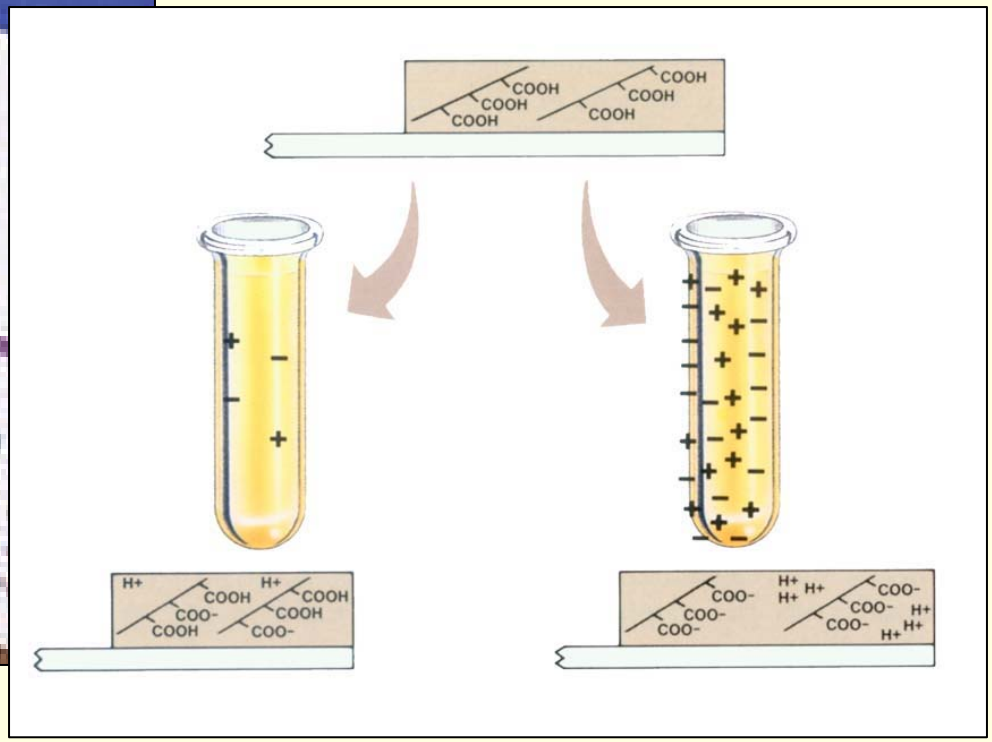
- Testing designed to be used at or near patient
- Testing that does not require dedicated permanent space
  - otherwise: “limited service” lab
- Testing performed outside of the physical facilities of the clinical laboratory
- “Waived” or “Moderately Complex”

POCT Regulatory Issues

- Method validation
- Calibration and cal verification
- Quality control requirements
- Proficiency testing
- Other assessments of accuracy
- Correlation with core methods
- Training & competency
- Global quality management

