



Informatics: The Art of Implementation

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Baylor Health Care System

Dallas, Texas



Why this matters...

...So we all can provide advances in technology while maintaining safe patient care and minimizing unintended consequences!!!

About Baylor Health Care System



- Faith-based, not-for-profit health care provider based in North Texas
- 15 owned, leased or affiliated hospitals
- 127,425 admissions
- 21,535 babies born
- 388,954 emergency department visits
- 624,950 outpatient registrations (excluding ED and home care)
- 3,534 licensed beds
- 20,000 employees
- 4,631 physicians on active staff
- Largest hospital has 1025 beds; smallest community hospital has 69 beds



About Our Most Active Hospital



Baylor University Medical Center

- Founding facility of Baylor Health Care System
- Inner city, tertiary referral, academic hospital
- 1,000 licensed inpatient beds
- 84 Level 3 NICU & 88 Level 1 ED beds
- 46 Outpatient Clinics
- Magnet status





About Our Clinical Application Suite

- Allscripts/Eclipsys Sunrise Care Manager (SCM—Reg, Scheduling, Orders/Results, Interdisciplinary Clinical Doc, Pharmacy, and Physician Order Entry and Doc in process)
- MEDHOST (ED)
- Soft Lab
- GE Radiology
- GE Centricity Peri-operative Manager (OR)
- GE Centricity Peri-natal (OB)
- Optilink Acuity and Staff Scheduling
- TeleTracking (Patient Flow/Bed Management)
(8 sites have been completed with SCM, Lab, Rad)

Where Do Nursing/Clinical Informaticists Fit?



No EHR can be effective without it!

- Be an advocate for the patient and care givers
- Define system requirements
- Identify the interdisciplinary users
- Determine ideal workflows
- Understand the data flow
- Contribute to training and marketing content
- Execute integrated testing with chart-designed scenarios
- Shadow chart the functionality
- Support the end users at go-live



Our History with Establishing Informatics at Baylor



- Nursing was the informatics pioneer becoming involved in the late 90's in understanding and documenting the use, flow, and handoff's of data; first nurse obtained Nursing Informatics certification
- From 2002 to 2006, added clinicians to the IS teams and Nursing had significant involvement in the design of major clinical systems
- Introduced the title of “Manager of Clinical Applications” in 2006
- Moved from a shared CMIO position to a full-time CMIO in 2008 to provide advice and counsel around all clinical data and ensure clinician input

Our History with Establishing Informatics at Baylor



- Created a Director of Nursing and Multi-disciplinary Informatics in 2010 to create a more enterprise-wide process of clinical involvement in system design and implementation, who now reports to the CNO
- Added Directors of Clinical Informatics at all sites as the EHR implementation occurs
- Established a Facility Implementation Team/Facility Adoption and Standardization Team monthly meeting to support issue identification, decision-making, and education
- Introduced Human Factors training and design in 2011

Result!



- We now have a grass root movement to train our nurses and allied health partners in informatics
- There is a more interdisciplinary understanding and involvement around any new functionality
- Physicians volunteer to participate
- There is greater initial user acceptance as new features are introduced
- There is more IS/Clinician/Leadership collaboration and understanding

National and Global Priorities in Informatics and Health Care



What has been your experience?

Informatics Tools



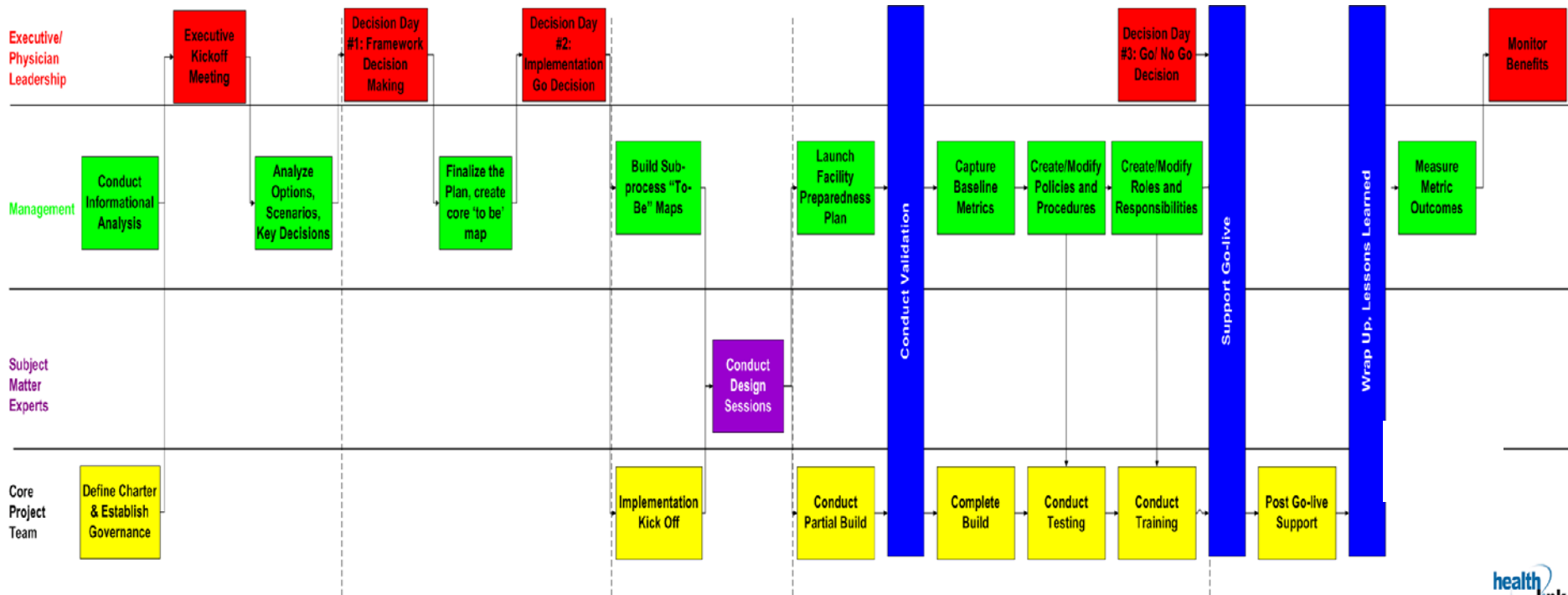
- Team Composition
- Current State/Future State Assessment
 - Workflow Process Design
 - Patient Story/Clinical Scenarios
 - Decision Making
 - Polarity Management
 - Human Factors Assessment
- Change Management
 - ADKAR Assessment
 - Start/Stop Documents and Documentation Crosswalk
 - Dress Rehearsal
 - User Toolkits
 - Shadow Charting

