"Meaningful Use" Proposals and Their Rationale

1) **The Policy and Standards Perspective** –
offered by Joyce Hunter
2) **The Large Provider/ The Health Management Academy Perspective** –
offered by Paul Alexander Clark
3) **The EHR Vendor Perspective (HIMSS-EHRA)** –
offered by Joe Bormel

Underlying theme: *Diversity of perspectives by internal roles within the organizations*

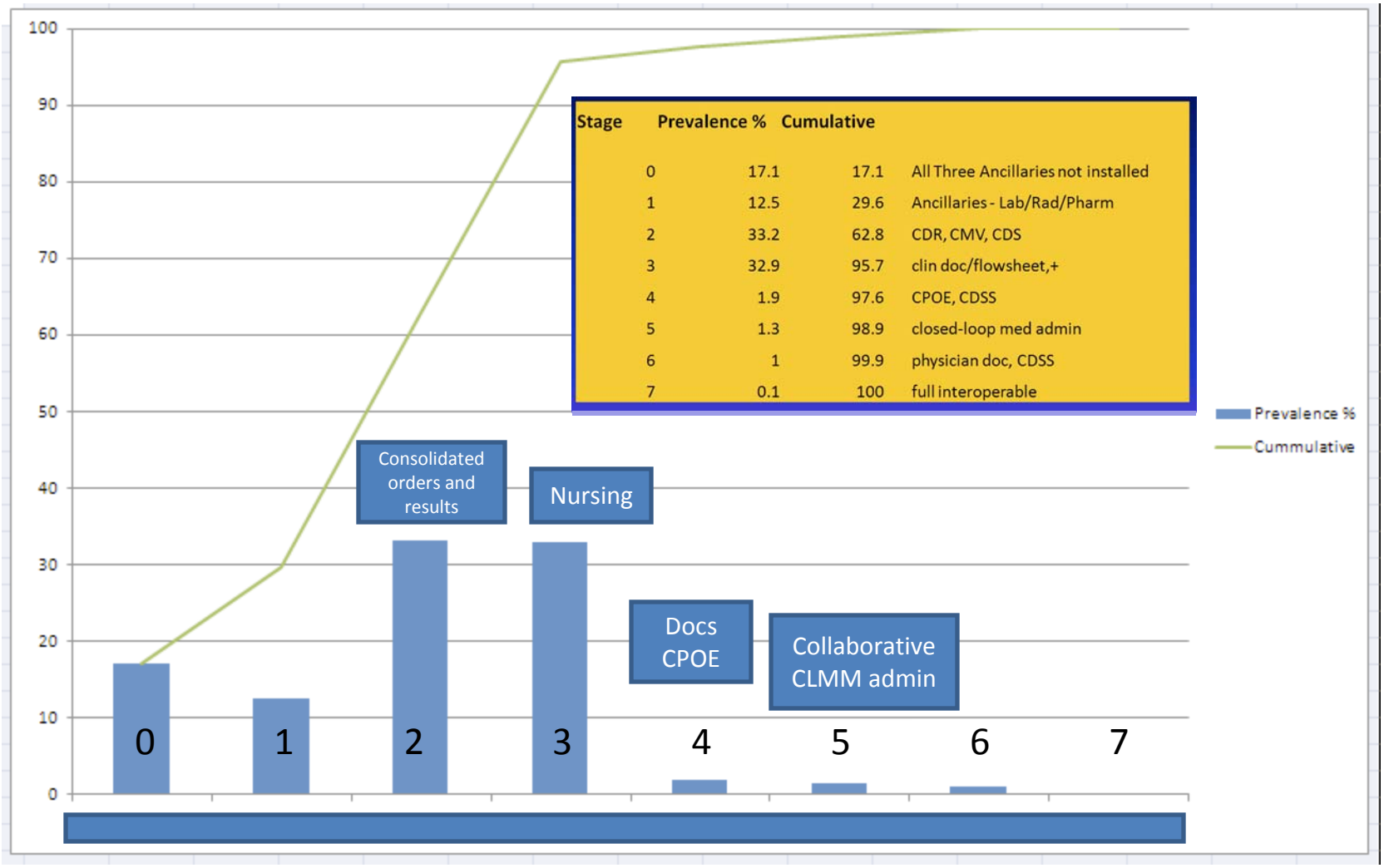
Joe Bormel, MD, MPH

- Educational Background
  - Engineering
  - Medicine
  - Public Health
  - Informatics
- Professional
  - Vendor (3)
  - Roles: CMO, Architect, Product Management, Sales
- Social/Professional Network
  - Medical - AMA
  - Medical Management - ACPE
  - Medical Informatics – AMIA
  - Medical Governance, Implementation, and Measurement – AMDIS
  - Systems Society – HIMSS
  - Healthcare-informatics.com/joe_bormel

