READMISSION RISK REDUCTION WITH ON-LINE, CHECKLIST DRIVEN CARE:

A CASE STUDY

How interactive clinical checklists at the point-of-care can proactively address readmission factors

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Transitions of Care Today

Staggering Readmission Rates

- **20%** of Medicare patients are readmitted within 30 days… **50%** never had any follow-up visit with a primary care MD[1]
- In one recent study, the rate of timely PCP follow-up was only 49%, and **those patients lacking timely PCP follow-up were 10 times more likely to be readmitted**, 21% in patients lacking timely PCP follow-up vs. 3% in patients with timely PCP follow-up[1].
- For patients who were readmitted within 30 days after a surgery was performed, **70%** were admitted for a medical condition such as pneumonia or a urinary tract infection[1].

1 S. F. Jencks, M. V. Williams, and E. A. Coleman, "Rehospitalizations Among Patients in the Medicare Fee-for-Service Program," *New England Journal of Medicine, Apr. 2, 2009 360(14):1418–28.*

2 Misky GJ, Wald HL, Post-Hospitalization transitions: Examining the effects of timing of primary care follow-up. J Hosp Med. 2010 Jun 23. [Epub ahead of print]

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Transitions of Care Today

Staggering Readmission Rates

- The problem is not confined to Medicare, recent estimate shows **18%** of all patients readmitted with 30 days[1]
- Based on intervention studies, estimated that **20-50% of readmissions are preventable.**
- Patients in one survey reported that **18%** percent of physicians unnecessarily repeated tests, and test results and medical records were missing when needed at **23%** of follow-up appointments[2]
- An estimated **60%** of medication errors occur during times of transition[2], and those, medication errors harm 1.5 million people each year in the United States, costing the nation $3.5 billion annually[3].

1 Arnold Milstein, data presented at Reducing Readmissions Conference, 11/15/2009
2 The Commonwealth Fund Commission on a High Performance Health System, *Why Not the Best? Results from a National Scorecard on United States Health System Performance* (Sept. 2006)
3 JD Rozich & RK Resar, Medication Safety: One Organization's Approach to the Challenge, J. Clin. Outcomes Manag. 8:27-34 (2001).

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The Existing Knowledge-Action Gap:
How to ensure the right corrective action is taken?

Known Causes	Examples
High-risk medications, Polypharmacy	Coumadin, insulin, digoxin, narcotics (particularly when >5 meds to manage)
Psychological or substance abuse issues	Untreated depression extremely common among discharged patients
Particularly debilitating diagnoses	CHF, stroke, COPD, cancer
Missed Follow-up on Labs & Studies	Critical cultures, biopsies, radiological studies that require close follow-up
Lack of caregiver support	Lives alone, homeless, debilitated spouse
Previous hospitalization	Non-elective prior hospitalization in past 6 months

Sources:
1.BOOSTing the Hospital Discharge, Williams MV, J Hosp Med 2009, 3:209-210
2.The Incidence And Severity Of Adverse Events Affecting Patients After Discharge From The Hospital. Forster AJ et al. Ann Intern Med 2003; 138:161-167.
3.Tying Up Loose Ends: Discharging Patients With Unresolved Medical Issues. Moore C et al. Arch Intern Ned 2007;167:1305-1311

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Where do we need to go?

Three Elements of High Quality Transitions

1 Patient-Centered

The transition plan is tailored to the specific diseases and recovery challenges of this unique patient.

2 Continuous

Spans across the traditional chasms between settings, linking together hospital, patient & caregivers and primary physicians in a single community of care

3 Intelligent

Offers decision support and analytics that help all stakeholders ensure the highest quality possible care

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How does current care measure up?

A Typical Community Hospital in 2011

Standard Discharge Plan

Adherence/Outcomes?

?

Patient Info and Hand-off?

?

Acute Care Hospital

Patient and Caregivers in Community

MD in Community

Discharge Summary (often days later)

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How does current care measure up?

A Typical Community Hospital in 2010

1

Patient-Centered

Often using a single generic set of discharge checklists with minimal or no tailoring to the specific needs of the particular patient.

2

Continuous

Transition plan often ends at the hospital door, follow-up burden solely on patient; receiving clinicians starved for information; no common portal to share information and ensure successful handoffs.

3

Intelligent

Typically a “dumb” paper process lacking decision support to encourage adherence to best practices.

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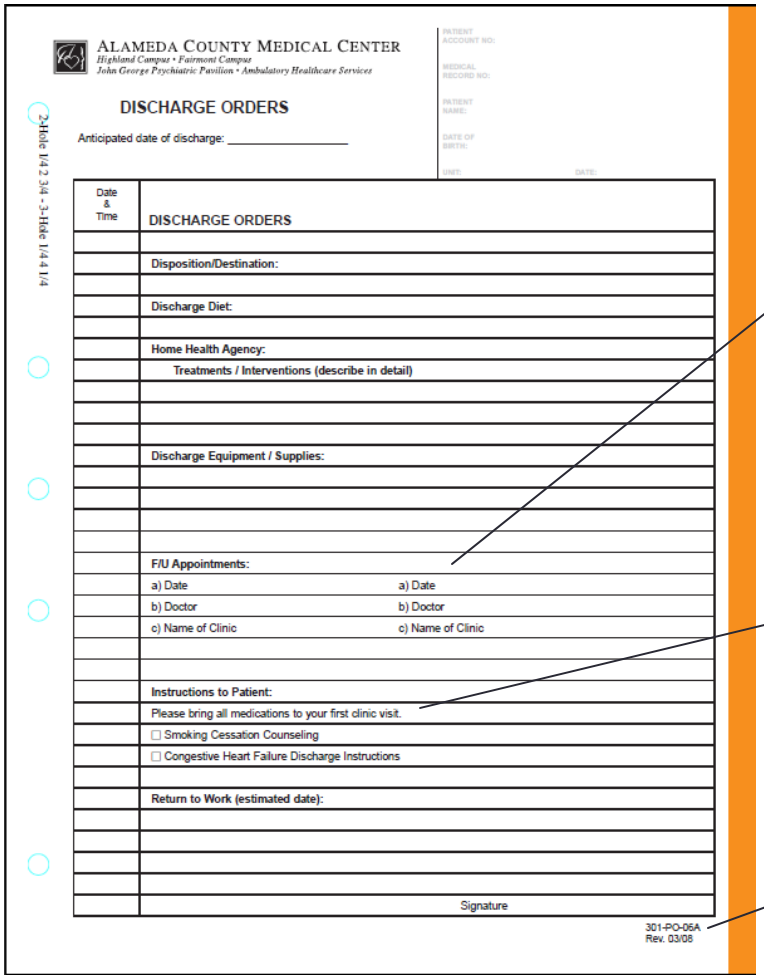
Example of extremely limited Discharge Orders at the community hospital level



ALAMEDA COUNTY MEDICAL CENTER
Highland Campus • Fairmont Campus
John George Psychiatric Pavilion • Ambulatory Healthcare Services

PATIENT ACCOUNT NO:
MEDICAL RECORD NO:
PATIENT NAME:
DATE OF BIRTH:
DATE:

DISCHARGE ORDERS

Anticipated date of discharge: _____

2-Hole 1/4 2 3/4 - 3-Hole 1/4 4 1/4

Date & Time	DISCHARGE ORDERS	
	Disposition/Destination:	
	Discharge Diet:	
	Home Health Agency:	
	Treatments / Interventions (describe in detail)	
	Discharge Equipment / Supplies:	
	F/U Appointments:	
	a) Date	a) Date
	b) Doctor	b) Doctor
	c) Name of Clinic	c) Name of Clinic
	Instructions to Patient:	
	Please bring all medications to your first clinic visit.	
	☐ Smoking Cessation Counseling	
	☐ Congestive Heart Failure Discharge Instructions	
	Return to Work (estimated date):	
	Signature	

301-PO-06A
Rev. 03/08

	F/U Appointments:
	a) Date a) Date
	b) Doctor b) Doctor
	c) Name of Clinic c) Name of Clinic

Instructions to Patient:
Please bring all medications to your first clinic visit.
☐ Smoking Cessation Counseling
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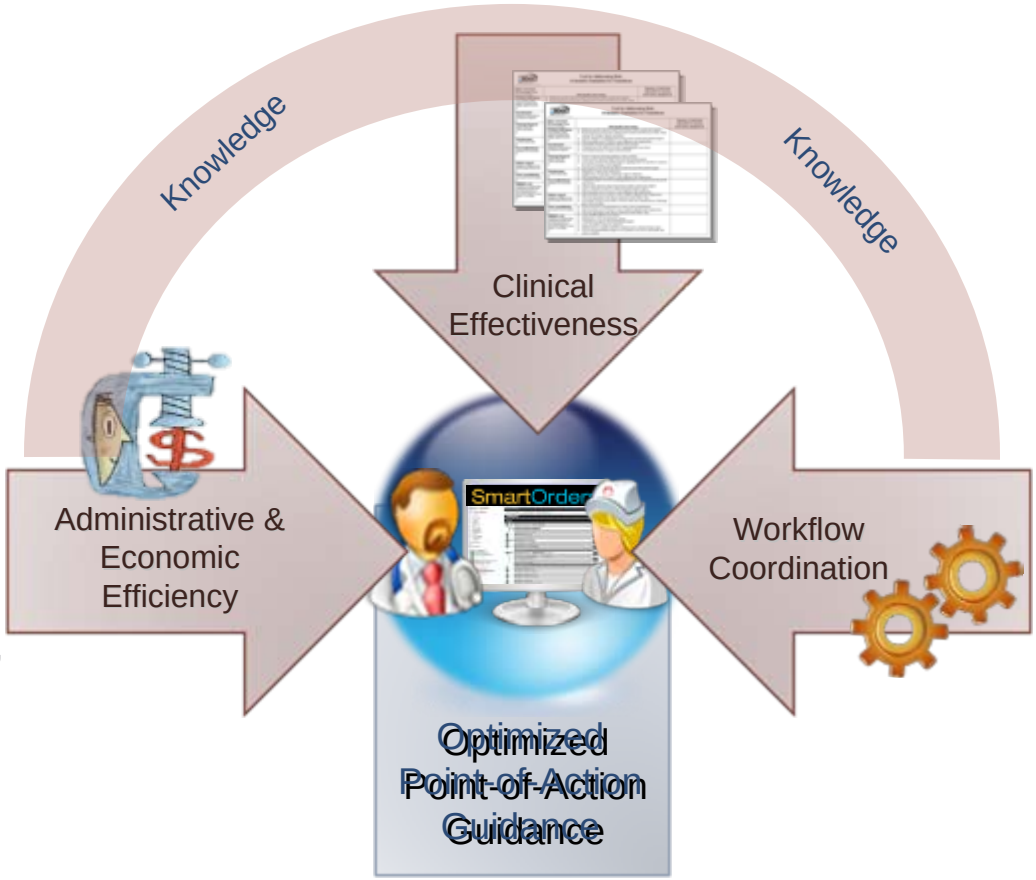
A New Way to Approach the Problem: Interactive Checklist Driven Care

- Healthcare knowledge exists but rarely available in usable form at the point-of-action
- Interactive Checklist Driven Care
  - Bridges the gap between knowledge and action
  - Delivers relevant guidance at key points in clinical workflow leading to optimized clinical and economic outcomes.
    - Admission, transfer, discharge, transitions of care, PCMH
  - Captures, analyzes and assimilates clinical performance data to drive continuous improvement



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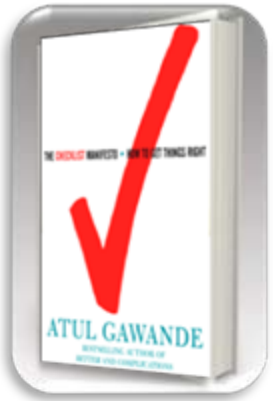
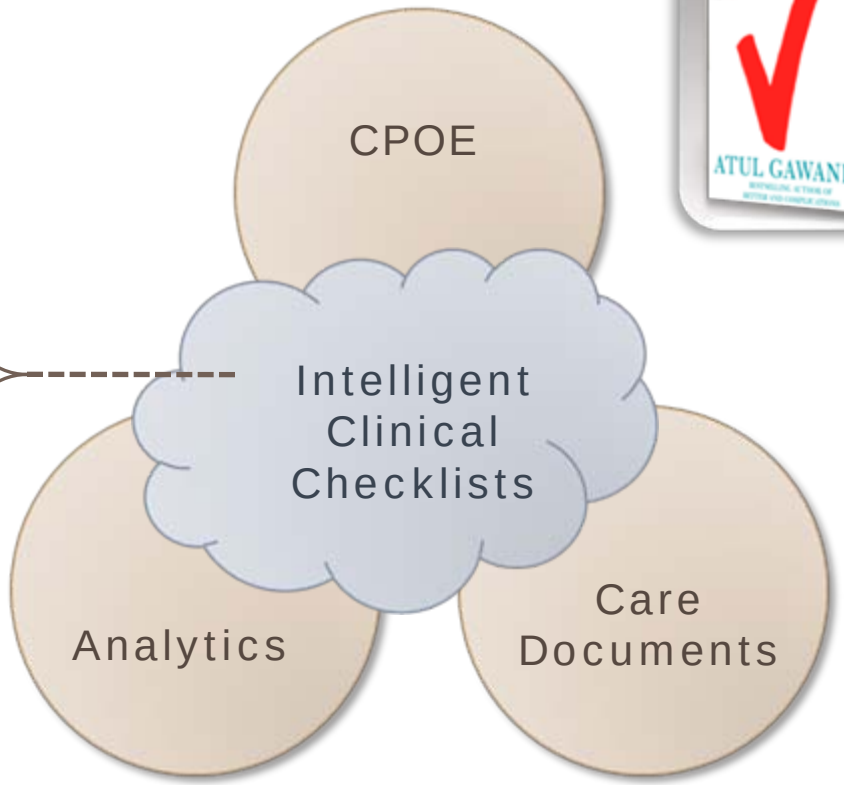
Interactive Clinical Checklists

An emerging system category that is more than the sum of the parts

- Provides physician-designed decision support
- Supports care collaboration through shared access
- Integrates with existing workflows
- Creates “rapid” feedback loop for quality improvement
- Parses and blends multiple content sources
- Adds precision to documentation