Team Composition



- Executive leadership
 - Creating agreement on the desired outcomes leads to a community approach
- Management team
- Work Groups (key informatics skill set)
 - Select representatives from nursing, allied health, and unlicensed personnel
 - Divide the workflow analysis by service line
 - Develop workflow expertise in areas outside of assigned service line
 - Identify gaps from current state to future state
- Technical team
- Training team

Team Composition



Revised 01/06/04



Informatics Tools



- Team Composition
- **Current State/Future State Assessment (Getting the work done!)**
 - Workflow Process Design
 - Patient Story/Clinical Scenarios
 - Decision Making
 - Polarity Management
 - Human Factors Assessment
- Change Management (Gaining acceptance!)
 - ADKAR Assessment
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Start with a review of Workflow using Patient Stories/Clinical Scenarios



Physician workflow
through the patient story....



Start with a review of Workflow using Clinical Scenarios



Admitting....

Dr. Jensen completes the **Transition of Care order set.**

Order sets in SCM require **scrolling through several screens** in order to enter orders using standard order set.

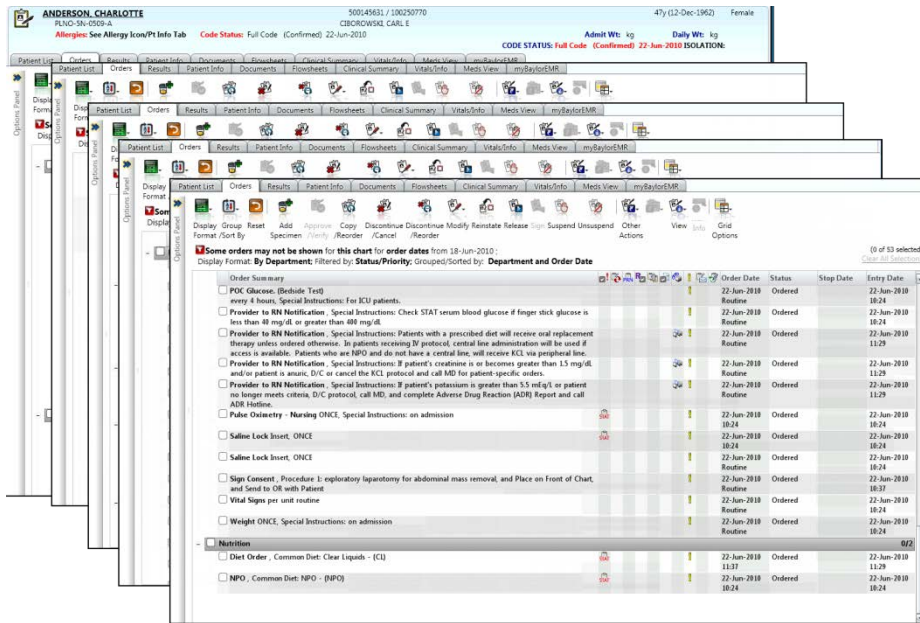
This is different from the current process on paper.

A screenshot of a clinical information system interface. The patient's name is ANDERSON, CHARLOTTE. The interface shows various tabs like Patient List, Orders, Results, Patient Info, Documents, Worksheets, Clinical Summary, Vital Signs, Meds, View, myBay/My. The main area displays a list of orders for maintenance dates from 18-Jun-2010. The orders are grouped by Maintenance Date. The first order is "ED Transition Of Care Order Set" with a status of "Ordered" and an entry date of 02/18. Below it are several other order sets including "CODE STATUS", "VITAL SIGNS", "DIET", "ACTIVITY", "PATIENT CARE", and "GLUCOSE CONTROL". Each order set has a status and an entry date. The interface is complex with many buttons and options.

Start with a review of Workflow using Clinical Scenarios



Order Management....



Dr. Husain now **enters new orders** for this patient using the **appropriate order set**.

Dr. Husain also chooses a **“standard session type”** for these orders, indicating these should be started now.

Examples of other session types are “on arrival”, “post-op”, and “discharge”.

At each Transition of Care, Orders Reconciliation will need to be done using the **new SCM tools and standardized processes**.