Urine Specific Gravity





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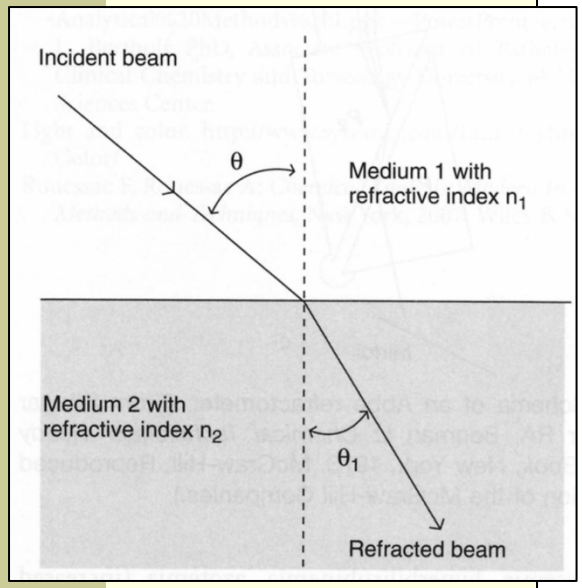
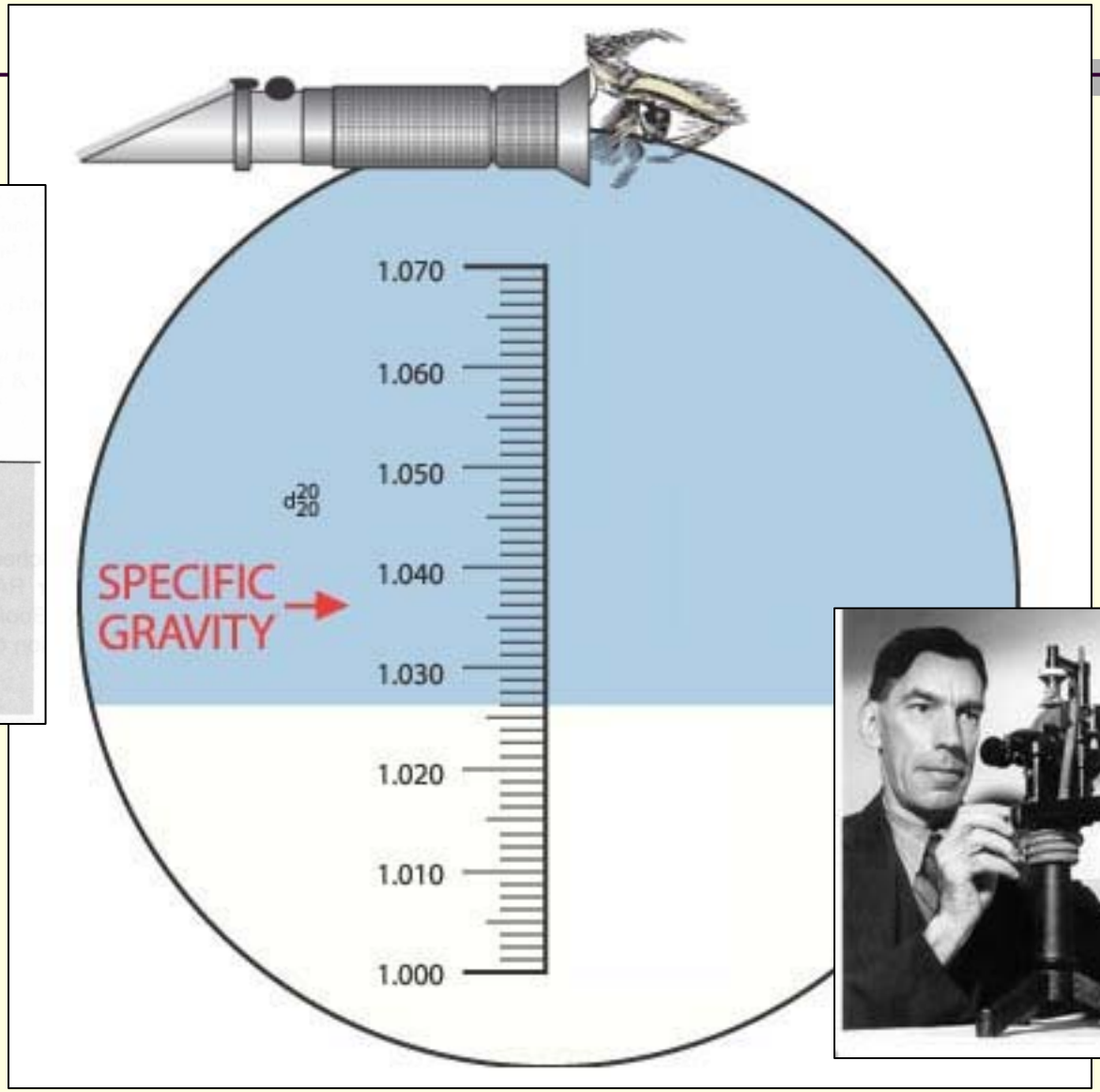




7 Degrees of CMS Complexity

- Knowledge needed
- Training needed
- Preparation required
- Operational technique
- Quality assessment
- Troubleshooting needed
- Interpretation