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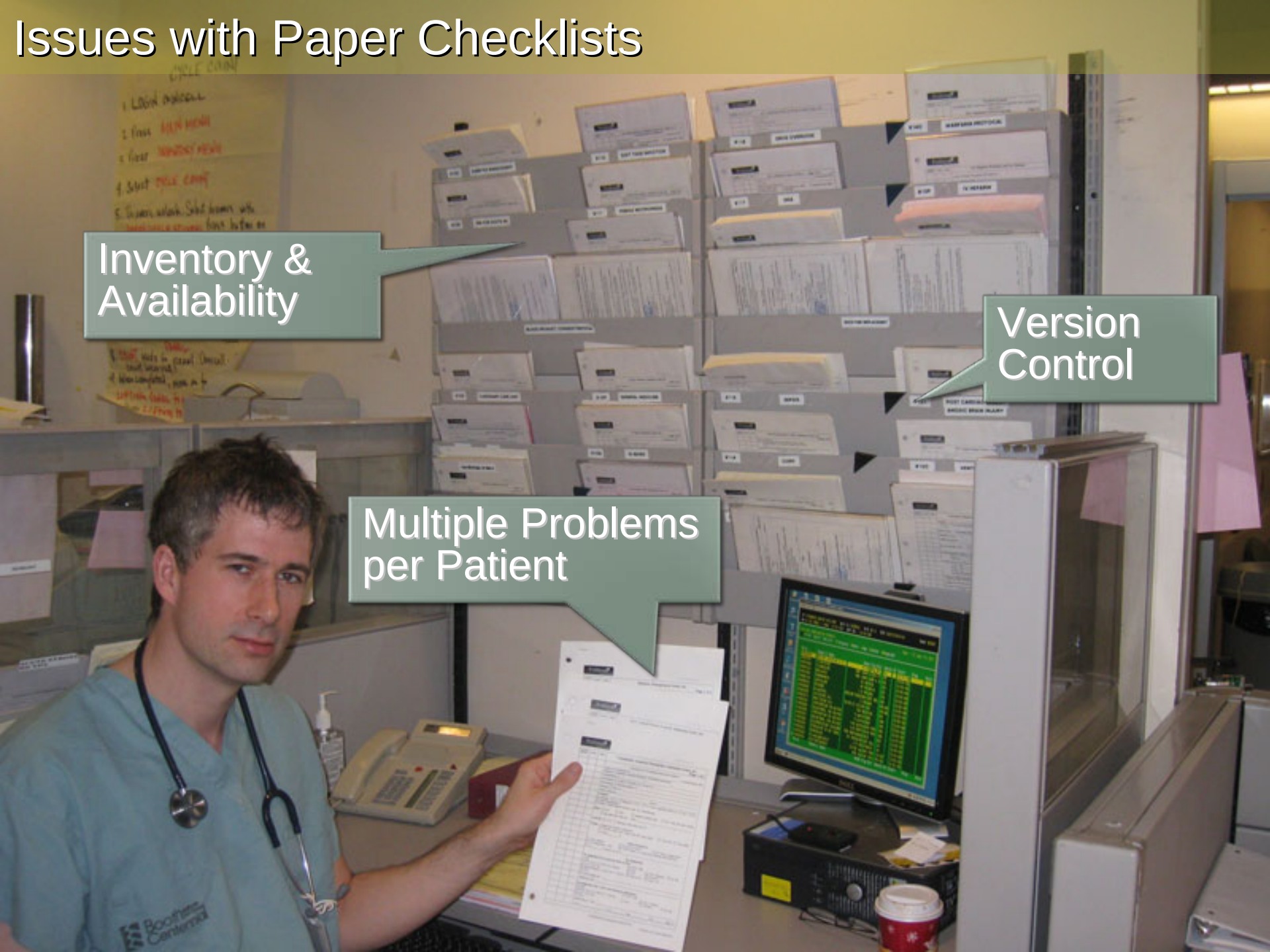
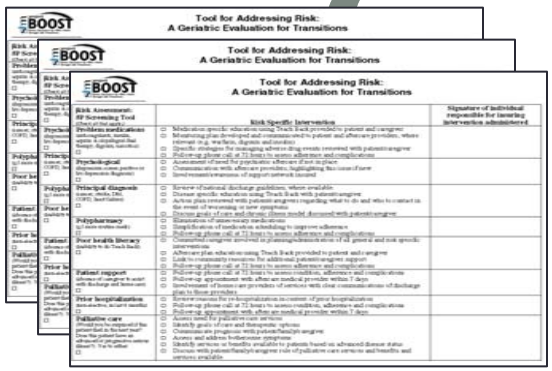
Issues with Paper Checklists



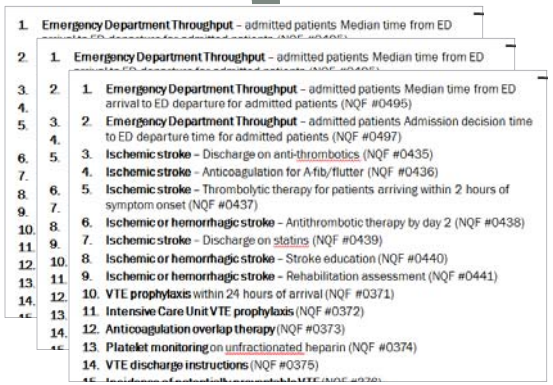
Challenge is how to blend all the different best practices & requirements into one clinical checklist?