Start with a review of Workflow using Clinical Scenarios

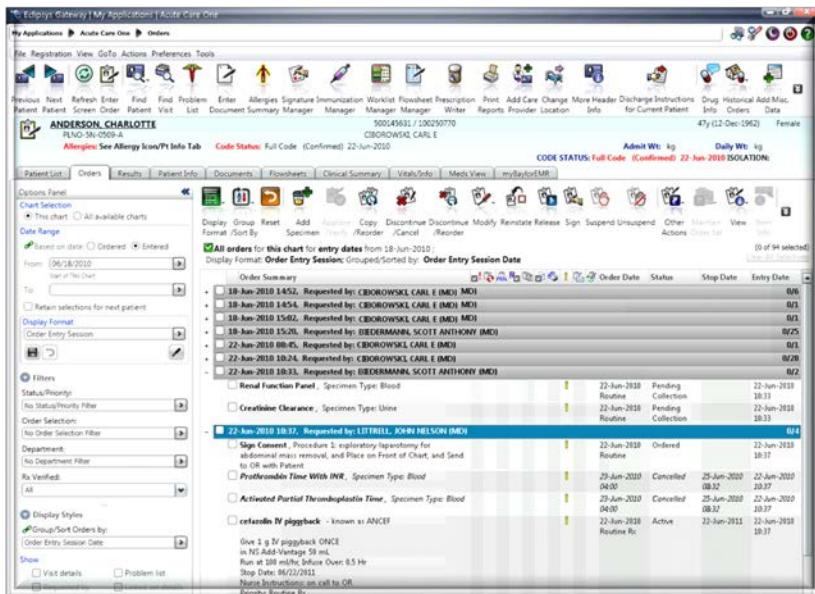


As the number of physician consults increase, the task of **managing orders becomes more complex** – *and more critical to safe patient care.*

A physician may want to see only those orders entered by a specific physician.

This is a workflow change for physicians – to **depend on SCM as the source of all orders** rather than the paper chart.

Complex Order Management...



Start with a review of Workflow using Clinical Scenarios

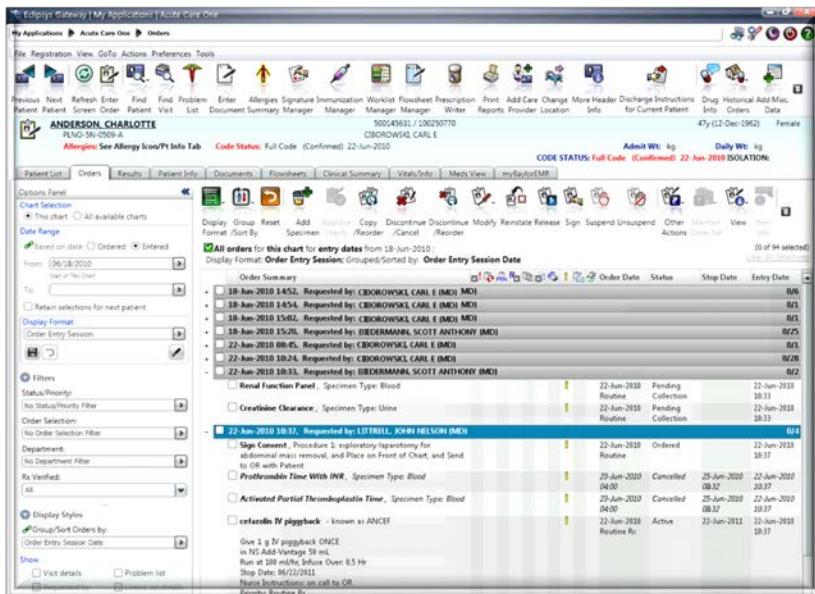


Now that the source of truth is SCM, nurses, therapists and others have new tools and processes to know there are new orders and be able to understand the intent of the order entered by each physician.

As more and more orders are entered, this process becomes more complex to manage.

This is a workflow change for clinicians – to **depend on SCM as the source of all orders** rather than the paper chart.

Impact to other clinicians....



Start with a review of Workflow using Clinical Scenarios



Dr. Purgett uses **shortcuts and saved text and templates** to make entering notes faster.

This is a workflow change for physicians who are used to writing a quick few lines in the chart.

Creating the note....

The screenshot shows a medical software interface. The top window is titled "EMCS Procedure Note: Immediate Post-Operative Note - Note Builder". It contains a "Procedure Note" section with text: "PROCEDURE NOTE: EMCS Procedure Note: Immediate Post-Operative Note", "CPT Code: 38.42", "DATE: 06/23/10", "TIME: 08:30", "PROVISIONAL ICD9: none", "PREOPERATIVE DIAGNOSIS: abdominal mass", "POSTOPERATIVE DIAGNOSIS: 1 abdominal mass removed", "PROCEDURE PERFORMED: exploratory laparotomy: small bowel resection", "ANESTHESIA: Propofol, general", "ESTIMATED BLOOD LOSS: 40ml", "SPECIMENS: none", "COMPLICATIONS: none", "INDICATIONS FOR PROCEDURE: abdominal mass", "DESCRIPTION OF PROCEDURE: B. DETN, 1stah 1stah 1stah".

The bottom window shows a chart display with tabs for "Patient List", "Orders", "Results", "Patient Info", "Documents", "Flowsheets", "Clinical Summary", "Vitals/Info", and "Meds View". The "Options Panel" is open, showing "All Documentation for This Chart for Document dates from 22-Mar-2010 to Unspecified". The "Display Format" is set to "[Modified] Date (Report); Group by: Date". The chart shows a table with columns for "Day View" and "Jun '10" (24, 10, 03). The table lists various documentation types with checkboxes:

