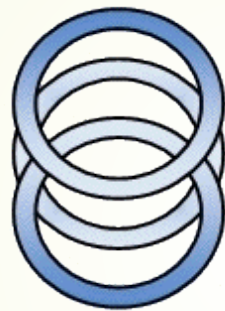


# To Meaningful Use and Beyond



**Key  
Health  
Alliance**

Regional Extension  
Assistance Center for HIT

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Clinical Director

Regional Extension Assistance Center for HIT (REACH)

Minnesota eHealth Summit 2010  
June 17<sup>th</sup> 2010

# Objectives

- Understand the driving forces behind the meaningful use incentives
- Understand the goals behind the progressive stages of meaningful use
- Give you the tools and techniques you need to exceed the meaningful use incentive goals

# Outline

- Why we need change
- Framework for the criteria
- Preparing for meaningful use and beyond
- Review of Clinical Decision Support
- How to make this work

# We Have a Problem:

## The National Academies Reports

- *To Err is Human: Building a Safer Health System (1999)*
  - Identified that at least 44,000 and perhaps as many as 98,000 hospitalized Americans die every year from medical errors
- *Crossing the Quality Chasm (2001)*
  - A concerted national commitment to building information infrastructure is needed to support health care delivery
- *Preventing Medication Errors (2007)*
  - Medication errors injure 1.5M people and cost \$3058 per year (exclusive of lost wages and productivity) in the U.S.
- *Computational Technology for Effective Health Care: Immediate Steps and Strategic Directions (2009)*
  - "Crossing the Health Care IT Chasm:" Even in organizations with advanced HIT, it is rarely used to provide clinicians with evidence-based decision support or for data-driven process improvement

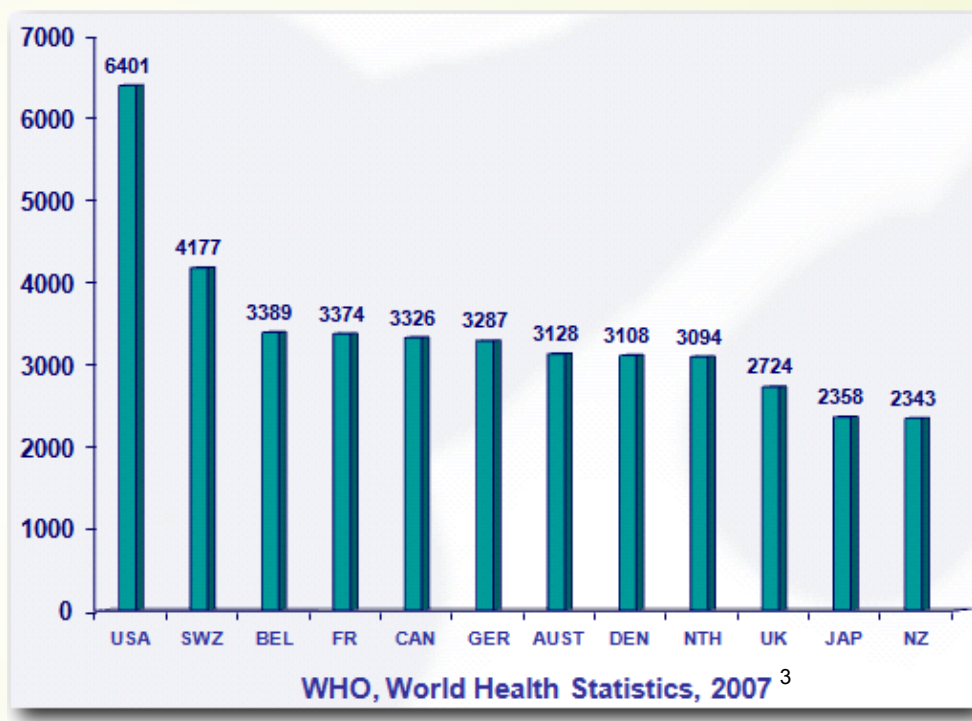
Source: Margret Amatayakul, Health IT Certification, March 15, 2010, used with permission



# Are we getting value for our dollar?

## Costs vs. Quality

- Per capita health care spending
  - \$2.3T (2008)<sup>1</sup>
  - 16.2% GDP
  - \$7,681 per person
- Ranked 37th of 191 in quality<sup>2</sup>