CAP POCT Checklist Regulatory Requirements

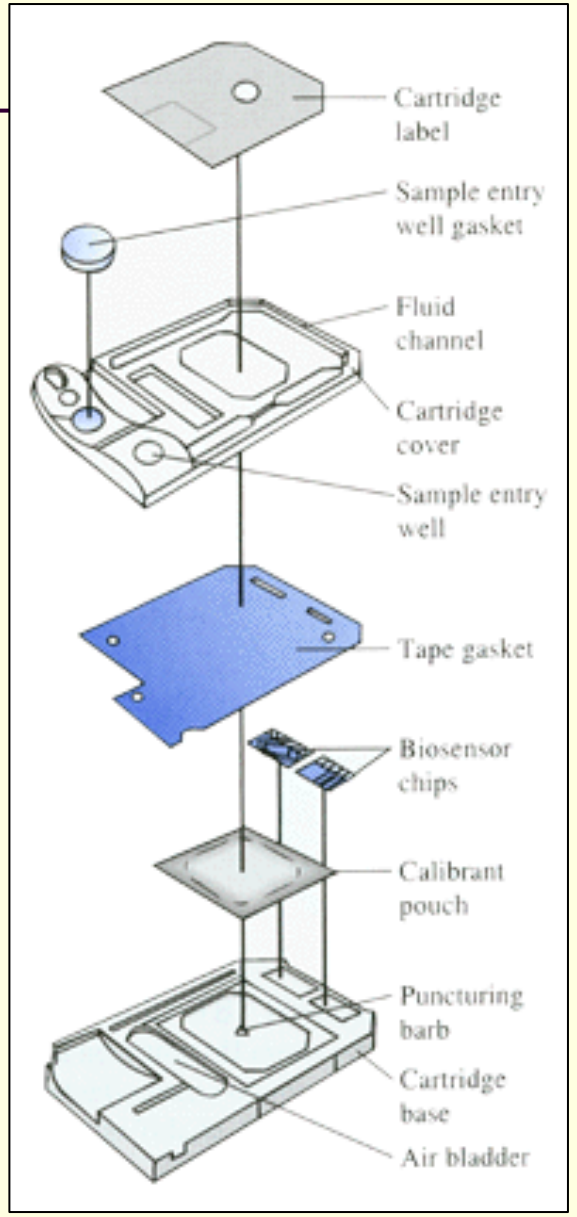
	Waived	Mod Complexity
Quality Control	07037: Document 07124: Correct 07211: Verify	Specific Requirements
Reagents	04750: Handling	Specific Requirements
Calibration	08050: Follow manufacturer's instructions	Specific Requirements
Other	Same Requirements but issues re: multiple instruments to be discussed	

Options for POCT

Disposable testing unit

Instrument with disposable testing unit

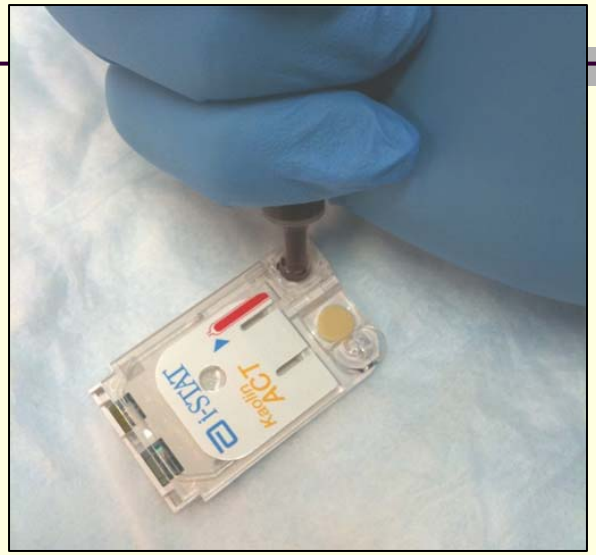
POCT “Device/Cartridge”



i-STAT “system”

POCT device & cartridges

- Electrolytes
- Creatinine
- Glucose
- Free calcium
- pH, pO2, pCO2
- Lactate
- ACT
- PT (INR)
- Troponin, CK-MB & BNP



CAP QC Requirements

- 07300: Daily 2 levels twice
  - except coag (2 x 2 levels q shift) & blood gas:
    - 09035: 1 “liquid” QC q shift
      - “validated” electronic QC OK
    - 09090: Low & High each day
      - “validated” electronic QC OK if L & H
    - 09145: 1 QC “each time patient specimens are tested”
      - Unless automatic internal cal q 30m
      - No mention of “validated” electronic QC

“Equivalent” QC (POCT.07300 cont.)

- External QC vs. Electronic QC (internal or surrogate cartridge) with n = 25 for “*initial device*”
  - (2011 checklist will require 20 consecutive day study)
  - Director needs to define criteria for acceptability
  - Director needs to define “sample size for other devices”
  - Most perform full validation on *each* device

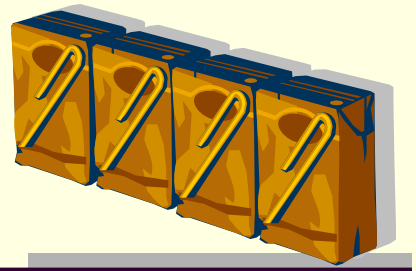
“Equivalent” QC (POCT.07300 cont.)