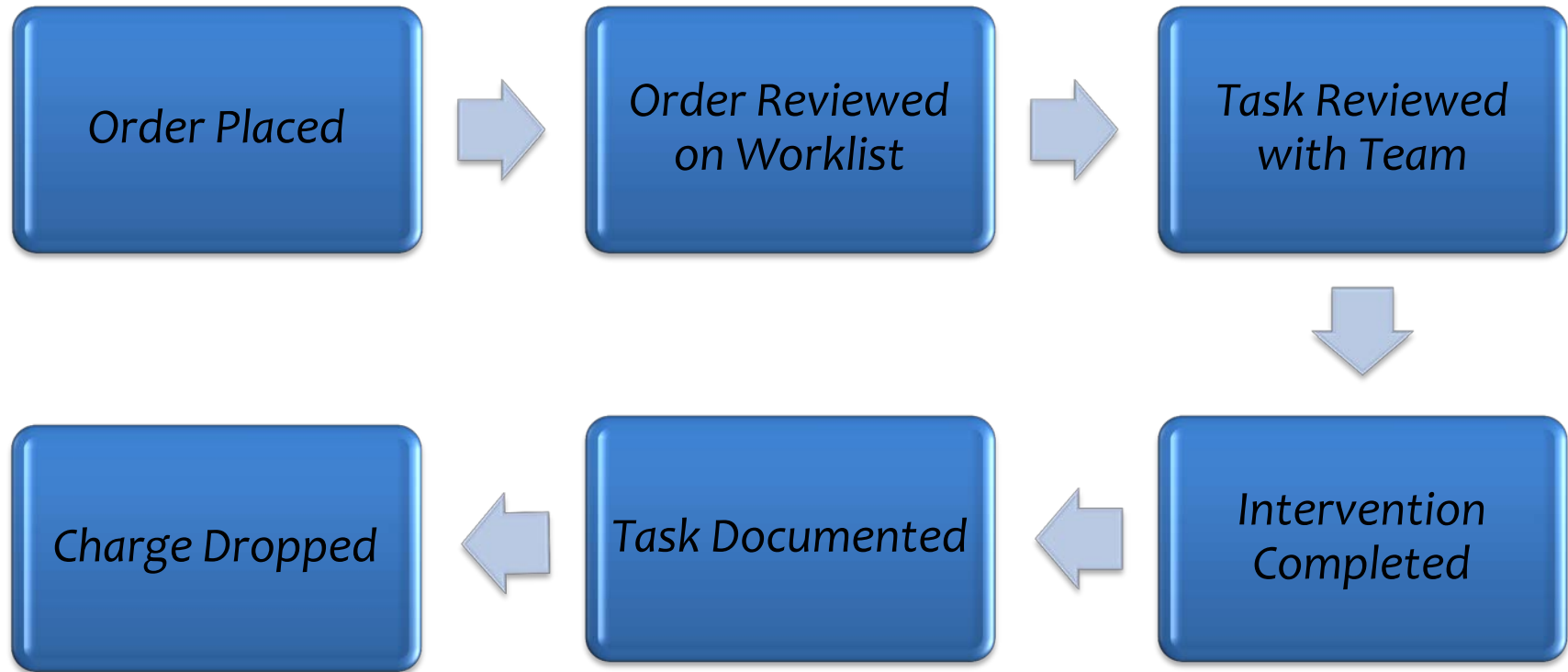
	24	10	03
Nursing			
Shift Assessment		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Interdisciplinary			
A & I Flowsheet		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perioperative			
Pre-Post Procedure Flowsheet		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Common Transcribed Documents			
Progress Note Report		<input checked="" type="checkbox"/>	
Physician Procedure Notes			
Immediate Post-Operative Note	<input checked="" type="checkbox"/>		

Utilizing Clinical Informatics for Design Decision-making

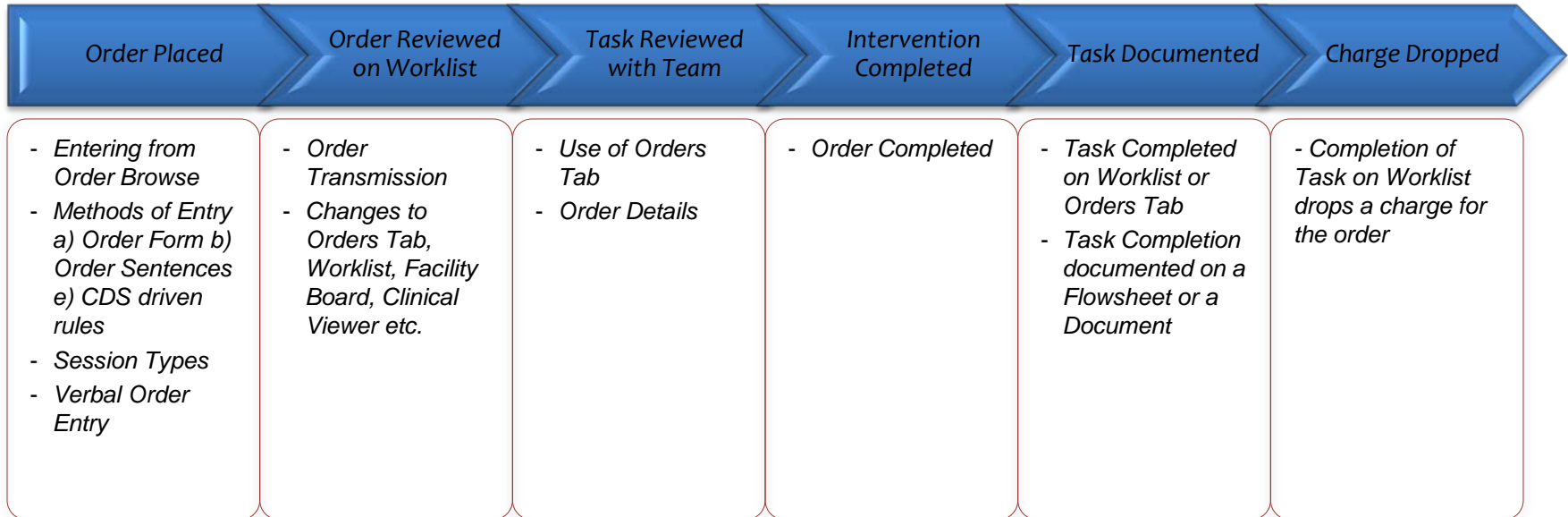


Starts with physician workflow and includes impact to others, including:
Nursing, Pharmacy, HIM, Cardio-pulmonary, ST/OT/PT, Wound Care, Radiology,
Lab, Dietary, Procedure areas, Hospital-based ambulatory care
areas.....anyone who now interacts with the paper chart used by most
physicians.