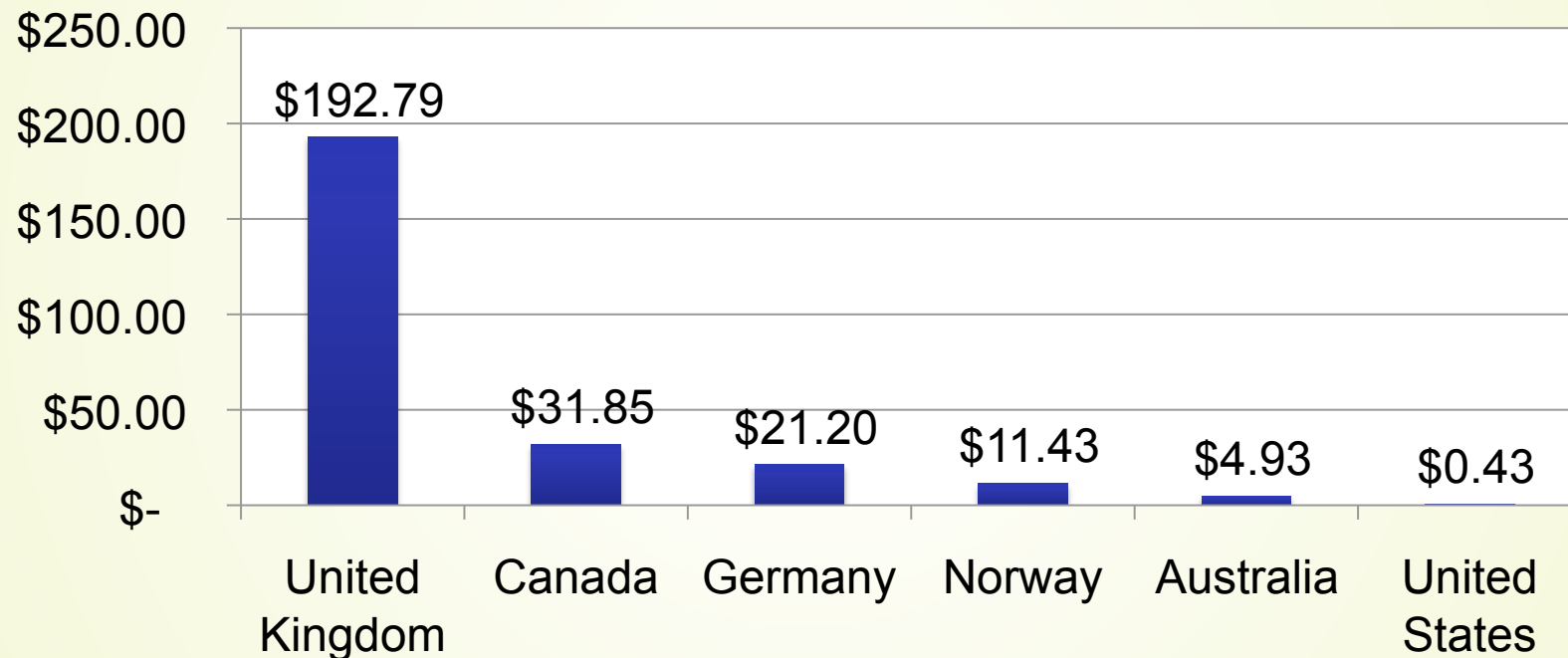
<sup>1</sup> Center for Medicare and Medicaid Services (<http://www.cms.gov/nationalhealthexpenddata/>)

<sup>2</sup> World Health Organization Data, 2000 (<http://www.who.int/whr>)

<sup>3</sup> Figure from: [www.cbo.gov/ftpdocs/89xx/doc8948/01-31-HealthcareSlides.pdf](http://www.cbo.gov/ftpdocs/89xx/doc8948/01-31-HealthcareSlides.pdf)

# Underinvestment in HIT

## Per Capita Spending on Health Information Technology



Source: Anderson, G. F., Frogner, B. K., Johns, R. A., & Reinhardt, U. E. (2006). Health Care Spending And Use Of Information Technology In OECD Countries. *Health Affairs*, 25(3), 819-831.



# Patients Want More Accessible, Coordinated, Well-Informed Care

Percent reporting it is very important/important that:	Total Very important or important
You have easy access to your own medical records	94%
All your doctors have easy access to your medical records	96%
You have information about the quality of care provided by different doctors/hospitals	95%

Source: Commonwealth Fund Survey of Public Views of the U.S. Health Care System, 2008.



