

CDS and Quality  
Office of the National Coordinator  
for Health IT  
June 7, 2012

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# Questions:

- What is the role of Clinical Decision Support in the quality lifecycle? How does CDS relate to quality measurement?
- How might aggregate measurements of the usefulness and outcomes of CDS interventions be used to foster improved techniques for CDS delivery?
- How can the alignment between quality improvement initiatives and clinical decision support be improved? What additional things need to happen to blend these communities?
- How can health IT better support quality measurement/improvement?

# Quality Integration Cycle

*Henry SB, Lenert L, Middleton B, HIMSS Proc, pp. 57-81, 1993.*

## Measurement

*Clinimetrics: Reliability, Bias, Error*

## Data

*Message: HL-7 3.0, ASC*

*X12N, NCPDP, MIB*

*Model: RIM*

*Knowledge: Arden,*

*GLIF, Gello ...*

## Vocabulary

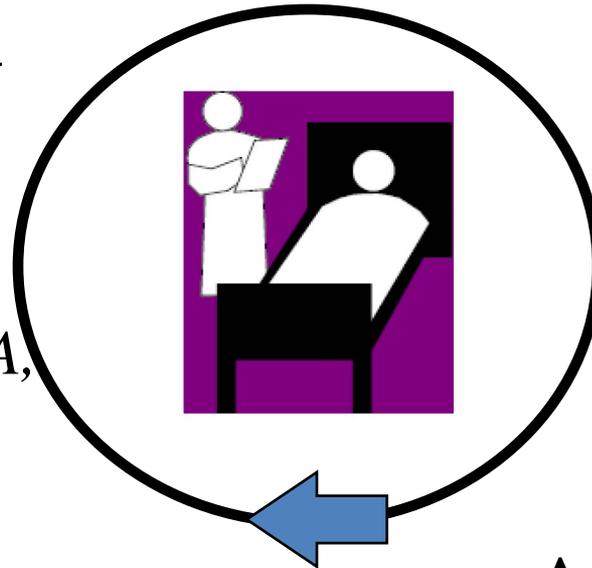
*SNOMED-CT,*

*ICD-9/10CM, CPT,*

*DSM, LOINC, NANDA,*

*NIC, NOC, CDISC*

*Sequence data, ...*



## EMR



## Analysis

*BI/Predictive analytics,*

*Caradigm, TSI, dr. Quality,*