And a review of Workflow at a High Level...



Then Review and Validate Key Process Steps



Next Make Decisions About Each Key Process Step



Order Placed..	Option 1	Option 2	Show Stopper	Variance
Physician Enters Order via Order Browse, Order Sentences, Order Sets	Physician enters Orders electronically when onsite	Physician Orders verbally when off-site and signs orders within 24 hrs	By a Yes or No participants will decide if the proposed step is Critical	
All Orders will be placed using Standard Session type, making Orders Active on Submission				
Pre-Admit; Pre-Transfer and Pre-Discharge Orders maybe placed using an "On-hold" session				

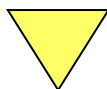
Evaluate Options against Guiding principles...What is the Impact To:



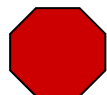
Options for Each Decision	Patient	Provider	Nursing	Ancillary Dept	Cost	Other
<i>Physician Places Order electronically</i>						
<i>Physician Signs Orders entered verbally</i>						
<i>Physician writes Paper Orders</i>						



Ideal



Doable



Negative impact

Summary

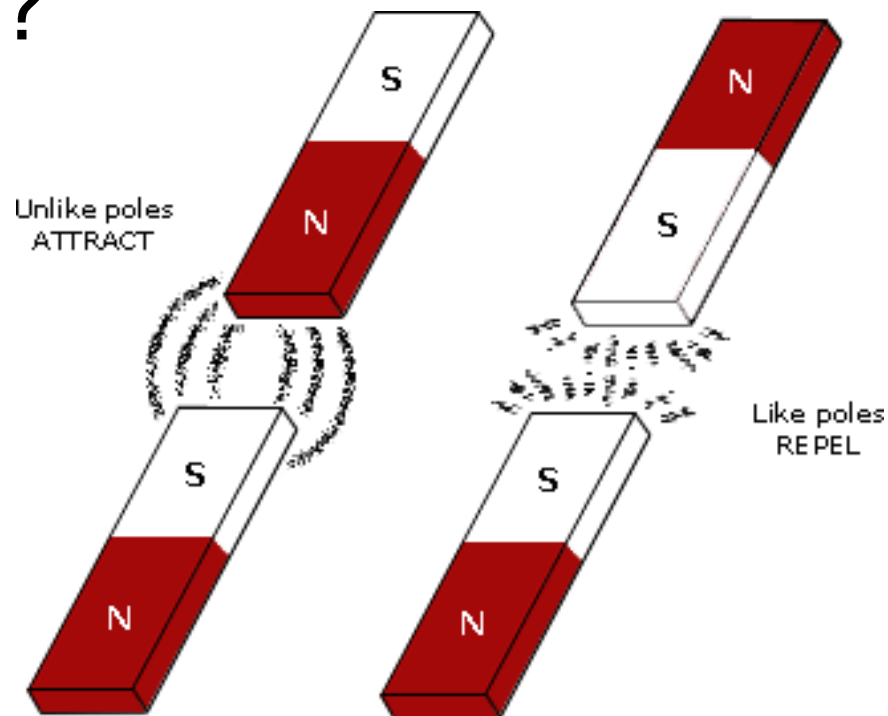


- Review the process and workflow
- Make recommendations/decisions
- Obtain group feedback
- Assess impact to care process
- Confirm new process
- Communicate and own the decisions

Polarity Management



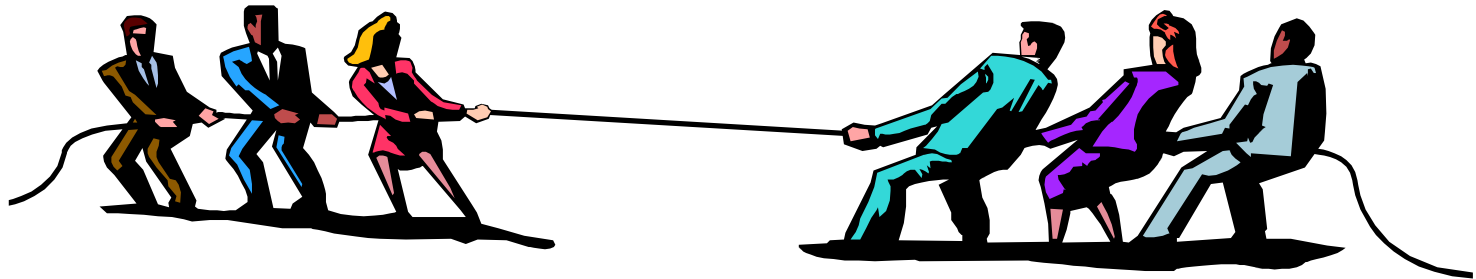
Opposites Attract or Do They Really?



Polarity Management



- Manage individuals' passion
- Opposite of passion is apathy
- Learn to capitalize on different views and include the best
- Maintain “tension”



Human Factors Assessment Once Workflow is Designed



Human Factors Pick-A-Dose Redesign

Initial Design



ORDERRESP. MECHWEAN A 510148942 / 110250703 39y (11-Nov-1971) Male

PLNO-7S-0718-A MARCUCCI, JOHN FRANCIS

Intolerances: None Entered **Admit Date:** 20-Oct-2010 **CRCL Results:**

Check box to select order(s). Click in field and type over or choose from drop-down box to change values.