# Parents Want More Access for Their Children

**Table 1. Current and Future Online Communication with Children's Health Care Providers**

	Currently can do	Would be very helpful to do
<b>Electronic Administrative Action</b>		
Schedule an appointment	9%	40%
Obtain child's immunization record	9%	55%
Complete checklist/screening form prior to a well-child visit	6%	46%
<b>Electronic Clinical Action</b>		
Request prescription refill	11%	55%
Get advice regarding a minor illness or injury	14%	47%
Obtain lab results	6%	53%

Source: C.S. Mott Children's Hospital National Poll on Children's Health, 2010



# Outline

- Why we need change
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# Transforming America's Health System

- Embrace Health Information Technology (HIT) to facilitate the transformation
- Incentivize the use of HIT with rewards for achieving goals through its use
- Use the goals from the National Priorities Partnership since they address our major challenges:
  - Eliminating harm
  - Eradicating disparities
  - Reducing disease burden
  - Removing waste



# Broad Goals for Meaningful Use

## Vision

Enable significant and measurable improvements in population health through a transformed health care delivery system

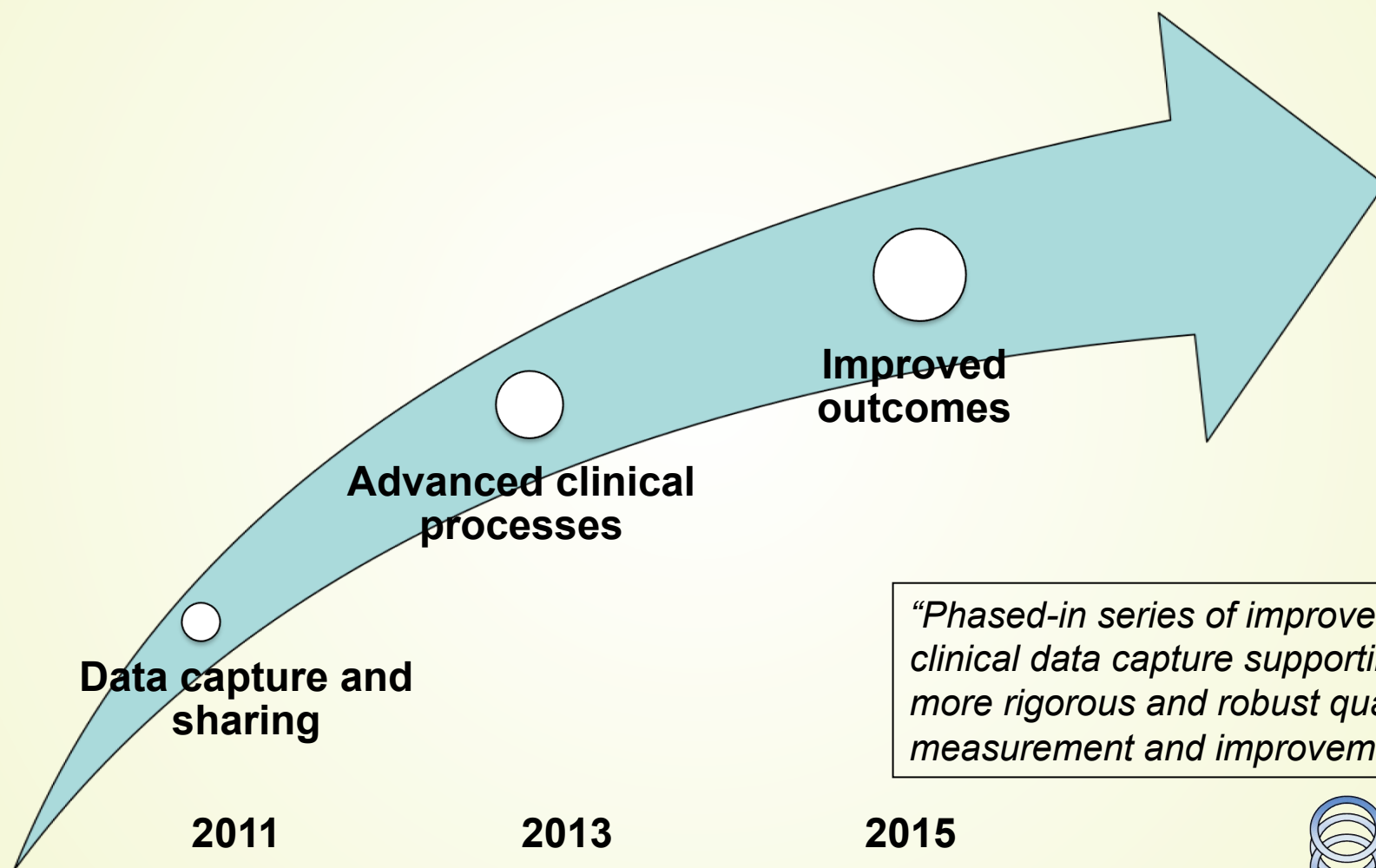
## Goals\*

1. Improve quality, safety, efficiency and reduce health disparities
2. Engage patients and families
3. Improve care coordination
4. Improve population and public health
5. Ensure adequate privacy and security protections for personal health information