Issues with Meaningful Use of EMRs

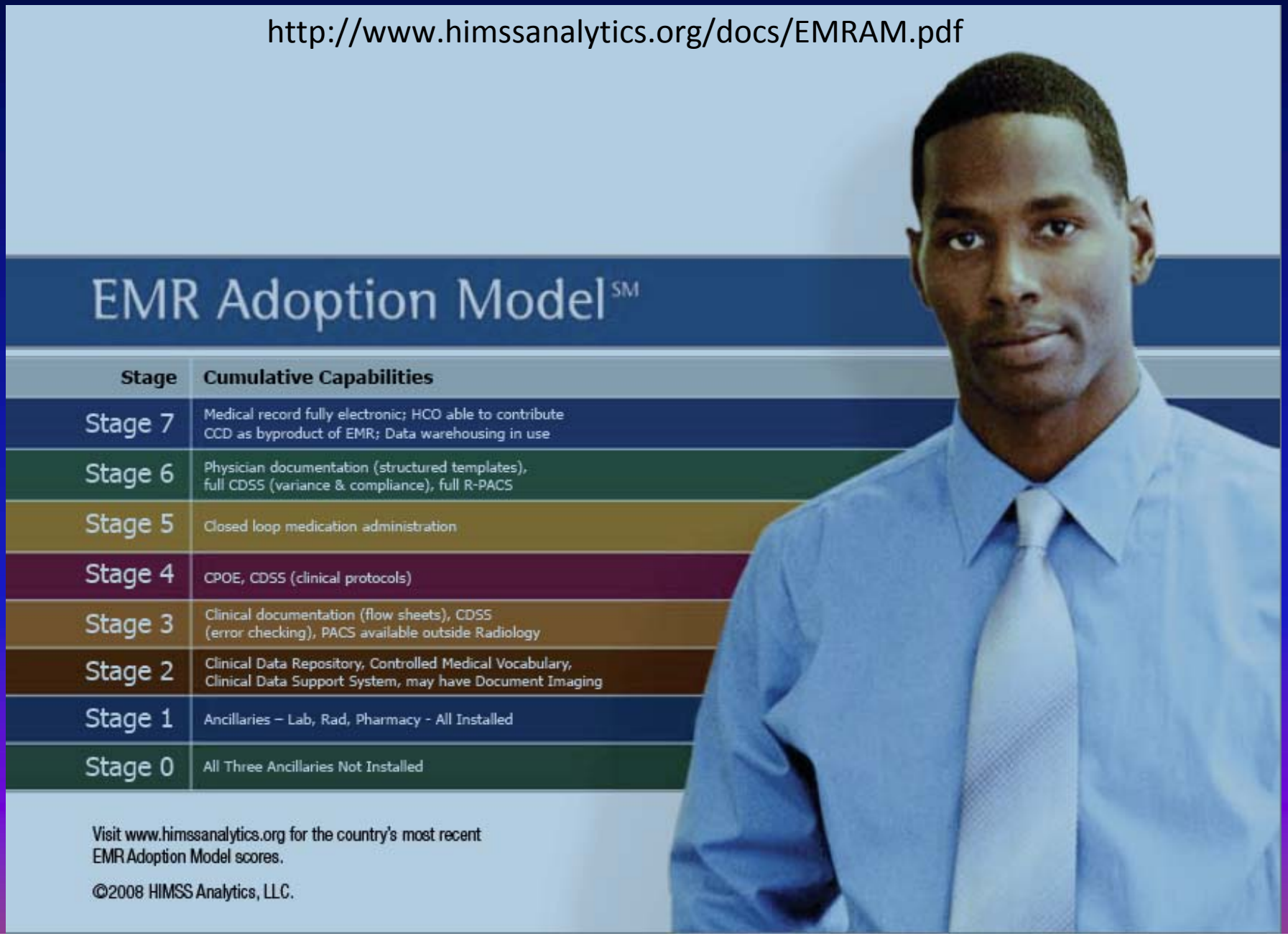
- Where are we today?
  - HIMSS EHRAM – The Gap from Current State to 'Target'
- What are the constraints
- How can measurement be structured?
  - Teich's depiction of the CMS model
- HIMSS and HIMSS EHRA public proposals
- Other Considerations from the vendors' perspective

