

HIT to Support the Advanced Medical Home

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GEISINGER
REDEFINING BOUNDARIES™

Geisinger

- 14 clinics, 3 hospitals, 31 counties
- 200,000 lives
- 100% outpatient EHR
- 100% inpatient EHR (large hospital)
- Patient EHR 100,000 patients
- Outreach EHR 500,000 records yearly
- Information Exchange 10 organizations

Agenda

- The Goal of HIT
- End-to-End Care Processes
- Precisely Informed Actors
- Transparent Reporting

The Goal of HIT

To support the flawless performance of a PCPand-patient-led (virtual) team that manages all of a patient's health needs (and information) across every setting of care.

The Reality

- Discharge plans unclear, un-scheduled.
 - Follow-up plan incomplete.
 - Follow-up appointments unavailable.
- Medication problems at transitions of care:
 - Discharge meds added to home meds (creating duplicates)
 - Patients too confused to fill prescriptions.
 - Delay for PCP confirmation of discharge meds (e.g., antibiotics post-pneumonia)



Agenda

- The Goal of HIT
- End-to-End Care Processes
 - Supported by end-to-end HIT.

The Healthcare Team (Actors)

- Patient
- Doctor
- Nurse
- Caregiver
- Call Center
- Scheduler

- Clinical Educator
- Case Manager
- Health Coach
- Payer
- Quality Manager
- Regulator



- Automate identification of patient needs and care-plan status.
 - Population screening and risk stratification
 - Care reminders
 - Disease-specific patient summaries

- Automate identification of patient needs and care-plan status.
- Automate patient engagement.
 - Personalized invitations to care
 - Personalized updates at check-out

- Automate identification of patient needs and care-plan status.
- Automate patient engagement.
- Standardize clinic processes.
 - EHR rooming tool
 - Protocol-based order sets
 - Med reconciliation

- Automate identification of patient needs and care-plan status.
- Automate patient engagement.
- Standardize clinic processes.
- Automate remediation of sub-optimal care.
 - EHR alerts (linked to)
 - Standardized order sets

Continuously Optimized HIT

Pre-implementation process re-design



Continuously Optimized HIT

- Pre-implementation process re-design
- Continuing optimization
 - Processes
 - EHR
 - Team members



Continuously Optimized HIT

- Pre-implementation process re-design
- Continuing optimization
- Every loop closed
 - Tests
 - Prescriptions
 - Referrals
 - Discharges



Agenda

- The Goal of HIT
- End-to-End Care Processes
- Precisely Informed Actors
 - Data Capture
 - Data Movement
 - Action Support
 - Patient EHR
 - Data-Response Center



Precisely Informed Actors

Data Capture



Data Capture (patients and clinicians)

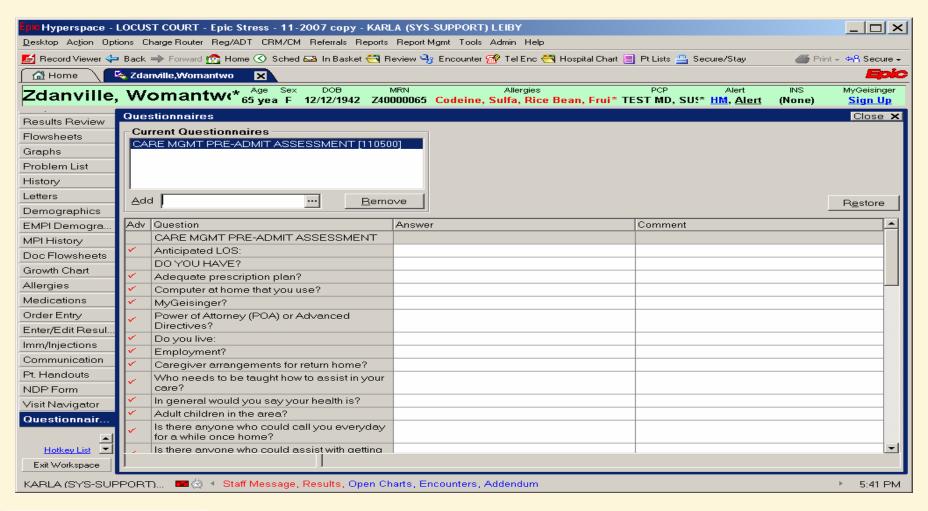
"The patient notes new low-back pain.