\*Adapted from National Priorities Partnership. National Priorities and Goals: Aligning Our Efforts to Transform America's Healthcare. Washington, DC: National Quality Forum; 2008.



# Bending the Curve Towards Transformed Health



*“Phased-in series of improved clinical data capture supporting more rigorous and robust quality measurement and improvement.”*

Source: Connecting for Health, Markle Foundation “Achieving the Health IT Objectives of the American Recovery and Reinvestment Act” April 2009



# Outline

- Why we need change
- Framework for the criteria
- Preparing for meaningful use and beyond
- Review of Clinical Decision Support
- How to make this work

# What Are Your Organizational Goals?

- Do you just want to pass the test? Or do your best?
- Would you be satisfied in telling your patients that we did not fail in providing care to you, or that you provided *exceptional* care?
- To truly use EHRs effectively, we must not just “pass” the stage 1 meaningful use criteria, but surpass it by a wide margin.

# Examples from Original Criteria: Improve Quality

- Use CPOE for all orders [V, B, P]
- Implement drug- drug, drug- allergy, drug- formulary checks [V, B]
- Maintain an up- to-date problem list of current and active diagnoses based on ICD-9 or SNOMED [P]
- Generate and transmit prescriptions electronically [V, B]
- Maintain active medication lists [N, P]
- Maintain active medication allergy list [N, P]
- Record demographics (preferred language, insurance type, gender, race, ethnicity) [R]
- Record advanced directives [R, N, P]
- Record vital signs (height, weight, blood pressure) [N], calculate and display BMI [V]
- Record smoking status [N]
- Incorporate lab results into EHR as structured data [V, B]
- Generate lists of patients by specific condition to use for quality improvement, reduction of disparities and outreach [V]
- Report ambulatory care measures to CMS [V]
- Send reminders to patients per patient preferences for preventive / follow-up care [V] {NOTE: rules will need to be built into the system locally [B, P]}
- Implement one clinical decision rule relevant to specialty of high clinical priority [V, B]
- Document progress note for each encounter [P]
- Check insurance eligibility electronically from public and private payers where possible [V, B]
- Submit claims electronically to public and private payers [V, B]

V: EHR Vender  
B: Build Team

R: Registration staff  
N: Nursing

P: Provider



# Provide Clinical Summaries (CS) for at least 80% of all office visits

- Technical Issues:
  - Vendor
    - Ability to print a CS
  - Build
    - Configure the CS with the facilities logo and contact information
    - Put printers in a convenient place so these can be retrieved and given to the patient
    - Configure the CS to have the appropriate information populated in it
    - Ability to retrieve the production of the CS for tracking purposes
- Workflow Issues
  - Nursing
    - Verify and enter the current meds
    - Enter the vitals signs
    - Ideally: Review and update the problems, allergies and preventative screening
  - Providers
    - Enter the visit diagnosis, medications and follow-up instructions into the EHR before the patient leaves the office
    - Update the problem list as appropriate
    - Ideally: Review the document with the patient in the room at the end of the visit

# Examples from Original Criteria: Measures of Quality

- % diabetics with A1c under control
  - Diabetes on the problem list [P]
  - A1c labs in the chart [B]
  - Provider specific reports on A1c control [B]
  - Providers looking at and acting on the report [P]
- % hypertensives with BP under control
  - Hypertension on the problem list [P]
  - Blood pressures in the chart [B]
  - Provider specific reports on BP control [B]
  - Providers looking at and acting on the report [P]
- % smokers offered smoking cessation
  - Smoking status documented in the chart [N, P] (as a discrete data element [B])
  - Smoking cessation counseling offered and recorded [N, P] (as a discrete data element [B])
- % patients with recorded BMI
  - BMI calculated by EHR [V]
  - Height in chart [N]
  - Weights on each visit [N]
- % of orders entered by CPOE
  - Order entry built [B]
  - Orders entered electronically [P]
  - Ability to capture order source [V]
  - Reports capturing written, telephone, verbal and direct orders [B]
- Use of high risk medications in the elderly
  - Ability to identify high-risk medications for the elderly [V]
  - Ability to warn prescriber when a high-risk medication is selected for a person > 65 [V, B]
  - Reacting to and acting on medication alerts [P]
- % of patients over 50 with current colorectal cancer screening
  - Capture of type of screening and build of screening interval [B]
  - Recording of type and date of screening [N, P]
  - Provider specific reports on colon cancer screening [B]
  - Providers looking at and acting on the report [P]