State of EMRs



Issues with Meaningful Use of EMRs

http://www.himssanalytics.org/docs/EMRAM.pdf



EMR Adoption Model Structure Ensures Objectivity

- All application capabilities within each stage must be operational before that stage can be achieved.
- All lower stages must have been achieved before a higher level is considered as achieved.
- A hospital can achieve Stages 3-6 if it has met all of the application requirements for a single patient care service (e.g. single nursing floor, cardiology service).
- Using the rules above, additional points are given for the implementation of applications in stages higher than the one fully achieved by the healthcare organization. In this fashion, other implementation paths than those prescribed by the stages can be taken into consideration for correlation with quality and financial research.

Stage	Description
7	• The hospital has a paperless EMR environment. Clinical information can be readily shared via Continuity of Care (CCD) electronic transactions with all entities within health information exchange networks (i.e., other hospitals, ambulatory clinics, sub-acute environments, employers, payers and patients). This stage allows the health care organization to support the true sharing and use of health and wellness information by consumers and providers alike. Also at this stage, HCOs use data warehousing and mining technologies to capture and analyze care data, and improve care protocols via decision support.
6	• Full physician documentation/charting (structured templates) are implemented for at least one patient care service area. • A full complement of radiology PACS systems is implemented (i.e. all images, both digital and film-based, are available to physicians via an intranet or other secure network.)
5	• The closed loop medication administration environment is fully implemented in at least one patient care service area. The eMAR and bar coding or other auto-identification technology, such as radio frequency identification (RFID), are implemented and integrated with CPOE and pharmacy to maximize point-of-care patient safety processes for medication administration.