Order: morphine inj Order ID: 001PSY871

Requested By: act3md, ACT 3 PHYSICIAN 01 Template Name: morphine inj .

Messages:

Patient Information

Height (inches)	Height (cm)	Weight (lb)	Weight (kg)	BSA
67	170.2	200	90.7	2.02

Creatinine Clearance (Actual)

Creatinine (mg/dl)	Creat Clear (actual)	<input type="radio"/> Actual <input type="radio"/> Estimated

Enter Dose

Route: mg IV Push

Frequency:

PRN PRN Reason

Stop After (Duration)

2 mg Check Dose

4 mg Check Dose

5 mg Check Dose

2 to 4 mg Check Dose

2 to 5 mg Check Dose

3 to 5 mg Check Dose

Enter Range Dose

Same As: MORPHINE solution

Priority: Routine Rx

Start Date: 09/15/2011

Stop Date: 09/14/2012

Stop Time:

Patient's own medication

Special Instructions

Problem List

Relevant Results

Repeat Drug Info View Document

OK Cancel

Redesign



ORDERRESP. MECHWEAN A

PLNO-7S-0718-A

Intolerances: None Entered

Admit Date: 20-Oct-2010

510148942 / 110250703
MARCUCCI, JOHN FRANCIS

39y (11-Nov-1971) Male



CRCL Results:

Check box to select order(s). Click in field and type over or choose from drop-down box to change values.

Order: Order ID:

Requested By: Template Name:

Messages:

Same As

- Dose
- Dose
- Dose
- Dose
- Dose
- Dose

Range Dose

Dose UOM Route Frequency

Stop Dose After

PRN Reason

Special Instructions

Problem List

Patient Information
Height (inches) Height (cm) Weight (lb) Weight (kg) BSA

Creatinine Clearance (Actual)
Creatinine (mg/dl) Creat Clear (actual) Actual Estimated

Priority Start Date Stop Date Stop Time

Informatics Tools



- Team Composition
- Current State/Future State Assessment (Getting the work done!)
 - Workflow Process Design
 - Patient Story/Clinical Scenarios
 - Decision Making
 - Polarity Management
 - Human Factors Assessment
- **Change Management (Gaining acceptance!)**
 - Assessment of readiness for change
 - Start/Stop Documents and Documentation Crosswalk
 - Dress Rehearsal
 - User Toolkits
 - Shadow Charting

Assessing Readiness for Change



Change Management increases the probability of project success by answering the following questions:

- Are we ensuring people understand “Why” this change is happening and what the risks are of not changing?
- Are we answering the question “What’s in it for me?” and “How will I be impacted?” that *all* people resolve before making lasting change?
- Are we equipping people for the change that is being asked of them?
- Are we supportive of those people who are undergoing or having difficulty adjusting to the change?

Assessing Readiness for Change



- Kotter Model of Change Management
 - Theory: “ The only way organizations change is by changing the people within the organization”
 - Eight Steps
 - Increase urgency
 - Build the guiding team
 - Get the vision right
 - Communicate for buy-in
 - Empower action
 - Create short-term wins
 - Don’t let up
 - Make change stick
- ADKAR Model of Change Management
 - Defines the stages individuals should go through when making a change