V: EHR Vendor  
B: Build Team

R: Registration staff  
N: Nursing

P: Provider



# Vendor Responsibilities

## (should be covered if software is certified)

- CPOE must be able to be used for all orders
- Software must have drug- drug, drug- allergy, drug-formulary checks
- The ability to generate and transmit prescriptions electronically
- The ability to calculate and display BMI
- Must incorporate lab results into EHR as structured data
- The ability to generate lists of patients by specific condition or demographic to use for quality improvement, reduction of disparities and outreach
- The ability to report ambulatory care measures to CMS
- The ability to send reminders to patients per patient preferences for preventive / follow-up care
- The ability to implement clinical decision rules
- The ability to check insurance eligibility electronically from public and private payers
- The ability to submit claims electronically to public and private payers
- The ability to provide patients and families with an electronic copy of their health information (including lab results, problem list, medication lists, allergies)
- The ability to provide access to patient-specific education resources
- The ability to provide clinical summaries for patients for each encounter
- The ability to exchange key clinical information (e.g. problem list, medication list, allergies, test results) among providers of care and patient authorized entities electronically
- The ability to perform medication reconciliation at encounters and transition of care
- The ability to submit electronic data to immunization registries
- The ability to provide electronic syndromic surveillance data to public health agencies with transmission according to applicable law and practice
- The ability to capture items such as smoking status, education given, outside colon cancer screening, outside labs, eye exams as discrete data elements for reporting
- The ability to capture the order source for all orders (written, verbal, telephone, CPOE)
- The ability to identify high risk medications for the elderly and be capable of drug- age checks.
- High-cost imaging studies can be flagged to require reasons
- The ability to retrieve whether medication reconciliation was done at a transition of care



# Build Responsibilities

- Orders must be built so CPOE can be use for all orders, will likely require order set build as well
- Drug-drug, drug-allergy, drug-formulary checks will need to be “tuned” in order to avoid unnecessary or false alerts
- Drug-age checks for high risk medications in the elderly will need to be configured.
- Pharmacy information will need to be built into the system so prescriptions can be sent electronically
- Build links to lab so lab results appear in the EHR as structured data
- Build the rules into the EHR so that reminders can be sent to patients per patient preferences for preventive / follow-up care
- Build one clinical decision rule relevant to specialty of high clinical priority
- Build interfaces to public and private payers to check insurance eligibility electronically
- Build interfaces to public and private payers submit claims electronically
- Format the reports in order to provide patients and families with an electronic copy of their health information (including lab results, problem list, medication lists, allergies) upon request
- Format the clinical summary report to be given to patients after an encounter
- Build the interfaces to allow for the exchange key clinical information (e.g. problem list, medication list, allergies, test results) among providers of care and patient authorized entities electronically
- Build interfaces to immunization registries to submit data electronically
- Build interfaces to public health agencies to provide electronic submission of syndromic surveillance data according to applicable law and practice
- Configure the system in such a way as to be in compliance with fair data sharing practices set forth in the Nationwide Privacy and Security Framework
- Build reports so that providers are able to assess and improve their performance in targeted quality measures and stratification by key demographics
- Create a way to capture colon cancer screening and build in appropriate screening intervals
- Create a way to flag high-cost imaging studies and require structured indications
- Create and/or configure web portal for patients to access their health information

# Nursing and Office Staff Responsibilities

- Registration / Office Staff
  - Record demographics (preferred language, insurance type, gender, race, ethnicity, birth date)
  - Check to see if patient has advanced directives and record that information in the chart \*
  - Provide patients and families with an electronic copy of their health information upon request
  - Compliance with HIPAA privacy and security rules
  - Compliance with fair data sharing practices set forth in the Nationwide Privacy and Security Framework
- Nursing
  - Review and update the active medication list
  - Maintain active medication allergy list
  - Check to see if patient has advanced directives and record that information in the chart \*
  - Record vital signs (height, weight, blood pressure)
  - Record smoking status
  - Perform medication reconciliation at relevant encounters and each transition of care
  - Coded recording of symptoms in the chart to facilitate electronic syndromic surveillance data to be sent to public health agencies
  - Compliance with HIPAA privacy and security rules
  - Compliance with fair data sharing practices set forth in the Nationwide Privacy and Security Framework