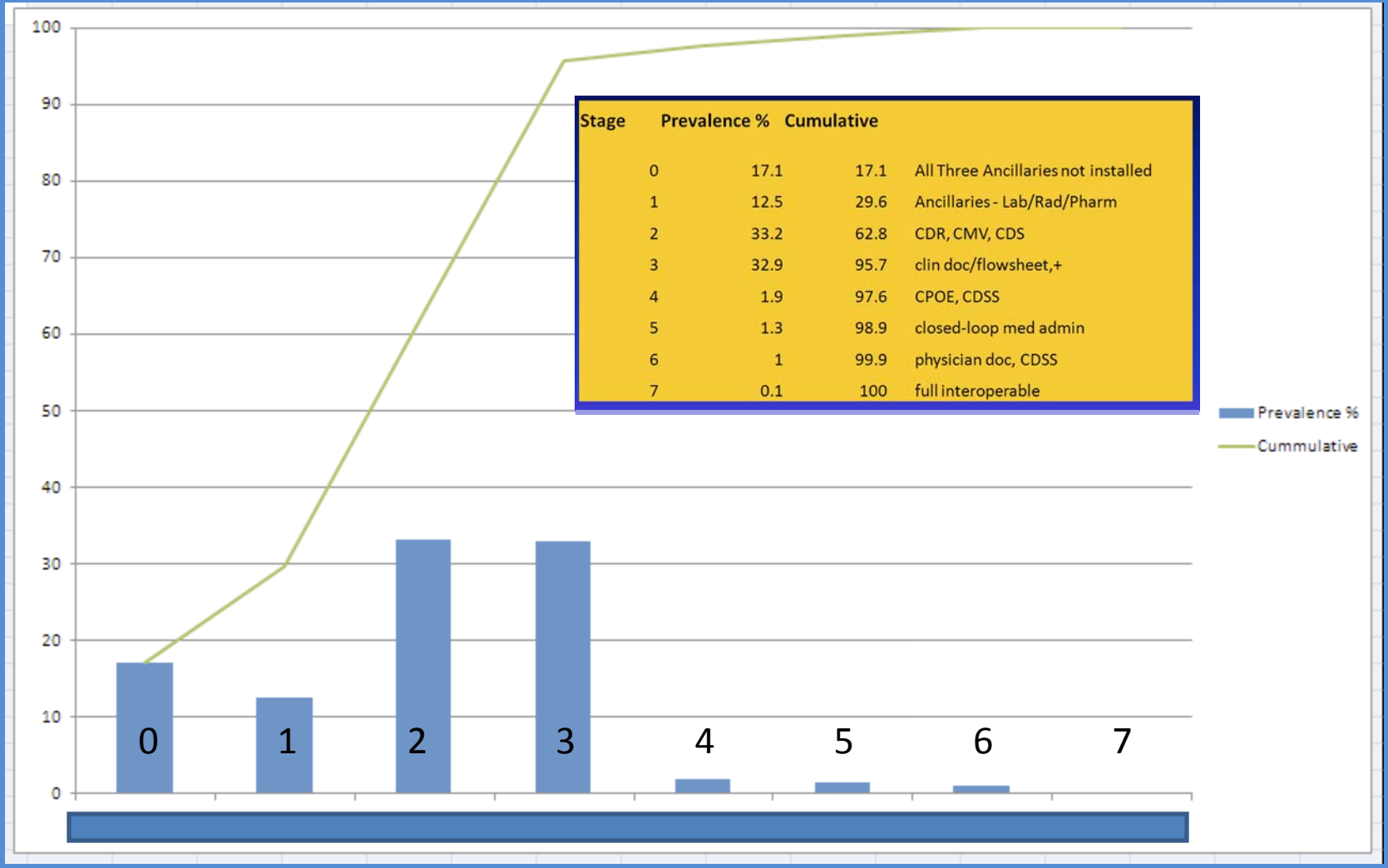
Issues with Meaningful Use of EMRs

EMR Adoption Model℠

Stage	Cumulative Capabilities	Q2 2008	Q3 2008
Stage 7	Medical record fully electronic; HCO able to contribute CCD as byproduct of EMR; Data warehousing in use	0.0%	0.1%
Stage 6	Physician documentation (structured templates), full CDSS (variance & compliance), full R-PACS	0.9%	1.0%
Stage 5	Closed loop medication administration	1.0%	1.3%
Stage 4	CPOE, CDSS (clinical protocols)	1.8%	1.9%
Stage 3	Clinical documentation (flow sheets), CDSS (error checking), PACS available outside Radiology	32.0%	32.9%
Stage 2	Clinical Data Repository, Controlled Medical Vocabulary, Clinical Decision Support System, may have Document Imaging	33.9%	33.2%
Stage 1	Ancillaries – Lab, Rad, Pharmacy – All Installed	12.6%	12.5%
Stage 0	All Three Ancillaries Not Installed	17.7%	17.1%
	Total Hospitals	n = 5048	n = 5050