*TSI, APACHE, CSI, PMC<sup>3</sup>...*

# Afferent and Efferent Limbs

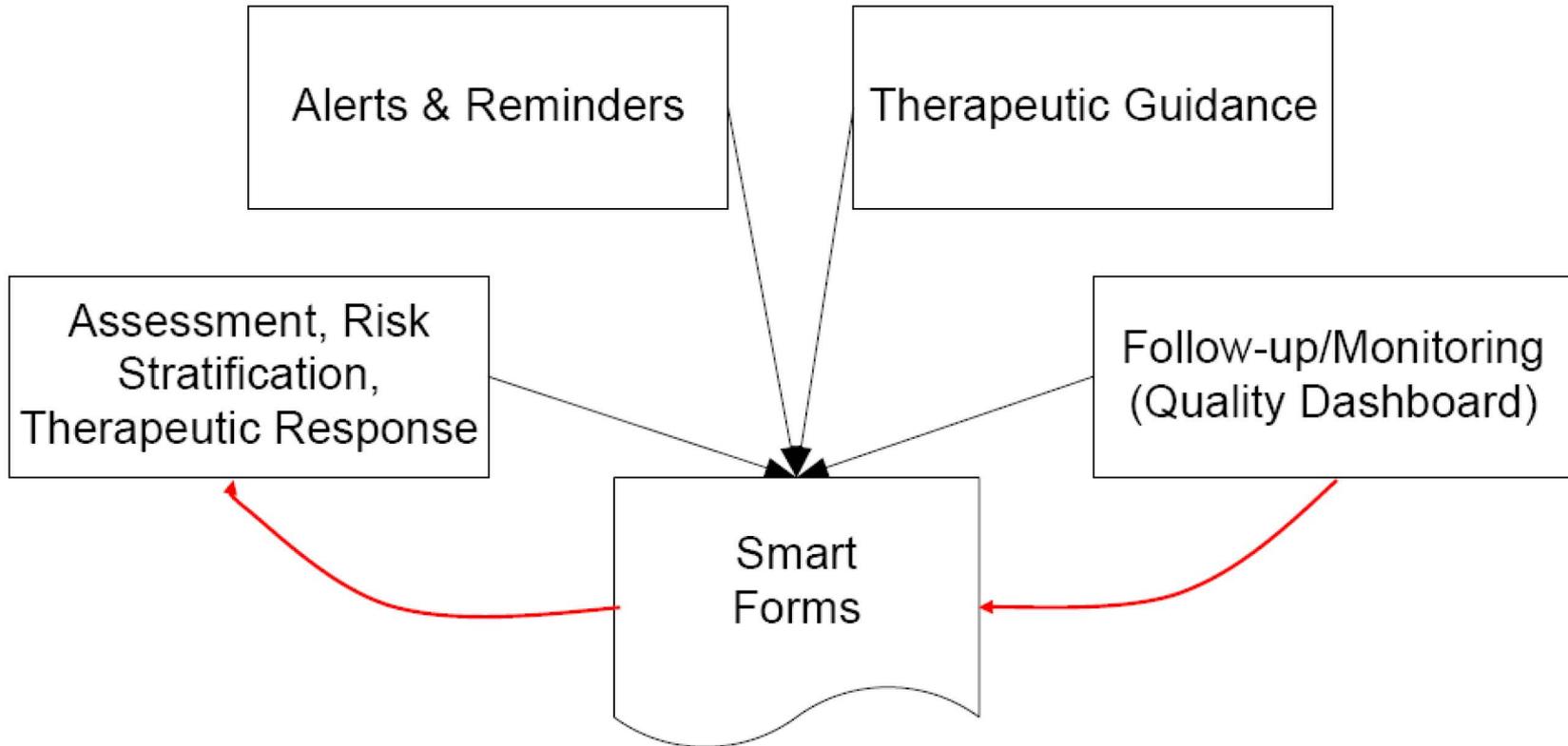
## **CDS – Afferent Limb**

- The “if”
- Suggest an action
- Define a cohort
- Inclusive approach...
- Inclusions/exclusions
- Process

## **Quality – Efferent Limb**

- The “then”
- Perform a measurement
- Define a cohort
- Exclusive approach...
- Inclusions/exclusions
- Outcomes

# CDS Integrated into the Clinical Workflow



# CAD/DM Smart Form

**Medication Orders**

**Lab Orders**

**Referrals**

**Handouts/Education**

**Blood Pressure Management**

Blood Pressure is above goal (avg. over last 2 visits 130/80, goal < 130/80)

[Start an Other Anti-Hypertensives \(Help Me Choose\)](#)

[Adjust Oretic 25 MG \(25MG TABLET take 1\) PO QD](#)

[Adjust Lisinopril 20 MG \(20MG TABLET take 1\) PO QD](#)

[Adjust Acebutolol HCL 200 MG \(200MG CAPSULE take 1\) PO QD](#)

Order Chem 7 now

Order Chem 7 in

Referral to Nutritionist

Referral to Cardiac Rehab ([Help Me Choose](#))

Referral to Blood Pressure Specialist ([Help Me Choose](#))

[Print "Control High Blood Pressure"](#)

[Print DASH diet instructions](#)

[Print exercise "prescription"](#)