# Provider Responsibilities

- Use CPOE for all orders
  - Maintain an up- to-date problem list of current and active diagnoses based on ICD-9 or SNOMED
  - Maintain active medication lists
  - Maintain active medication allergy list
  - Record advanced directives \*
  - Come to agreement on the rules needed to send reminders to patients per patient preferences for preventive / follow-up care \*
  - Document progress note for each encounter
  - Provide clinical summaries for patients for each encounter
  - Perform medication reconciliation at relevant encounters and each transition of care
  - Improve practice quality based on
- CMS and other reports generated by the EHR
  - Appropriately respond to high-risk-medication-in-the-elderly warnings when they occur during the ordering process
  - Document coded reasons for high cost imaging studies when required in the ordering process
  - Document a coded reason when a measured guideline is not followed
  - Coded recording of symptoms in the chart to facilitate electronic syndromic surveillance data to be sent to public health agencies
  - Compliance with HIPAA privacy and security rules
  - Compliance with fair data sharing practices set forth in the Nationwide Privacy and Security Framework



# So What Do We Need?

- A certified EHR which allows for:
  - Capture of the data
  - Extraction of data about user actions
  - Extraction of quality metrics
  - Customization to meet your specific clinical, quality and business needs
- If a vendor says “It can be done,” have them show you how it works
- Usability
  - Measure the performance of the EHR in meeting the MU criteria and quality metrics when they are finally defined in addition to its overall usability

# So How can we make this work?

- Examine the workflow
- Design the workflow so that all work at the top of their license
- Build an attitude of excellence and cooperation
- Involve all staff in the process
- Use the full range of clinical decision support tools at your disposal

# Outline

- Why we need change
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- **Review of Clinical Decision Support**
- How to make this work

# What is Clinical Decision Support?

- A variety of approaches for delivering clinical knowledge, and intelligently filtered patient information, to clinicians and/or patients for the purpose of improving healthcare processes and outcomes\*
- Making the right thing to do the easiest thing to do

\* Improving Outcomes with Clinical Decision Support: An Implementer's Guide



# Tools in the CDS Toolkit

- Documentation forms or templates
- Situation-specific flow sheets
- Relevant data presentation
- Referential information
- Interactive sequential advice
- Order sets
- Alerts and reminders
- Protocols and Pathways



# Templated Documentation

- Help prompt complete documentation for quality measures and compliance
- Guide the individual in asking questions appropriate to the situation
- Allow for capture of discreet data elements
- Can be driven by items from the chief complaint / reason for visit, problem list, medication list, symptoms, etc.
- Useful when documenting reasons for using expensive medications or procedures

# Situation Specific Flow Sheets

- Allow for a single view of a patient's medications, lab results, vital signs, etc. along a timeline relevant to the situation
  - ICU flow sheet
  - Disease specific flow sheet
- Eliminate the need to search for information
- Increases the likelihood that important information will be seen
- Decreases the likelihood that necessary interventions will go unordered

# Relevant Data Presentation

- Relevant lab, age or weight display when writing orders
  - Creatinine when ordering metformin
- Last filled date when renewing medications
- Suggested medication list showing generics, formulary, preferred medications first
- Targeted patient lists based on diagnosis
- Bed availability and tracking

# Referential Materials

- Links from EHR to articles, protocols, drug monographs, dosing calculators, flow sheets, tables and the like.
- Information pertinent to the task at hand is available one or two clicks away
- More valuable the fewer clicks it takes to find an answer

# Interactive Sequential Advice

- Guides the user in decision making
- Helpful in difficult situations
- Has been used by health plans for patient decision support
- When targeting the care professional, difficult to maintain and challenging to use

# Order Sets

- Orders based on disease, procedure, problem
- Can be based on best practice, convenience, common practice or a combination
- Guide your users to best practice and a standard of care
- Can be created locally purchased from a content vendor or, more likely a combination
- Successful adoption by physicians requires buy in



# Alerts and Reminders

- Can be passive highlights or interruptive “pop-ups” to alert user to a problem (allergy alert), new data (lab result) or passage of time without a specified event
- Important to strike a balance between desired outcomes and interruption of workflow