Data from HIMSS Analytics™ Database N = 5048/5050

State of EMRs

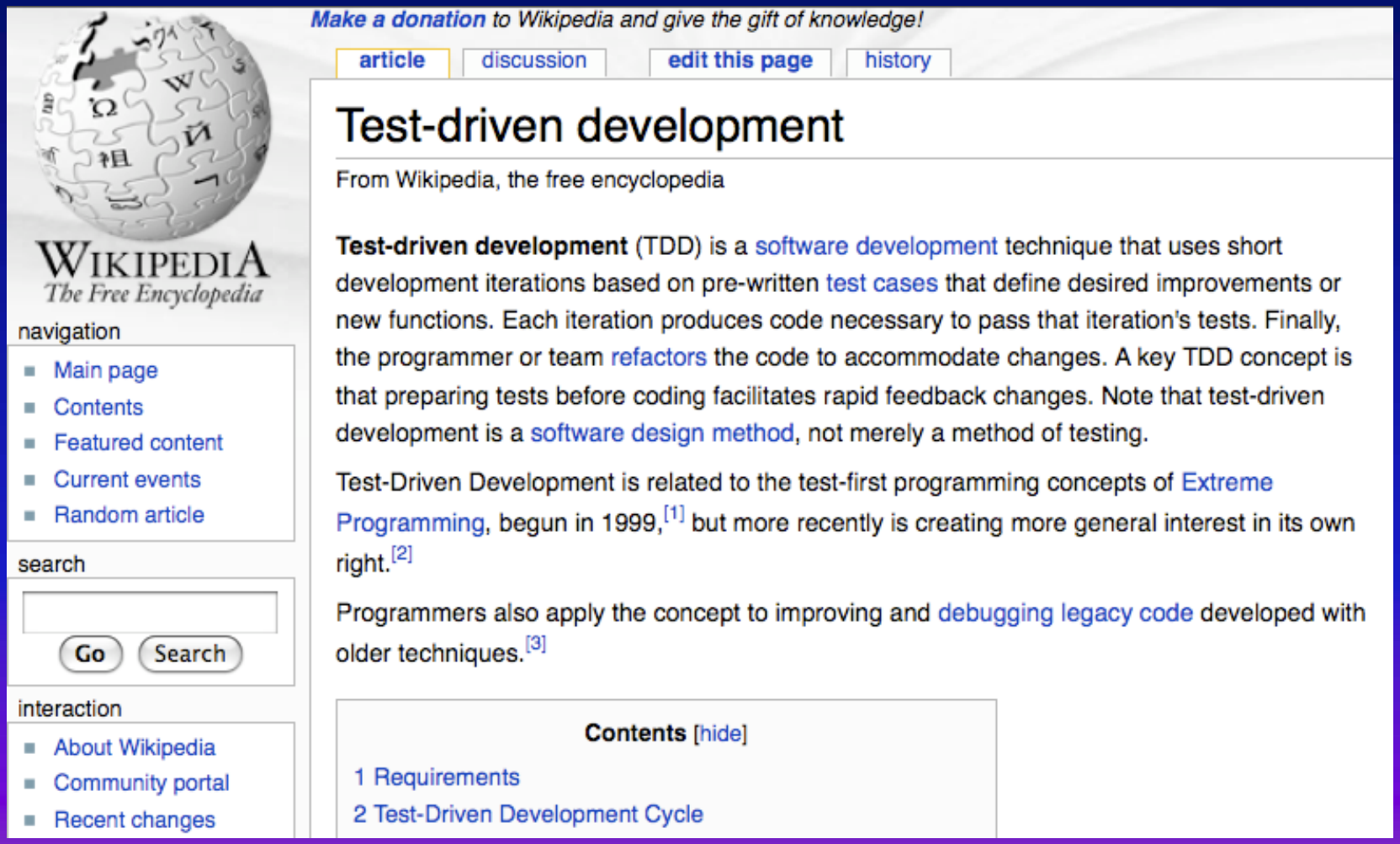


Stage	Prevalence %	Cumulative	
0	17.1	17.1	All Three Ancillaries not installed
1	12.5	29.6	Ancillaries - Lab/Rad/Pharm
2	33.2	62.8	CDR, CMV, CDS
3	32.9	95.7	clin doc/flowsheet,+
4	1.9	97.6	CPOE, CDSS
5	1.3	98.9	closed-loop med admin
6	1	99.9	physician doc, CDSS
7	0.1	100	full interoperable

Issues with ‘setting the bar’

- What are the constraints
  - Vendor Strength: Filling product gaps
  - Hospital Clients: Life cycle, not just Installation/Implementation
  - Composite Time Frames –
    - often multi-step: MPI cleanup, data conversion, HW+SW, build, training, pilot testing, post-live work
  - Costs: Incentive payments way downstream;
    - further Medicare cuts sooner
    - Huge, largely un-discussed people/labor costs and shortages
  - Getting it done –versus- Doing it right

Teaching to the test?



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Test-driven development

From Wikipedia, the free encyclopedia

Test-driven development (TDD) is a software development technique that uses short development iterations based on pre-written test cases that define desired improvements or new functions. Each iteration produces code necessary to pass that iteration's tests. Finally, the programmer or team refactors the code to accommodate changes. A key TDD concept is that preparing tests before coding facilitates rapid feedback changes. Note that test-driven development is a software design method, not merely a method of testing.

Test-Driven Development is related to the test-first programming concepts of Extreme Programming, begun in 1999,[1] but more recently is creating more general interest in its own right.[2]

Programmers also apply the concept to improving and debugging legacy code developed with older techniques.[3]