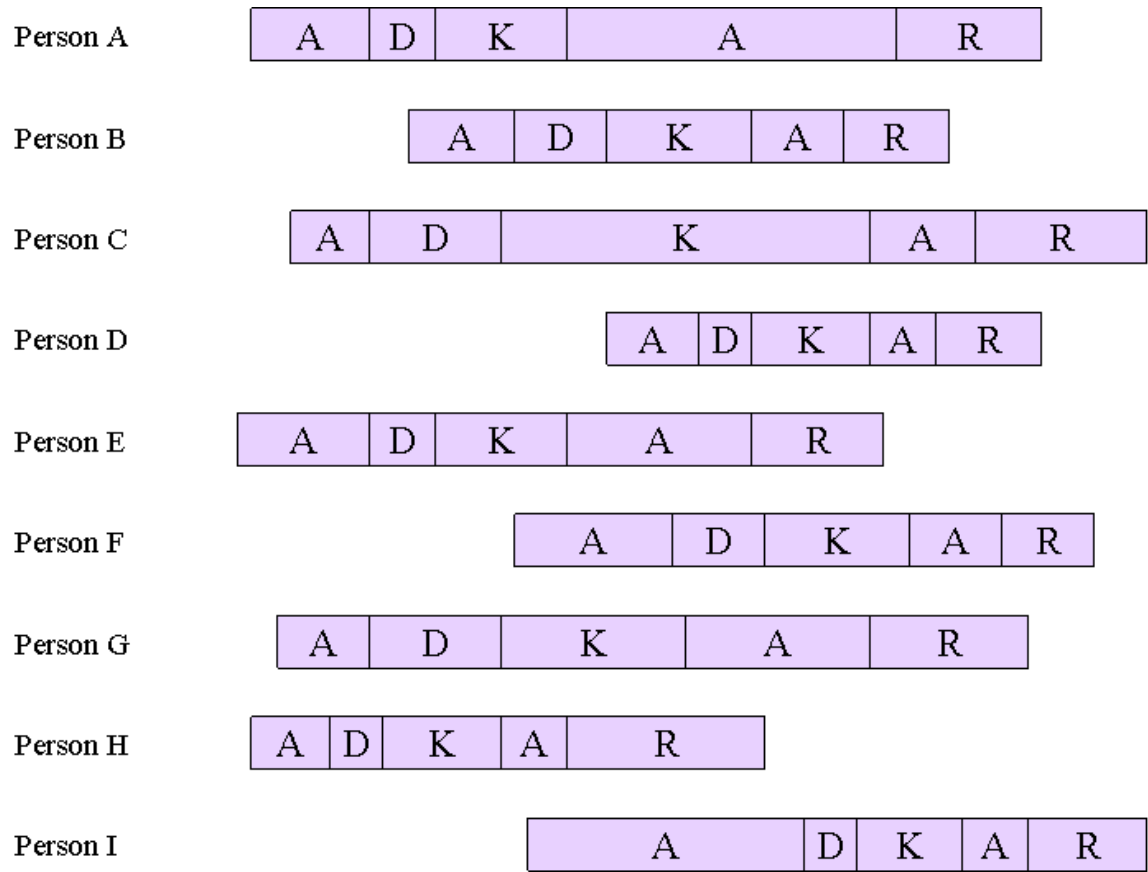


Assessing Readiness for Change



- **Awareness** of the need to change
- **Desire** to support the change
- **Knowledge** on how to change
- **Ability** to implement new skills
- **Reinforcement** to sustain the change




Assessing Readiness for Change



Assessing Readiness for Change



Readiness for Change

What is your perception about readiness for the changes coming with the EMR by placing a    in each box below:

	<i>Awareness</i>	<i>Desire</i>	<i>Knowledge</i>	<i>Ability</i>	<i>Reinforcement</i>
Physicians					
Staff					
Managers					
Leaders					
SuperUsers					
Patients					

Assessing Readiness for Change



	A	D	K	A	R
People Group	Awareness	Desire	Knowledge	Ability	Reinforcement
Super Users	<i>Identification of SU in facility</i>	<i>Condition of employment</i> <i>Financial incentive</i>	<i>Meeting with Mgr to discuss role, responsibilities, expectations</i> <i>Start/Stop/Continue document as core knowledge workbook</i> <i>SU Training classes</i> <i>Buddy at other facility already online; Buddy in their own facility with SU on another unit or department</i> <i>SU News, website for info updates</i> <i>SU User Group</i>	<i>Special SU Classes and Practice Time</i> <i>Lead meetings demos, Sim lab, dress rehearsals</i> <i>Quick Tips FAQs for consistent messaging by SU</i> <i>Key Concepts assignments to create internal experts on different subjects (i.e., the eMAR SU team)</i> <i>Participate in activation at another facility</i>	<i>Performance reviews</i> <i>SU as first line of support</i> <i>SU “huddles”</i> <i>SU User Group meetings and networking</i>

Assessing Readiness for Change



	A	D	K	A	R
	Awareness	Desire	Knowledge	Ability	Reinforcement
Staff	<i>Poster campaign Roadshows Town Halls Unit meetings</i>	<i>Condition of employment Personal contact by mgr</i>	<i>BLN Lessons Training</i>	<i>Buddy program Sim Lab, Demos, Dress Rehearsals, Practice</i>	<i>Performance Review Chart Auditing Workflow auditing with buddies</i>
Leaders	<i>Exec FIT meetings Exec networking Feedback from staff Town halls, mtgs</i>	<i>Performance review goals</i>	<i>Exec leader classes Leader buddy at other facility “Elevator” speech ready</i>		<i>Rounding with patients, staff Service excellence awards</i>
Mgrs	<i>Chg mgmt team FIT team</i>	<i>Performance review goals</i>	<i>Training Mgr focused training</i>	<i>Practice Lead demos, Sim Labs, Dress rehearsals</i>	<i>Rounding with staff Chart auditing Workflow auditing for units</i>

Assessing Readiness for Change

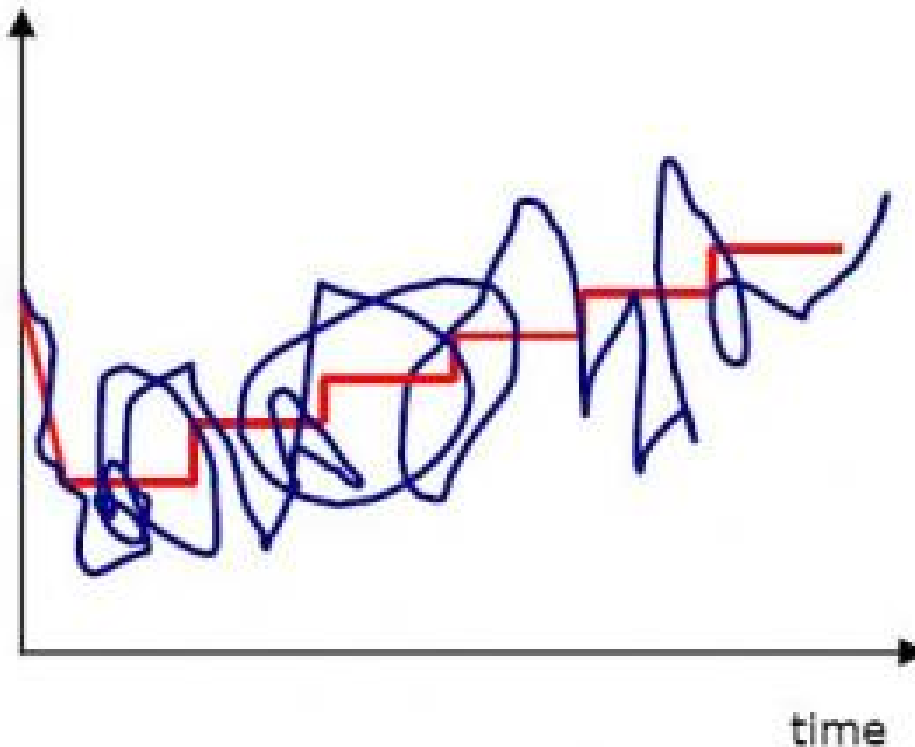


	A	D	K	A	R
People Group	Awareness	Desire	Knowledge	Ability	Reinforcement
<i>Pts</i>	<i>Cafeteria table tents Signs, notices</i>		<i>AIDET scripting for staff speaking with patients</i>		<i>Leaders rounding with patients</i>
<i>MDs</i>	<i>Exec rounding by execs with physicians Med Exec meeting agenda Blast fax or emails with updates</i>	<i>Condition of practice Improvement in workflow and access to information</i>	<i>Training One-to-one support</i>	<i>Practice</i>	<i>One-call one number support UC and RNs trained to help providers on units</i>