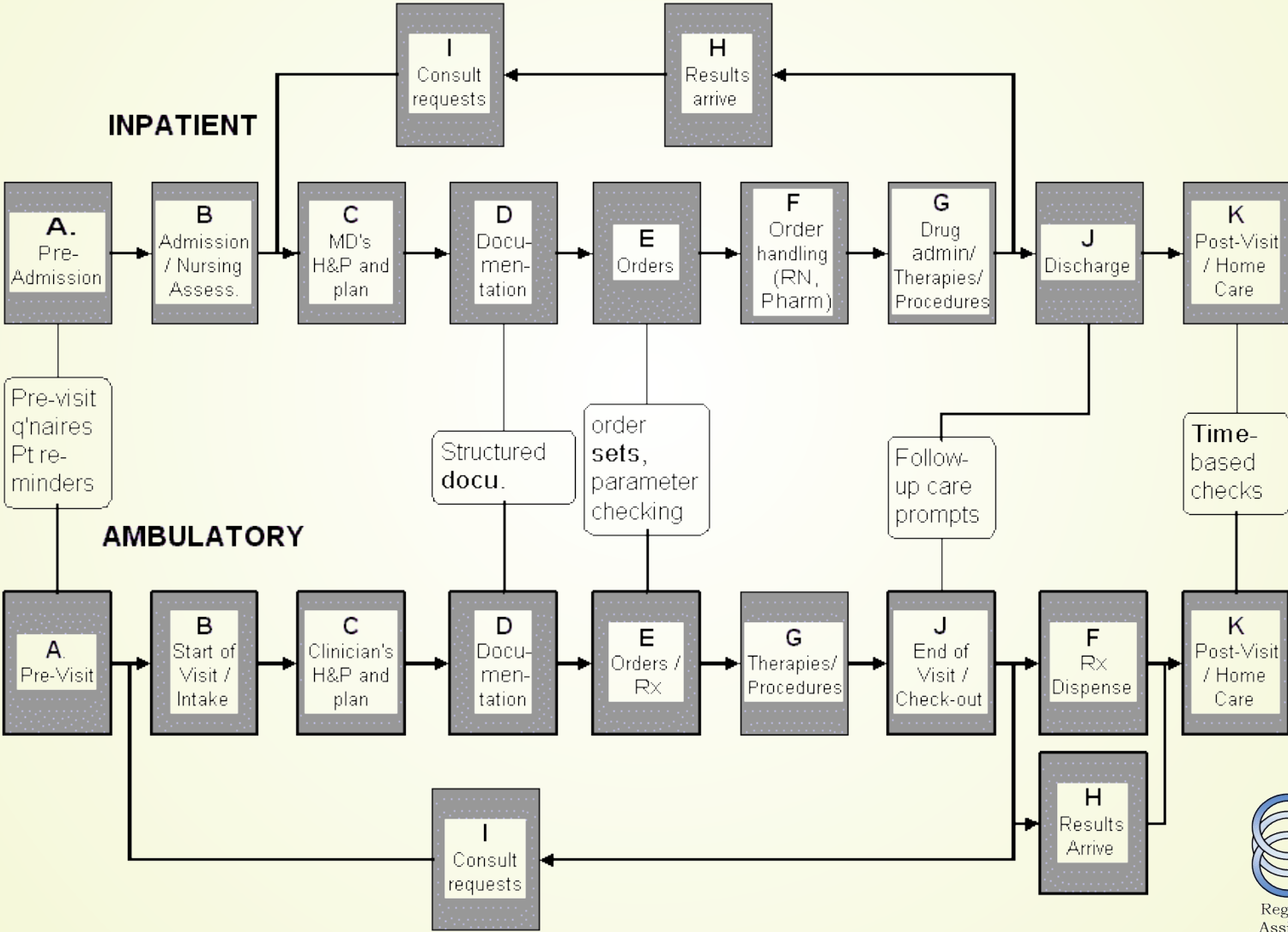
# Protocols and Pathways

- Useful for managing/monitoring multi-step processes
  - Potassium protocol
- Tools for managing a predictable medical conditions over time
  - Post-operative knee replacement
- In an EHR, the timing and execution of protocols and pathways are automated to maximize outcomes
- In today's EHRs, challenging to build due to the dependency on external events to trigger order paths