Local Best Practices

Internal Requirements



External Best Practices



External Requirements

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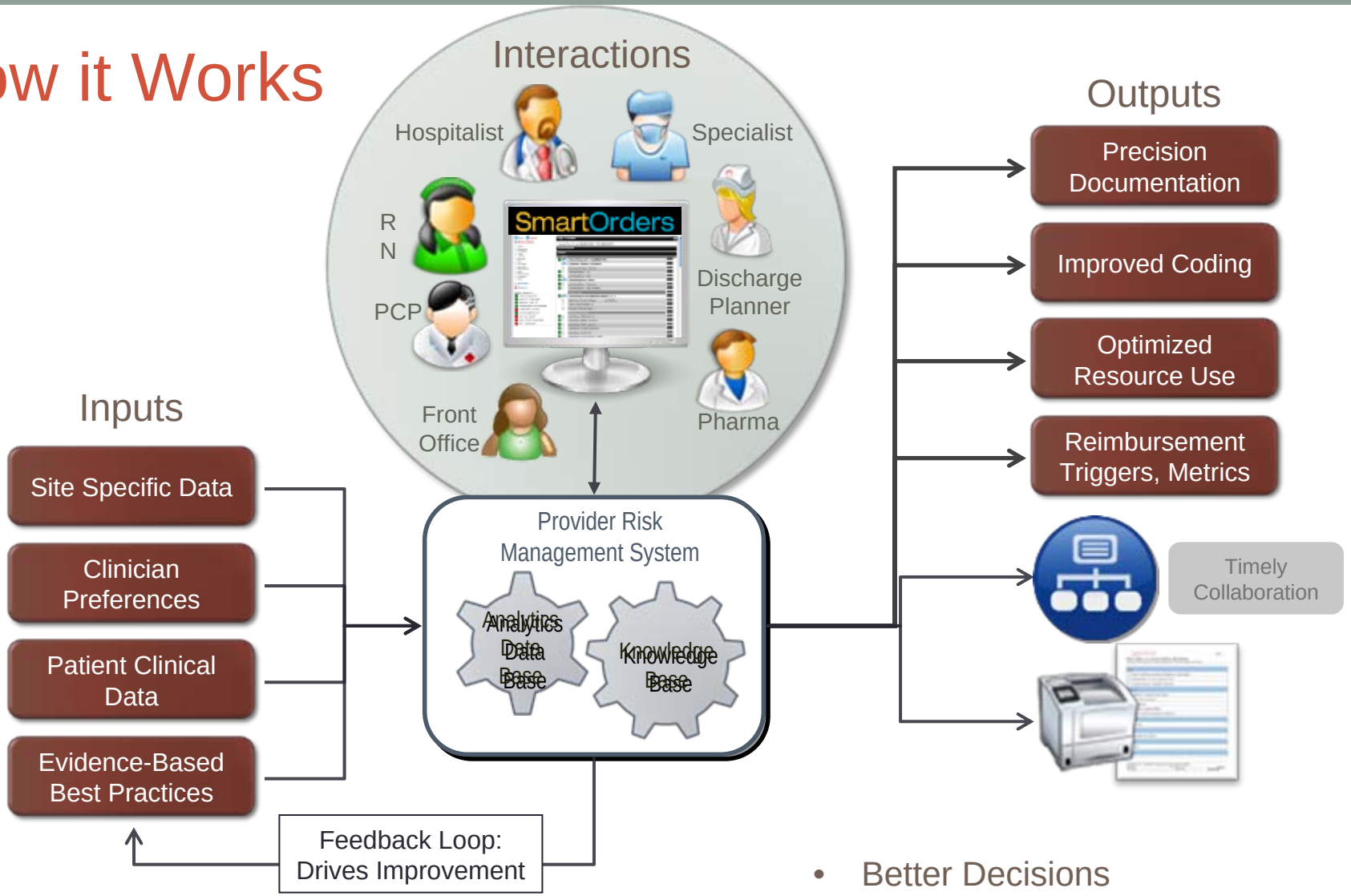
How it Works



- Better Decisions
- Better Reporting
- Continuous Improvement

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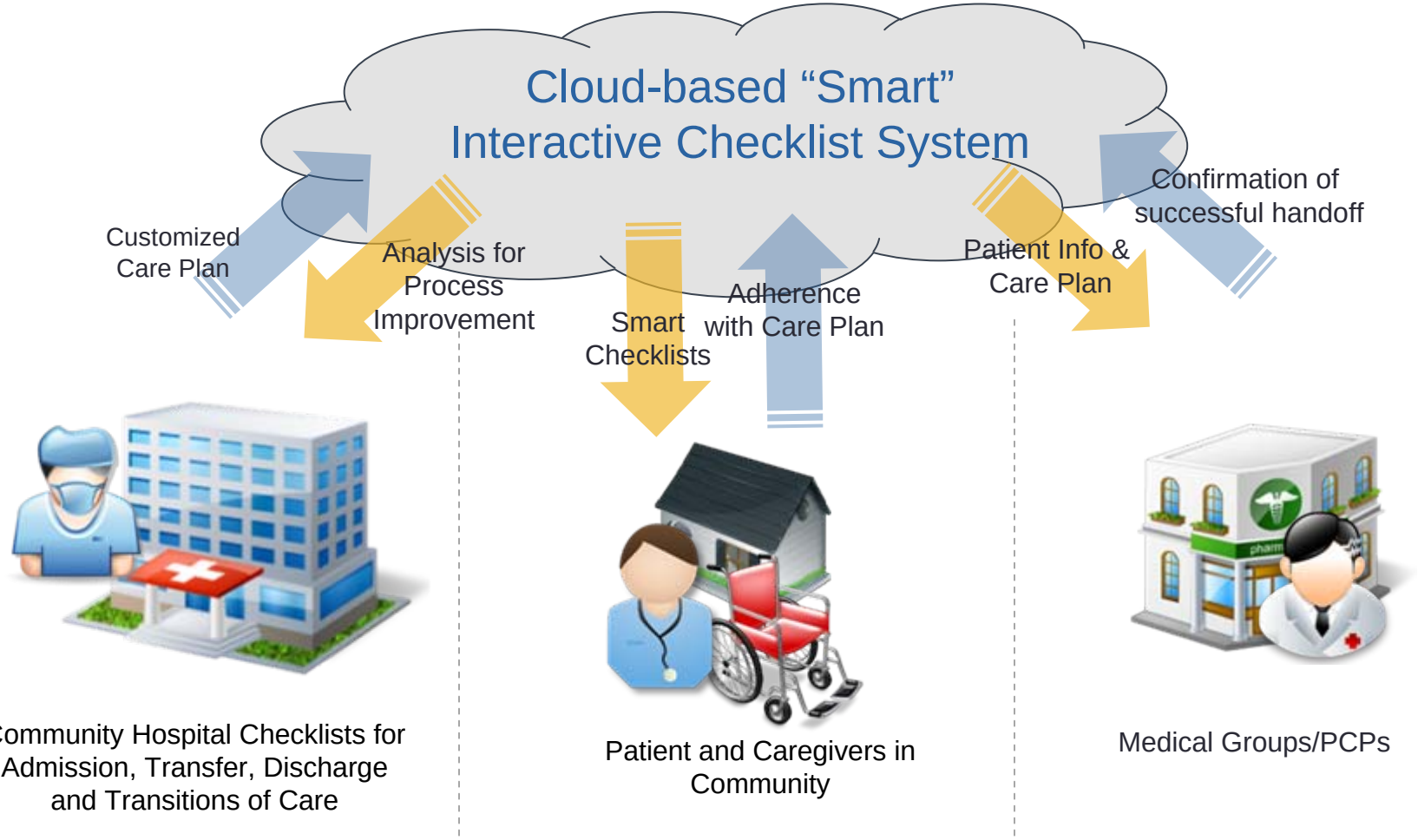
Post-acute care: supported by interactive clinical checklists



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Driving easily accessed “complete loop” care to prevent readmissions

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PRM Interactive Checklists Support High- Quality Transitions

1

Patient-Centered

Supports hundreds of disease-specific provider checklists, with the ability to blend into unique, highly-customized plans for patient-specific needs. Electronically update with industry-wide best practices.

2

Continuous

Provides a Web-enabled portal that becomes the common source for hospital, primary physician, patient's family and associated caregivers. No HIE or EMR necessary! PMD is alerted via email to access the portal.

3

Intelligent

Offers point-of-care decision support to ensure best practices, while a rich suite of analytical tools drives the continuous improvement of processes.

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Sounds Good: But Does it Work?