The Reality of Change Management



Key  How change works - according to Management Textbooks
 How change actually happens in my real life





Start-Stop Document



- Tool to communicate actions to stop, start or continue in the new system
 - Clear visual of the changes
 - Reference for staff members but primarily used by Leaders to prepare their staff



Start-Stop Document

In Scope			Continue	Validate
Patient Status Changes	STOP making changes to patient visit type and accommodation code in BCON	START contacting Room Control to request change to pt visit type and accommodation code in Eclipsys START referring to "Patient Status Changes that require an Order" and fax appropriate orders to Room Control with Change Request Form		VALIDATE existence of "Patient Status Changes that require an Order" document VALIDATE if nursing will be able to update patient provider and contact information
Bed Management	STOP entering transfer/admission information into BCON STOP using virtual bed locations	START having Access Services enter transfer/admission info into Eclipsys START contacting Room Control for bed assignment		VALIDATE interaction with Teletracking
Order Entry	STOP entering orders in BCON	START entering orders in Eclipsys	CONTINUE to write telephone orders on paper order sheet for provider signoff CONTINUE contacting departments for STAT/Urgent orders	
Patient Care Orders	STOP entering patient care orders in BCON	START entering all patient care orders into Eclipsys		VALIDATE final list of patient care orders to be included on worklists

Documentation Crosswalks



- Paper tools to distribute for staff reference
 - Define a one for one correlation of previous paper documentation fields to new clinical system
 - Keep at a high level
 - Make a pocket size for clinicians
 - Plan for distribution

Documentation Crosswalks



Crosswalk of Clinical Documentation Baylor University Medical Center			
2 Jonsson			
<u>CURRENTLY CHARTED ON PAPER</u>	<u>PAPER OR ECLIPSYS?</u>	<u>WHERE YOU WILL DOCUMENT IN ECLIPSYS</u>	<u>NOTES</u>
Outpatient Data Base Information (form# 50477)	Eclipsys	Comprehensive Patient Profile (CPP)	For all bedded areas, nurses will complete the CPP for all admissions - whether observation or inpatient. The short Outpatient Admission Database will be completed ONLY by Outpatient areas
Adult Admission Data Base - Inpatient			
Allergies	Eclipsys	Comprehensive Patient Profile (CPP)	NEW: can also document Intolerances
General Information	Eclipsys	Comprehensive Patient Profile (CPP)	
Present on Admission	Eclipsys	Comprehensive Patient Profile (CPP)	NEW section
Advanced Directive	Eclipsys/Paper?	Comprehensive Patient Profile (CPP)	If pt answers "No" and desires more info, Pastoral Care Screening order auto-generates Paper document has signatures - need to stay on paper chart?
Health History	Eclipsys	Comprehensive Patient Profile (CPP)	Drop down boxes for Significant Events/Past Medical History. Will carry forward, visit to visit
Surgery History	Eclipsys	Comprehensive Patient Profile (CPP)	Drop down boxes for Significant Events/Past Surgical History. Will carry forward, visit to visit
Women's Health History	Eclipsys	Comprehensive Patient Profile (CPP)	Will only appear if patient is Female
Implants/Prosthetics and Devices	Eclipsys	Comprehensive Patient Profile (CPP)	
Anesthesia Problems	Eclipsys	Comprehensive Patient Profile (CPP)	
Vaccination History	Eclipsys	Comprehensive Patient Profile (CPP)	Can enter Month/Year vaccination given
Patient Screenings	Eclipsys	Comprehensive Patient Profile (CPP)	
Living Environment	Eclipsys	Comprehensive Patient Profile (CPP)	
Functional Screen	Eclipsys	Comprehensive Patient Profile (CPP)	
Sleep Apnea Screen	Eclipsys	Comprehensive Patient Profile (CPP)	

Dress Rehearsal



- Replicate de-identified charts using the new workflows and clinical system
- Complete multiple weeks prior to implementation (2 weeks not enough due to changes required after this event)
- Make participation as wide as possible, including informaticists and others

Staff Tool Kit



- Paper reference to distribute to each clinical area
 - Conversion
 - Tips
 - Updated Bulletins
 - Crosswalks
 - Start-Stop Document
 - Training Documents





Lessons Learned/Recommendations

- Novice informatics staff require time, support, and individual guidance
- It is a difficult transition to non-structured, independent work from clinical setting
- Clinical staff are sometimes unable to clearly identify role and processes clinical system support; requires education
- Assessments need to include interviews and direct observation, along with the team discussions
- Need to provide more directed activities for frontline staff
- Clinical managers need specific tools and assignments to mentor staff through process change

Informatics is KEY to implementation success that leads to enhanced care. Budget, staff, and train your informaticists to participate in all phases of your project!

National and Global Priorities in Informatics and Health Care



Ways to get started...



**THANK
YOU**

Please don't hesitate to call us!

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