# CAD Quality Dashboard

PARTNERS. Report Central

Provider: [ ] Location: [ ] Feedback

Reports Quality Dashboards Help Admin

ARI Dashboard | CAD Dashboard

ary Measures Pati

Targets are 90<sup>th</sup> percentile for HEDIS or for Partners providers

Red, yellow, and green indicators show adherence with targets

	My Value (N)	Clinic Average (N)	Target
ACE Inhibitor/ARB Management: % of patients on ACE inhibitor/angiotensin-receptor blocker	52% (55)	59% (1093)	> 78%
BMI Documentation: % of patients with BMI documented	22% (23)	45% (839)	> 76%
Smoking Status Documentation: % of patients with smoking status documented	18% (19)	32% (597)	> 87%
Anti-platelet Management: % of patients on anti-platelet	81% (85)	79% (1479)	> 94%
Beta-blocker Management: % of patients on beta-blocker	69% (72)	75% (1392)	> 80%
Blood Pressure Management: % of patients with BP at or below goal	27% (28)	50% (929)	> 68%
Zero Defect Care: % of patients with zero deficiencies	0% (0)	1% (14)	> 47%
	105		

- Zero defect care:
- Aspirin
  - Beta-blockers
  - Blood pressure
  - Lipids

# CDS Dashboard: CAD and no aspirin

## Evaluate and refine CDS logic

Report: CDS Dashboard - Reminder Designer View  
Report Run For: EINBINDER, JONATHAN SETH, M.D., M.P.H.

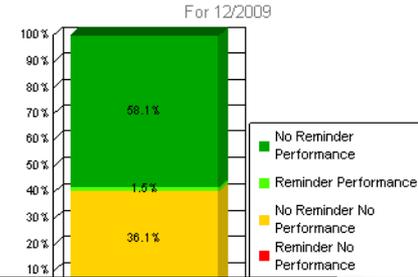
Single Month View For Month: 12/2009

Condition: CAD  
Measure: Patient has CAD and aspirin is on the med list

Reminder: Patient has CAD-equivalent on problem list and aspirin is not on the med list. Recommend aspirin.

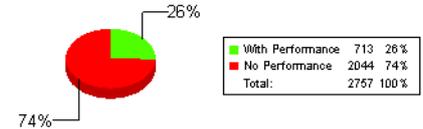
Date Range: 12/2009

### Reminder Performance By Category



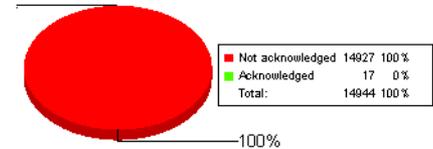
### Reminder Performance

For 12/2009

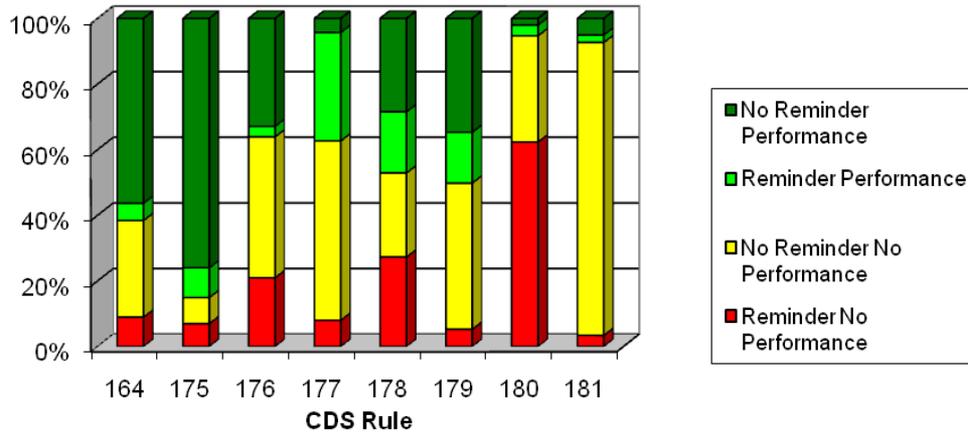


### Reminder Acknowledgement

For 12/2009



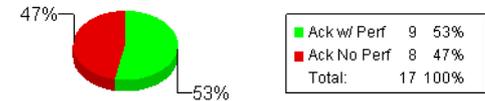
### Reminder Performance By Category



ged 17  
nth 3.87  
ers 20.96  
yed 2,757  
ays 14,944  
Perf 713  
perf 2,044  
perf 17,262  
perf 27,763  
otal 28,476  
N 47,782