- Follow-up external QC run
  - with new reagent
    - May be performed using a single device (or subset).
  - after maintenance or software upgrade
    - Every device but need not be repeat of initial validation study.
  - q month
    - Every device

CAP QC Requirements continued

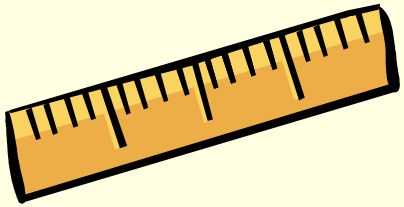
- 07512: QC treated like patient
  - All testing personnel should "participate" but OK for POCT personnel to perform monthly
- 07568: Cross-checks twice/year
  - Director must define protocol
  - QC material OK if same lot
  - Subset of instruments OK (but "rotate")

CAP Reagent Requirements



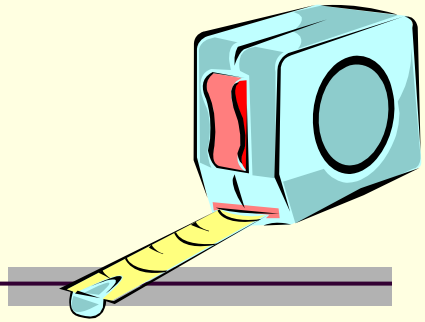
- 05000: New Reagent Lot Validation
  - Director should establish criteria
  - May include either patient samples or QC
  - No mention of multiple instruments but subset probably OK

CAP Calibration Requirements



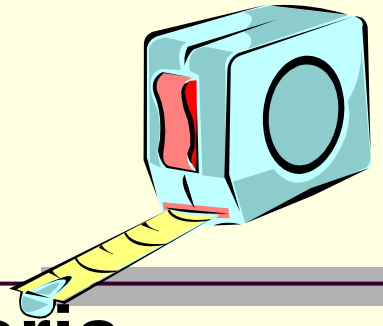
- 08300: Cal Verification criteria
- 08400: Recalibration criteria
  - Director should define criteria but should include:
    - Reagent lot change
    - QC problem
    - After maintenance or software
    - Manufacturer recommendation
    - At least every 6 months
    - No mention of multiple instruments but probably parallels AMR criteria

CAP AMR Validation Requirements (cont.)



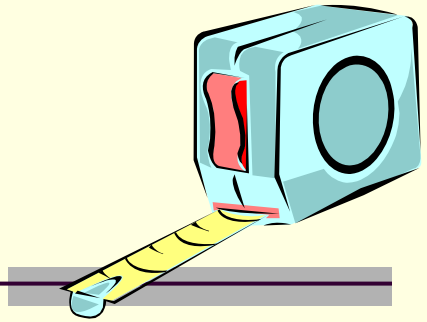
- **<u>08500</u>: AMR Validation**
  - **If calibration spans AMR, calibration (& calibration verification) = AMR validation**
  - **Validate each instrument placed into use & following maintenance or repair**

CAP AMR Validation Requirements



- 08600: AMR Validation criteria
  - Director should define criteria for revalidation but should include:
    - Change in major test system components
    - Change in reagent lot
      - Unless lack of effect on analytically measurable range used to report patient results documented
    - At least every 6 months

CAP AMR Validation Requirements (cont.)



- 08600: AMR Validation (cont.)
  - OK to perform semi-annual AMR validation using subset sample of instruments (as long as this does not violate manufacturer's instructions)
  - Instrument subset sampling should "rotate"

Other CAP Comments re: multiple instruments

- **Proficiency Testing**
  - **03250: OK to rotate among all personnel who perform POCT and among all instruments**
- **Instrument Function**
  - **06400 & 06450: OK to assume that this is covered by QC policy for internal checks**

Other CAP Comments

- **Procedure Manual**
  - **03900: Available in workplace**
  - **04200: Understood by testers**
    - **Single procedure sufficient for all instruments**
- **Personnel**
  - **06900: Competency assessment**
    - **Single policy sufficient for all instruments**

Six Degrees of Competency

- Specimen collection & testing
- Instrument function

- Test performance
- Result reporting
- Quality assessment
- Problem solving

All six annually for all operators of moderately complex POCT. Selected annually for all operators of waived.

Point-of-Care vs. Core Lab