- Holston Medical Group, Kingsport Tennessee
- Launched a hospitalist driven, readmit reduction program in December 2010
- Focused on improving care coordination and downstream clinical communication
- In partnership with BCBS Tennessee, and Performance Clinical Systems

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About Holston Medical Group

- One of the largest multi-specialty providers within the Southeast
- 24-hour medical/surgical coverage throughout Northeast Tennessee and Southwest Virginia
- Holston Medical Group's "Family of Care" consists of more than 800 employees, including 150 physicians and mid-level providers
- Regarded as a national leader in clinical research as well as electronic health record integration and utilization

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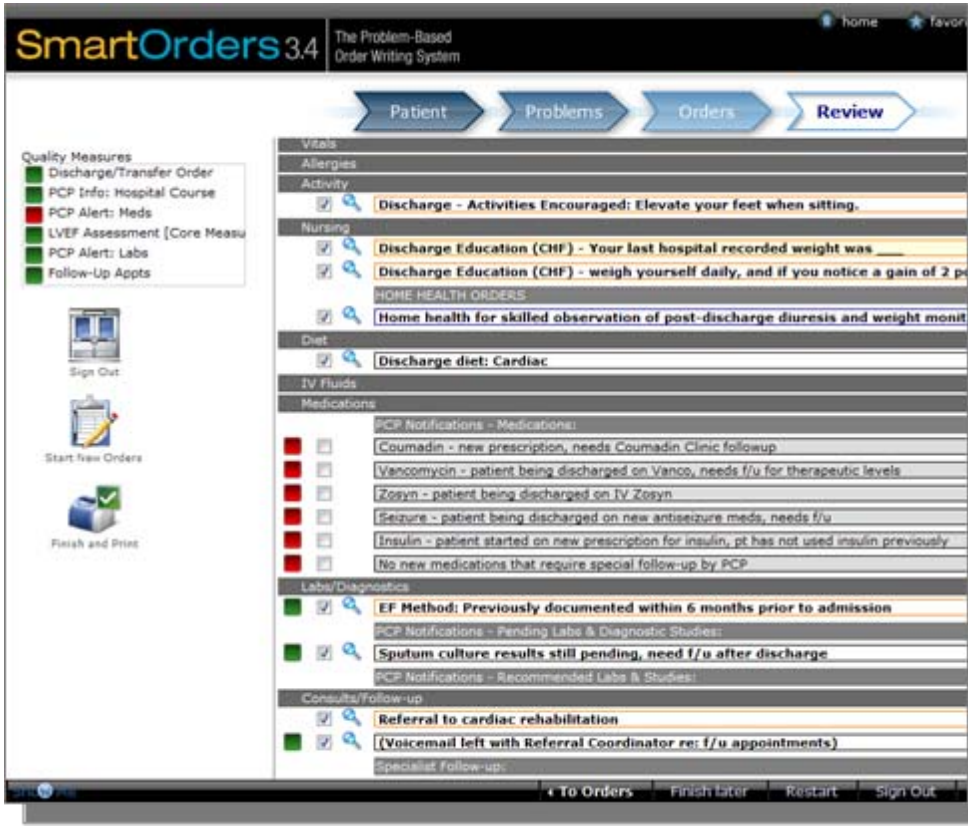
62 y/o Admitted for Complex Care: How to Reduce Re-admission Risk?

Key: Use checklists to communicate key data to downstream physicians:

- Clinical guidelines for care
- Alerts for high risk and hard to manage medications
- New allergies
- Critical events (cardiac arrest in-hospital)
- Pending labs
- Follow up appointment
- Patient education
- Identifies poor health literacy
- Identifies lack of patient support in home environment



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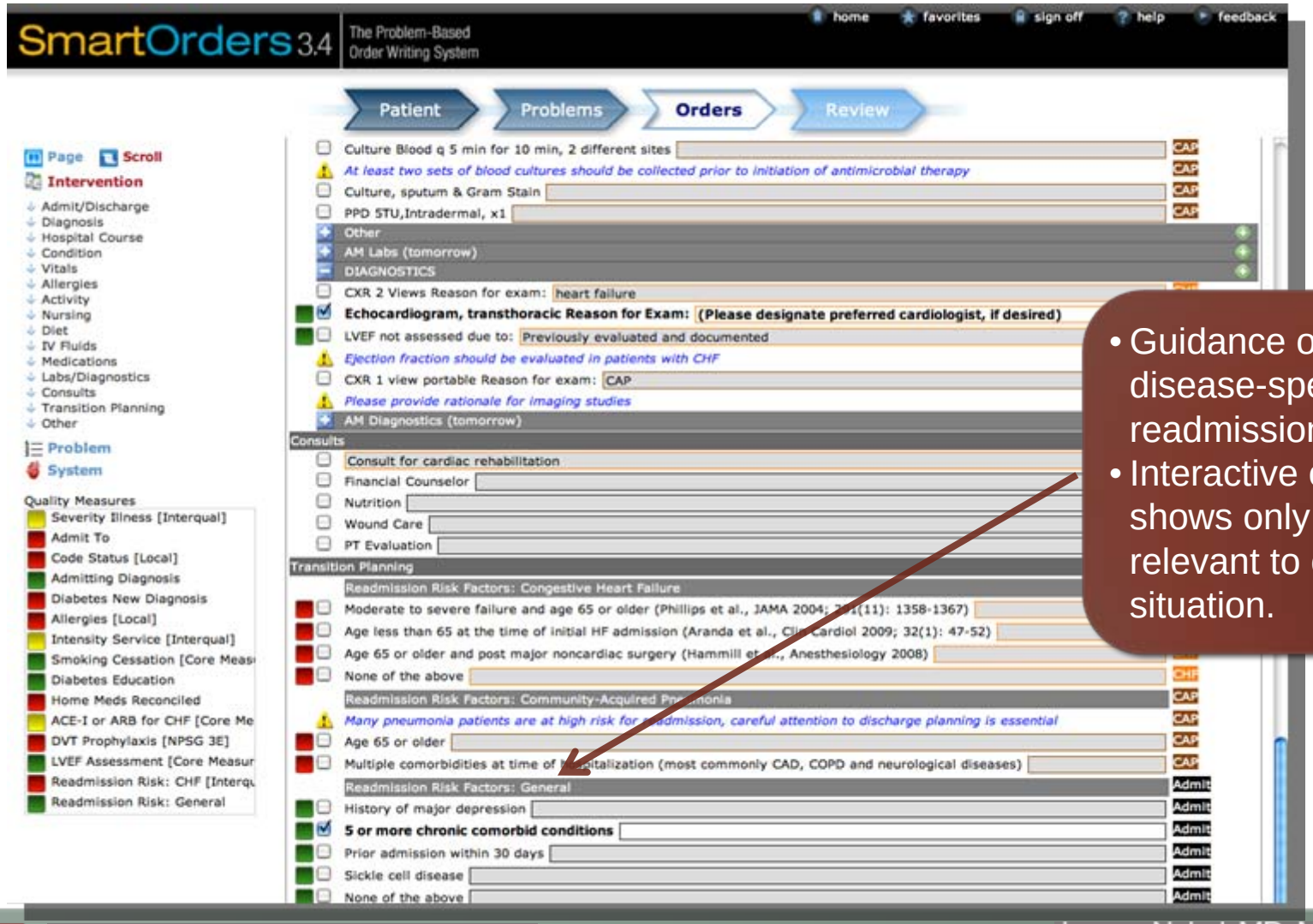
Clinical Scenario: Admission

Interactive checklists cue actions to reduce readmissions



- Guidance offered on disease-specific readmission risk.
- Interactive checklist shows only what is relevant to current situation.