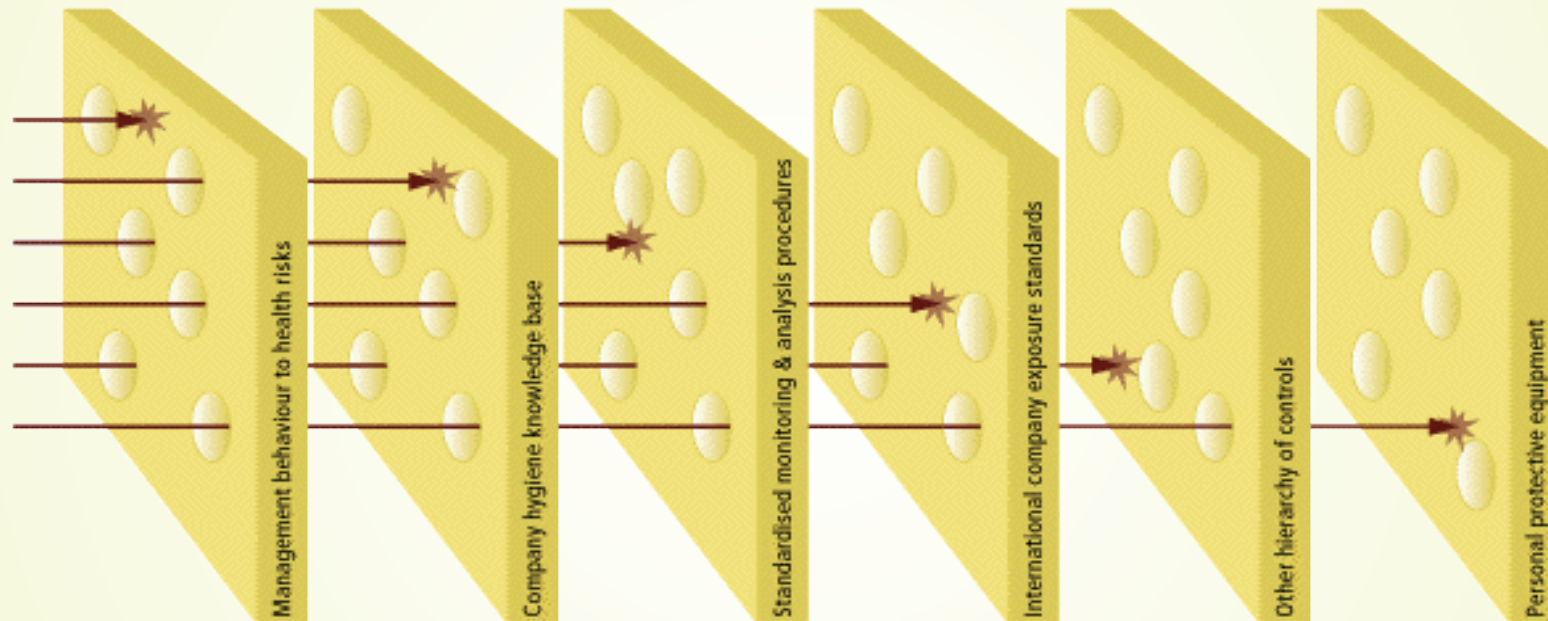
# Outline

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# Examine the workflow



# The earlier in the workflow the better



# Six Opportunities for CDS During an Ordering Session\*

- When the ordering session is initiated
- When selecting the patient from the census or list
- When opening the patient's chart
- When initiating orders
- When completing an order
- When signing an order

\* Miller RA, Waitman LR, Chen S, Rosenbloom ST. The anatomy of decision support during inpatient care provider order entry (CPOE): empirical observations from a decade of CPOE experience at Vanderbilt. J Biomed Inform. 2005 Dec;38(6):469-85.

# In Conclusion

- Our health system requires transformation
- Health information technology is a tool to facilitate that transformation
- Stage 1 Meaningful use criteria are the first step in this transformation
- Transformation of our own practices will require setting our sights beyond stage 1
- Clinical Decision Support, broadly applied, is a useful tool to help us achieve meaningful use and beyond



# Resources

- Meaningful Use
  - <http://healthit.hhs.gov/meaningfuluse>
- Regional Extension Assistance Center for Health Information Technology (REACH)
  - <http://www.khaREACH.org>
- Stratis Health HIT Toolkits
  - <http://www.stratishealth.org/expertise/healthit/>
- Health Information & Management Systems Society (HIMSS) CDS Wiki:
  - <http://himssclinicaldecisionsupportwiki.pbworks.com/>





# **Key Health Alliance**

Regional Extension  
Assistance Center for HIT

Key Health Alliance—Stratis Health, Rural Health Resource Center, and The College of St. Scholastica.

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