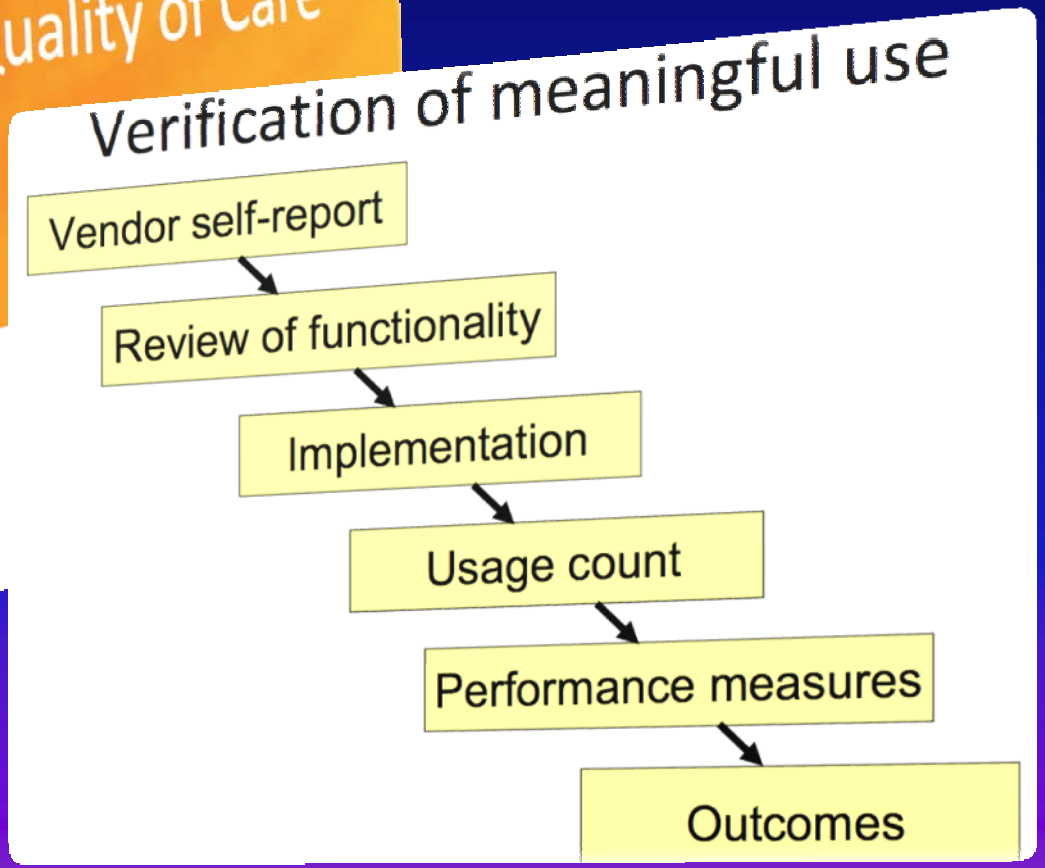
Contents [hide]

1 Requirements
2 Test-Driven Development Cycle

Structuring Measurement

ARRA and Other National Initiatives: Implications for Quality of Care

Jonathan Teich, MD, PhD
Elsevier Health Sciences
Harvard University
March 18, 2009



HIMSS Publishes Its Definitions of 'Meaningful Use'

CHICAGO (April 27, 2009) - On Monday, April 27, HIMSS published its definitions of 'meaningful use of certified EHR technologies,' as outlined in the American Recovery and Reinvestment Act of 2009 (ARRA). HIMSS sent a cover letter, plus two definitions: 1) meaningful users of certified EHR technologies and 2) meaningful use for hospitals, to the National Coordinator of Health IT and the Acting CMS Commissioner, within the Department of Health and Human Services (HHS)

ARRA calls for multiple years of Medicare incentive payments to hospitals and physicians who meet the requirements of "meaningful use of certified EHR technology" (an electronic health record). To be eligible for the incentive payments, hospitals and physicians must use the technology in a meaningful manner; to exchange electronic health information to improve the quality of care; and, submit clinical quality measures - and other measures - as selected by the Secretary of HHS. Further, hospitals and physicians must meet the definition within a specified time frame, which as described in ARRA, must be made increasingly stringent over time by the Secretary.

Approved by the HIMSS Board of Directors, the definitions resulted from consensus-building effort with input from HIMSS members (73 percent of which work in end-user settings), and the public at-large. HIMSS represents more than 20,000 individual members and 350 corporate members.

In summary, HIMSS recommends the following:

1. To ensure continuity, recognize CCHIT as the certifying body of EHRs.
2. To achieve incremental maturation of "meaningful use," adopt metrics that can be reasonably captured and reported beginning in FY11/2011,* and then made increasingly stringent using intervals of not less than two years. HIMSS' definitions include specific metrics to enact, in phases, over a multi-year period.
3. To bridge existing gaps in interoperability of health information, coordinate with HITSP and IHE to create new harmonized standards and implementation guides.
4. Reconcile the gap between "certified EHR technologies," "best of breed," and "open source" technologies.

http://www.himss.org/asp/himssNewsHome.asp

Phase 1

Phase #1: For a minimum of two years commencing FY11, HIMSS recommends HHS adopt the following functionality, interoperability, and reporting measures:

1. Major ancillary department information systems (lab, pharmacy, and radiology) and a clinical data repository in use, and interfaced with the patient accounting system. Such systems are vital as they create the diagnostic information that clinicians require to understand the patient's status and make effective patient care decisions.
2. Discrete clinical observations electronically entered and available to clinicians throughout the organization, and consistent across systems. Physician documentation is desirable, but optional. Clinical documentation is a prerequisite for effective computerized practitioner order entry (CPOE). For example, to make effective patient care decisions, clinicians must have a patient's allergies, an accurate and current problem list, vital signs, inputs and outputs, flow sheets, height/weight, and medication list.
3. Adoption of a combination of compliance metrics and National Quality Forum-endorsed quality measures that align with national quality and performance goals. The hospital's EHR must be agile enough to capture/report relevant statistics without manual intervention or manipulation. Such agility avoids the potential of "gaming the results" or creating room for errors.
    - Baseline reporting of percentage of medical orders entered electronically into the EHR by physicians;
    - Baseline electronic reporting of Joint Commission core measures;
    - Baseline reporting of the Agency for Healthcare Research and Quality (AHRQ) quality outcomes;
    - Baseline reporting of re-admissions within 24 hours of discharge;
    - Baseline reporting of duplicate diagnostic test orders; and,
    - Baseline reporting of present-on-admission tests compliance (i.e. MRSA, pneumonia).
4. Hospitals electronically exchange health information via scanned documents, text documents, or XML transactions. This will initiate electronic communication outside the hospital's walls that is needed for mature interoperability.

Phase 2

Phase #2: For a minimum of two years commencing FY13, HIMSS recommends HHS adopt the following criteria:

5. At least 51% of all medical orders are electronically entered by physicians via CPOE. Such a requirement shows evidence of movement towards a critical mass of clinicians utilizing EHRs. Until critical mass is achieved, a hospital is in the precarious situation of – in essence – maintaining dual record-keeping systems; one on paper, and other electronically.
6. Electronic prescribing beyond the bounds of the hospital to external pharmacies for discharge medications.[2] Such a requirement builds upon an interoperability platform, which allows hospitals to transmit information outside the walls of the facility.
7. Using the to-be-developed EHR output data standards and implementation guides published by HITSP and IHE, hospitals electronically exchange patient information with external entities such as, but not limited to, other hospitals, payers, transitional/long-term care, physician practices, community pharmacies, patients' personal health records, and health information exchanges. Such information could include discrete data for demographics, emergency contact information, allergies, medication summaries, problem list, reporting of diagnostic tests, the patient's primary spoken language, race, and ethnicity.
8. Quality Reporting Metrics – Continuation of the FY11 recommendations, with percentages of change (increase/reduction) identified[3], and some new metrics:
   - Continued reporting of re-admissions within 24 hours of discharge;
   - Continued reporting of compliance for present-on-admission tests (i.e. MRSA, pneumonia);
   - Discharge prescriptions are electronically sent to pharmacy of patient's choice upon patient discharge;
   - Baseline reporting of time between when the medication was ordered and when it was actually administered to the patient; and,
   - Baseline reporting of cardiac outcomes.
9. Hospitals' transmissions must be submitted in standardized, discrete data elements and transactions via the Continuity of Care Document (CCD)[4] based upon HITSP interoperability specifications as published in the *Federal Register*.[5]