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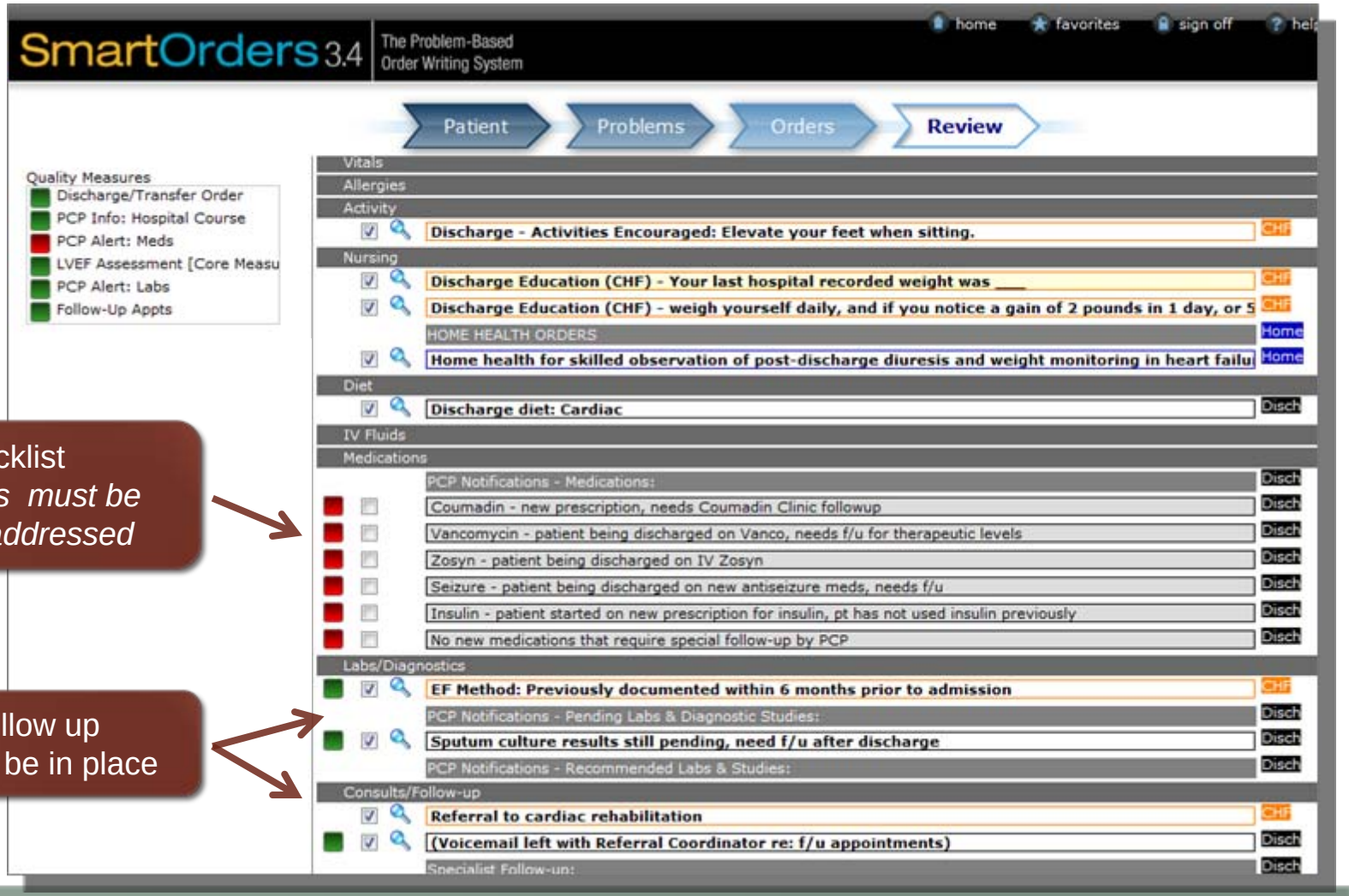
Clinical Scenario: Discharge

Interactive checklists alert down stream care of new or pending info



- Discharge checklist
- *ALL risk factors must be considered & addressed*

- Must specify follow up
- Aftercare must be in place

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Alerting for critical down stream attention…

Medications			
		PCP Notifications - Medications:	Disch
☑	🔍	**Coumadin - new prescription, needs Coumadin Clinic followup**	Disch
☐		Vancomycin - patient being discharged on Vanco, needs f/u for therapeutic levels	Disch
☐		Zosyn - patient being discharged on IV Zosyn	Disch
☐		Seizure - patient being discharged on new antiseizure meds, needs f/u	Disch
☐		Insulin - patient started on new prescription for insulin, pt has not used insulin prev	Disch
☐		No new medications that require special follow-up by PCP	Disch
Labs/Diagnostics			
☐		Ejection Fraction % = _____	CHF
☐		EF Method: TEE during this inpatient stay	CHF
☐		EF Method: TTE during this inpatient stay	CHF
☑	🔍	**EF Method: Previously documented within 6 months prior to admission**	CHF
		PCP Notifications - Pending Labs & Diagnostic Studies:	Disch
☐		Blood culture results still pending, need f/u after discharge	Disch
☐		Urine culture results still pending, need f/u after discharge	Disch
☐		Sputum culture results still pending, need f/u after discharge	Disch
☐		Ascitic or pleuritic fluid culture results still pending, need f/u after discharge	Disch
☐		Culture results still pending, need f/u after discharge (specify type __	Disch
☐		Pathology specimen taken during stay, needs f/u - specify type __	Disch
☐		Other pending studies: __	Disch
☐		No studies pending that require f/u by PCP	Disch
		PCP Notifications - Recommended Labs & Studies:	Disch
☐		Studies recommended in future: __	Disch

Your Patient Discharged from Hospital Today

High risk Rx ordered at discharge, needs PCP Follow-Up

Pending Labs or Diagnostic Studies, needs PCP Follow-up

Your Patient is High Risk for Readmission per BOOST Criteria

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Without interactive clinical checklists

7:45pm Saturday night in ED…

- Patient needs to be admitted at 7:45pm
- Focus in on acute care
- Readmit risks not identified

- No case manager on duty over the weekend
- Review waits until Monday

- Transferred to Intermediate Care
- Readmission risk not yet quantified during stay

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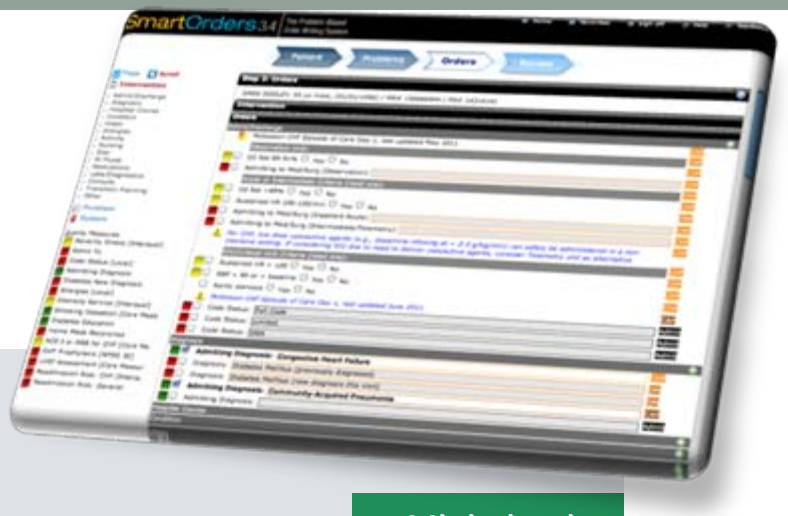
With interactive clinical checklists