### Acknowledgement Performance

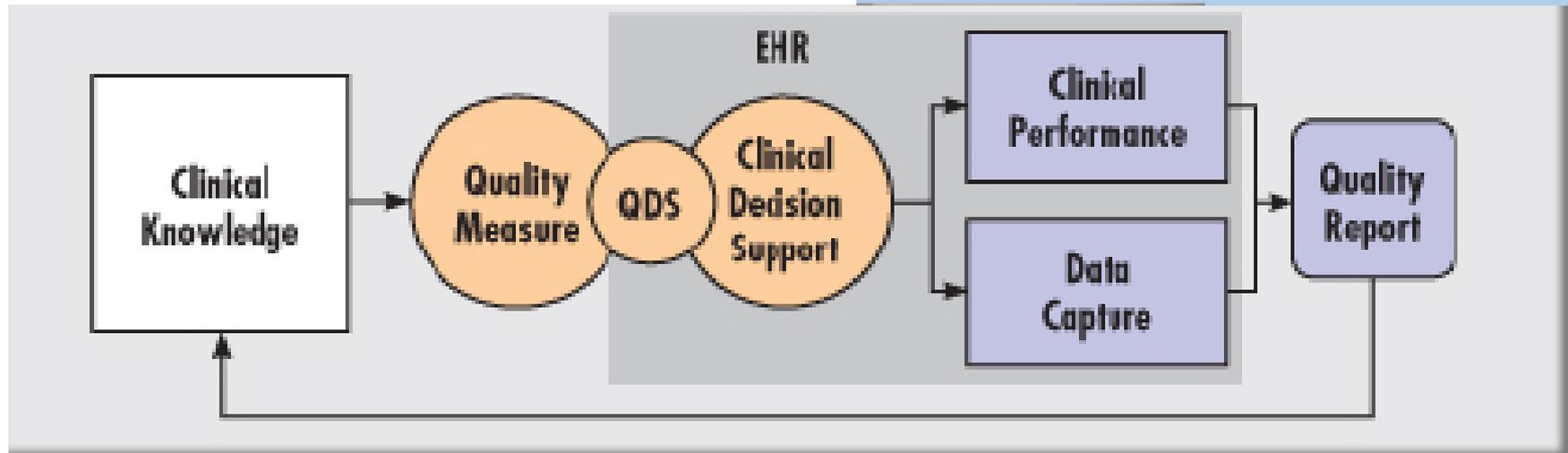
For 12/2009



# Relationship between quality measures, CDS, and the NQF QDS Model

Driving Quality and Performance Measurement—A Foundation for Clinical Decision Support

A CONSENSUS REPORT



**eMeasure Goal 0059:  
H<sub>g</sub>A<sub>1c</sub> ≤ 9% in Type 1 or Type 2 DM Adults**

eMeasure Logic:  
# of Type 1 or  
Type 2 DM adults  
with H<sub>g</sub>A<sub>1c</sub> > 9%  
within last year

CDS Logic:  
Assesses Clinical State of DM Adult  
Recommend Diagnostics  
Recommend Therapeutics (titration)



**Shared NQF  
Value Sets:**

*Diagnosis Classes*

*Lab Data Classes*

*Medication Classes*

Type 1 and Type 2  
DM

LOINC codes  
H<sub>g</sub>A<sub>1c</sub> Test Results

Anti-Diabetic  
Medications

Steroid-Dependent  
DM

Polycystic Ovary  
Disease

Gestational DM

Exclusions

6/7/2012

# Recommendations

- Leveraging and standardize the value set definitions for both CDS and eMeasure implementations
- Provide standard e-measure specifications
- Provide corollary standard e-CDS specification
- Coordinate, align and standardize controlled terminology to support above
  - (NDFRT, RxNorm, ICD, SNOMED, LOINC, etc.)
- Share e-measure and e-CDS specifications as implementable specifications (CDSC L3)
- Make cloud-based e-measure and e-CDS web services
- (see submitted proposal)