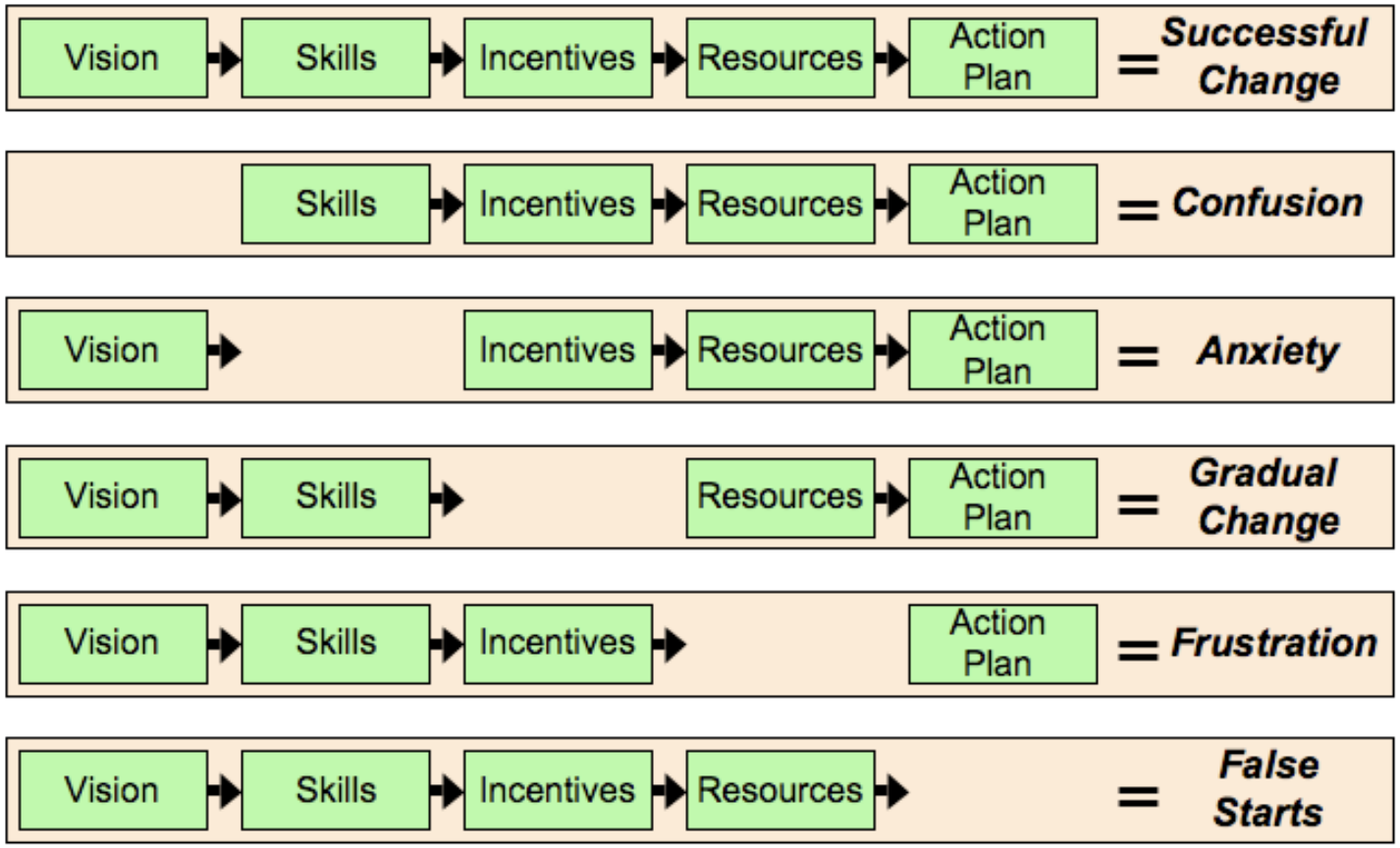
Phase 3

Phase #3: For a minimum of two years commencing FY15, HIMSS recommends HHS adopt the following criteria:

10. 85% of all medical orders entered electronically by physicians. Exceptions will always exist. Setting a requirement of 100% is both unrealistic and unachievable.
11. Closed-loop medication administration at the point of care, to assist users in performing the "five rights"[6] checking and patient safety, using positive identification such as bar-coding. The closed loop is a foundational piece of the EHR. Progress towards increasingly-closed loops will incorporate the interoperability of diagnostic and therapeutic medical devices with clinical information systems.
12. Demonstrated use of clinical decision support via evidence-based order sets and core measures reminders. The intent is to prevent errors and adverse events, improve compliance with care guidelines, and improve test ordering.
13. Support analysis of pharmacokinetic outcomes resulting from patient medication interaction. Such analysis provides insights regarding patient safety and care outcomes.
14. Using HITSP interoperability specifications and IHE frameworks, hospitals electronically exchange information with public health entities and/or a local/regional health information exchange, which are connected at least at the state level – if not at the national level. As ARRA specifically states a goal of a nationwide health information network, such a requirement promotes the maturation of existing HIEs and creation of new HIEs in markets where none currently exist.
15. Quality Reporting Metrics – Continuation of the FY13 recommendations, with percentages of change (increase/reduction) identified,[7] and:
    - An increase in the percentage of prescriptions electronically sent to pharmacy of the patient's choice upon patient discharge;
    - An increase in quality outcomes for cardiac-related care; and,
    - A reduction in time between the time a medication is ordered and when it is actually administered to the patient.
16. Components of health information, as specified in the CCD standard, are electronically exchanged as discrete data elements. This means that not only must the information be transmitted via the CCD; it also means that receiving entities must be able to use the CCD as a source of information to input and/or update information in their version of the record.[8]

Are Incentives Enough?

Managing Complex Change



Only when each item is incorporated into the change process, can successful change occur. With the absence of only one element from the change formula, organizations will encounter unwanted consequences.

Questions / Discussion