7:45pm Saturday night in ED…

Systematic, Pro-active Care Initiated

Minimized Readmit Risk

SAT — SUN — MON — THU

- Patient needs to be admitted at 7:45pm
- Borderline between ICU or Intermediate Care bed
- Checklist ensures highest-value clinical criteria presented to MD
- Readmission risk factors assessed and documented

- Despite absence of case manager on duty over the weekend, EBG Care continues

- Case manager notified of high readmission risk patient
- Initiates patient education and care coordination to address risk factors

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Quality Measures
- Discharge/Transfer Order
- Discharge Diagnosis
- PCP Alert: Meds
- PCP Alert: Labs

Sign Out

Start New Orders

Finish and Print

Step 4: Review

Agnes Sexton, 61 yo, (07/04/1949) / MR# 123123 / PA# 12345123456

Intervention

Orders

Admit/Discharge/Transfer
- **Make these HMG orders an official part of the permanent medical record.** Disch

Discharge
- **Discharge to: Home** Disch

Transfer

Transport
- **Discharge patient by private vehicle** Disch

Diagnosis
- **Discharge Diagnosis: Chest Pain** CP

Hospital Course

Invasive/Operative/Other Events:
- **Intubation** Disch

Consults Requested:
- **Cardiology** Disch
- **Pulmonology** Disch

Additional Comments:

Condition

Vitals

Allergies
- **No new allergies/adverse reactions identified during this hospitalization** Disch

Activity

Nursing
- **Nursing communication: Provide written instructions specific to diagnosis** Disch

Diet
- **Discharge diet: Cardiac** Disch

IV Fluids

Medications

PCP Notifications - Medications:
- **Coumadin - new prescription, needs Coumadin Clinic followup** Disch

Labs/Diagnostics

PCP Notifications - Pending Labs & Diagnostic Studies:
- **Blood culture results still pending, need f/u after discharge** Disch

Follow-Up Appointments (Unit Secretary)
- **Please schedule followup appointment with Dr Murphy in 1-2 weeks** Disch

Follow-up Appointments (Documentation)

Project BOOST: Poor Health Literacy

Sign Out

Start New Orders

Print Again

HOLSTON VALLEY MEDICAL CENTER
A Member of Wilmont Health System

PHYSICIAN ELECTRONIC DOCUMENTS

Agnes Sexton, 61 yo, (07/04/1949) / MR# 123123 / PA# 12345123456

Discharge Final Progress Note (Hospital Copy)

Admit/Discharge/Transfer

Make these HMG orders an official part of the permanent medical record.

Discharge to: Home

Discharge patient by private vehicle

Diagnosis

Discharge Diagnosis: Chest Pain

Hospital Course

Invasive/Operative/Other Events:

Intubation

Consults Requested:

Cardiology

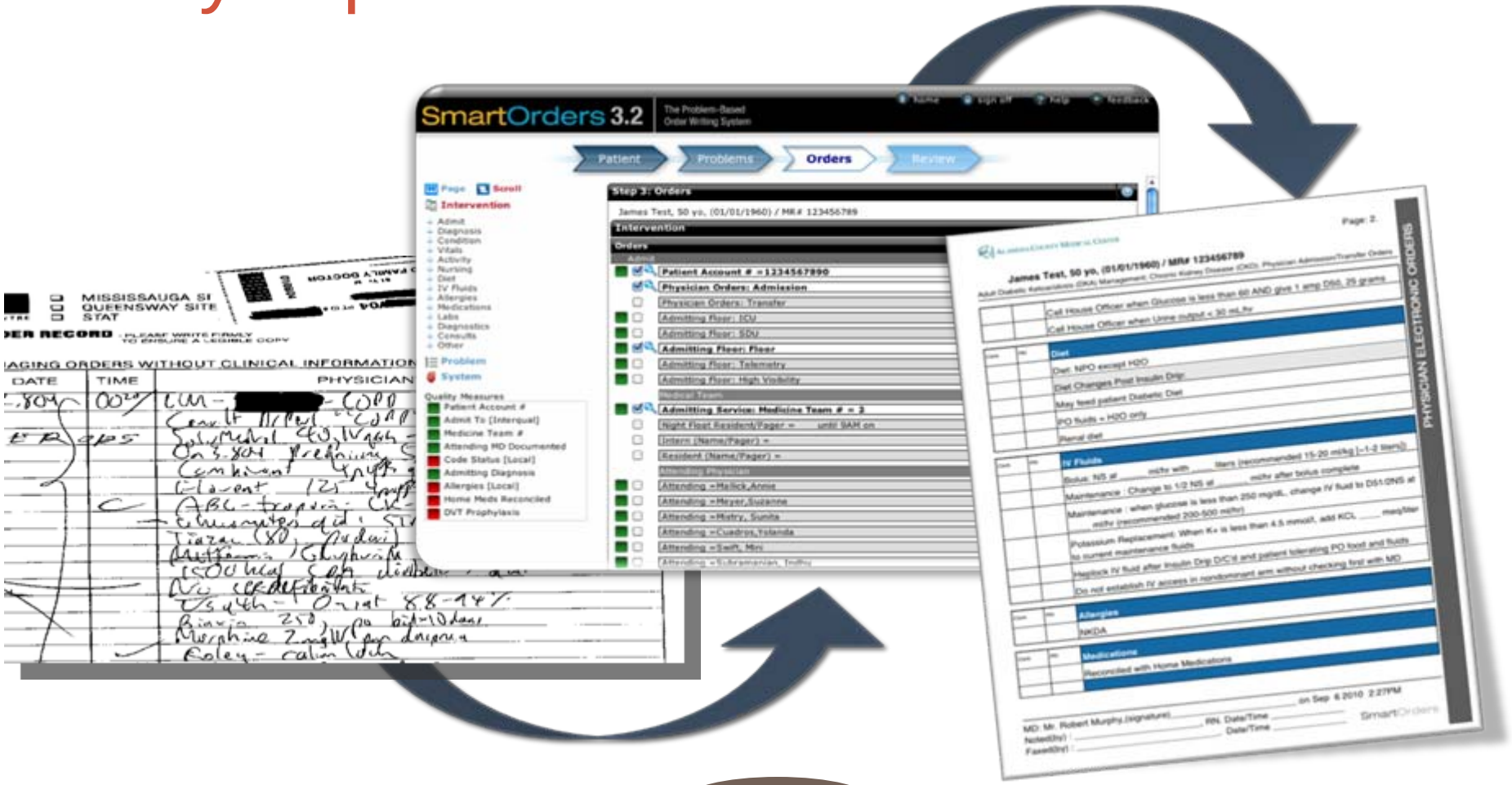
Pulmonology

Additional Comments:

Allergies

No new allergies/adverse reactions identified during this hospitalization

Interactive clinical checklists are easily implemented



60 days

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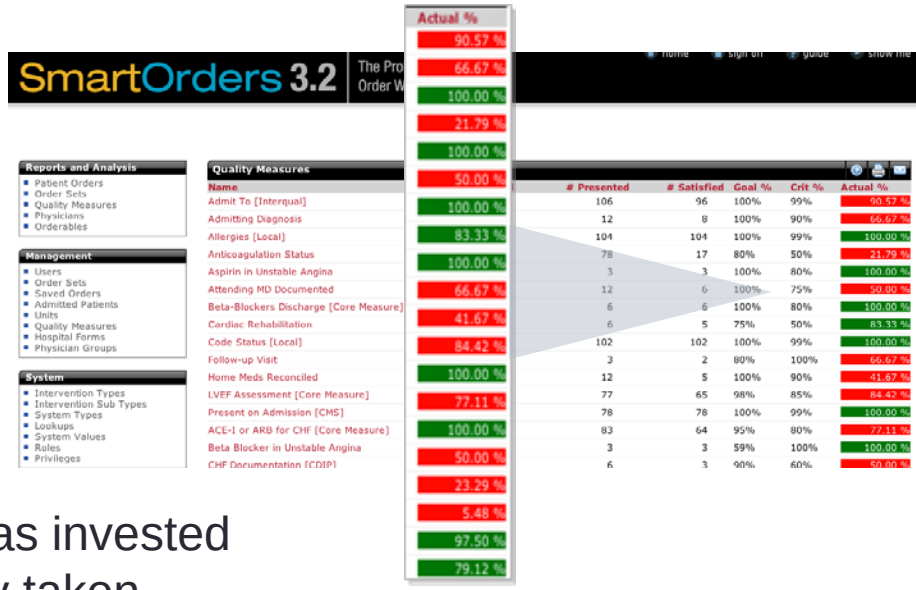
Performance Measurement

- Workflow tools embedded at the *point of care*
- Influences behaviors real-time through gentle, but firm traffic light guidance based on content and administrative rules



  - No “critiquing” of work AFTER time was invested which requires revisiting steps already taken

- Documents, tracks, and reports on performance and adherence to all protocols and best practices driven by evidence-based content (easily imported into system)

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Potential savings from this technology

Typical Community Hospital	Factors
Base Cost to Payor	$5,833[1]
Admissions/year	10,000
Readmit rate (averaged)	0.1755[2]
# of Readmissions/year	1755
Cost of all readmissions	$10,236,915
Estimate preventable	50%[3]
Total potentially preventable cost	$5,118,147
% reduction by Interactive Checklist within workflow of the 50% preventable re-admits (i.e 25% of all re-admits)	25%
Interactive Checklist Savings	$2,755,970 per year

1 CMS base compensation for MS-DRG in state of CA
2. Averaged rate between Medicare & Commerical Payors, 2009 RCCA data
3 Jencks, Goldfield data

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HMG: How is it Going?

- Hospitalists enthusiastic and engaged, as are PCPs
- Primary care network now has access to more timely and relevant care related information
  - New medications started in the hospital
  - Alerts on anti-coagulation and status
  - Identification of re-admit risk factors
- Can now be accessed through EHR
- Provides real time performance analytics in terms of checklist deployment and specific order initiation
- Plans are to expand interactivity to post-acute care ecosystem, including home care, SNFs.

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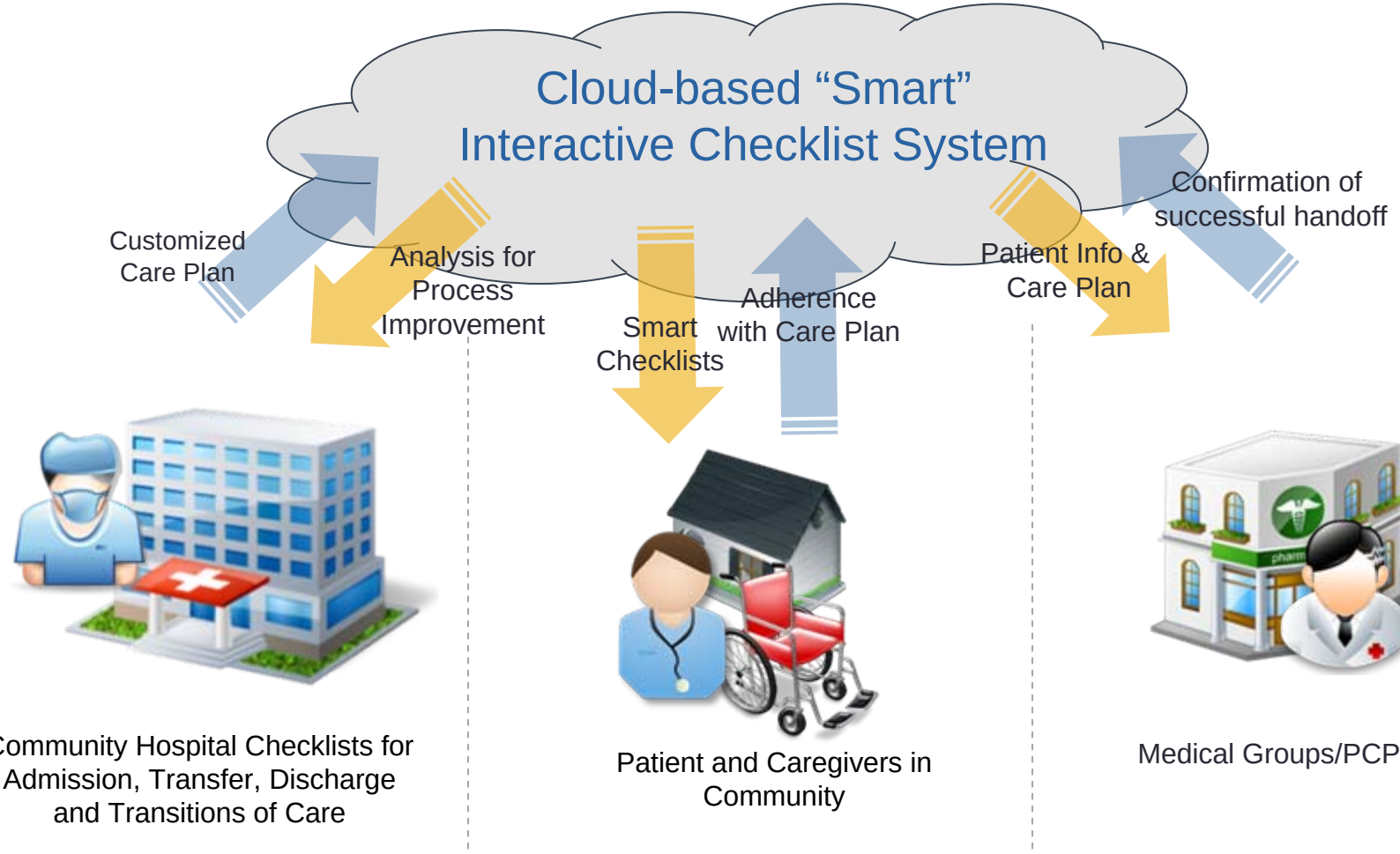
It Takes a "Clinical Village" to Prevent Readmissions: And Now its Connected!



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