There is no personal history of cancer, trauma, or longterm steroid use. The patient has noted no fever, unexplained weight loss, urinary retention, saddle anesthesia, fecal incontinence, sciatica, or bone pain.

The breasts are normal. {LBP PROSTATE:9363} There is no spinal tenderness to percussion. Both ipsilateral straight-leg raising and crossed straight-leg raising are negative. There is no ankle-dorsiflexion nor great-toe extensor weakness."

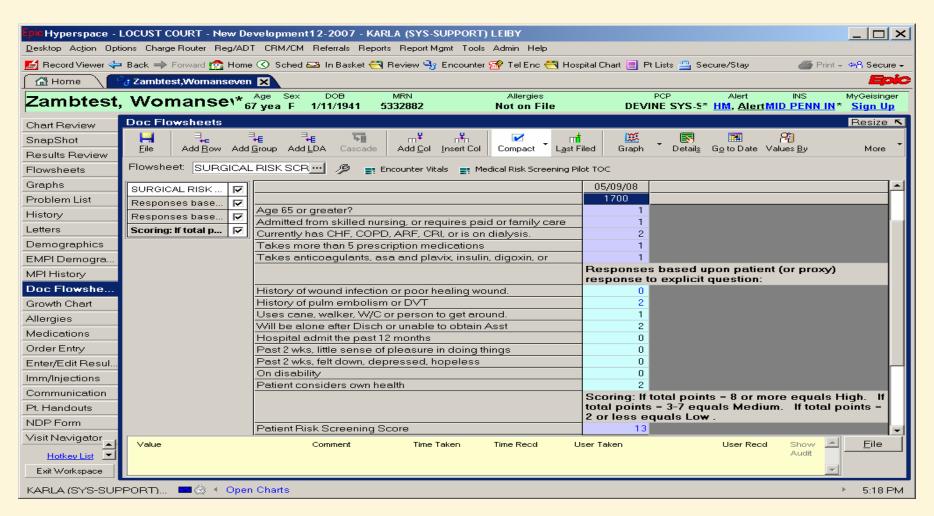


Care Management Pre-Admit Evaluation



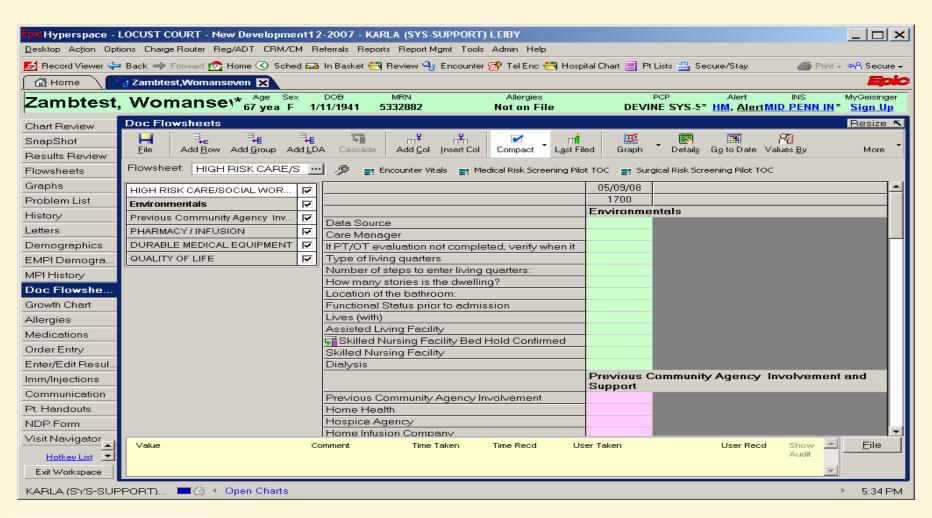


Surgical Risk Evaluation



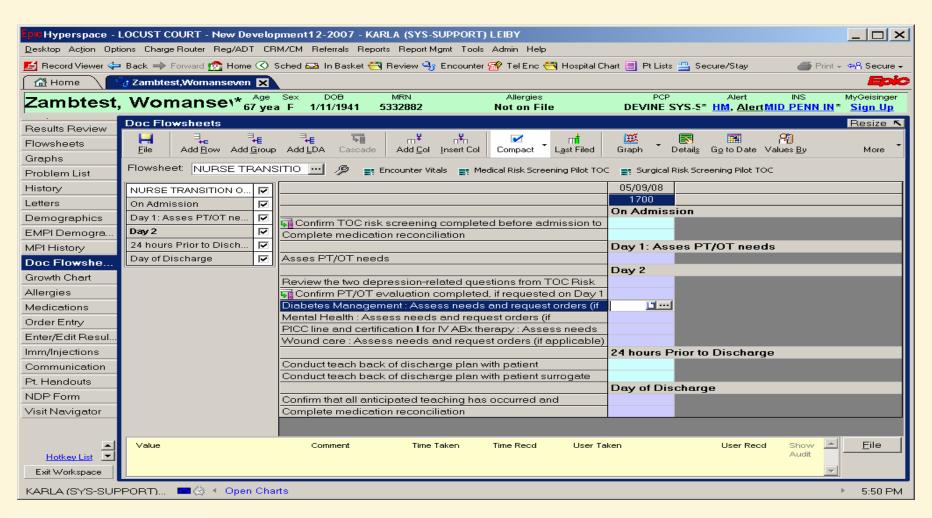


Social Services Needs Evaluation



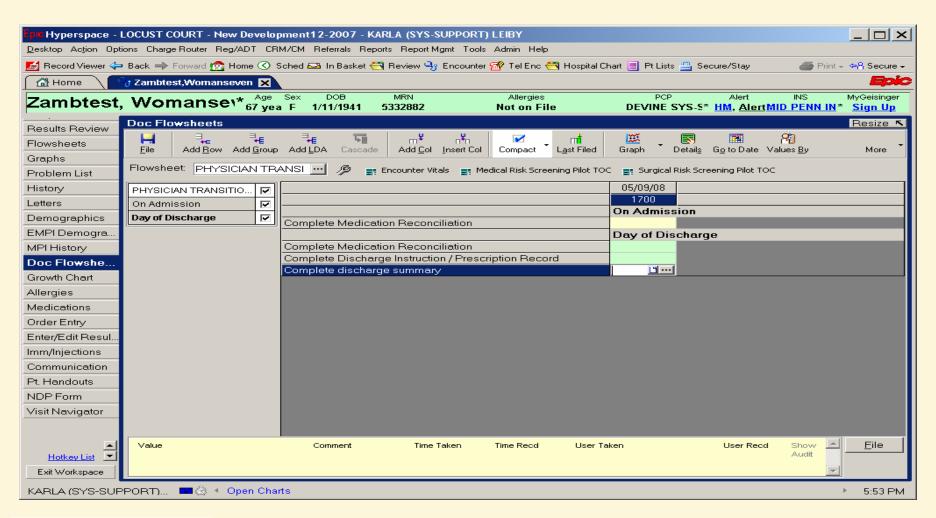


Nurse Discharge Checklist



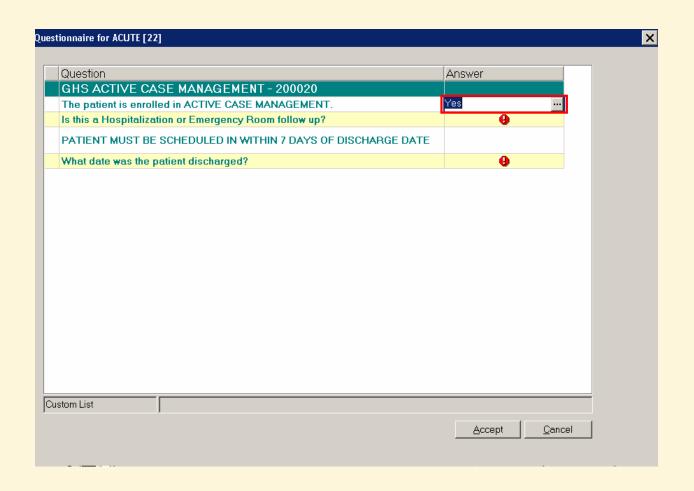


Physician Discharge Checklist



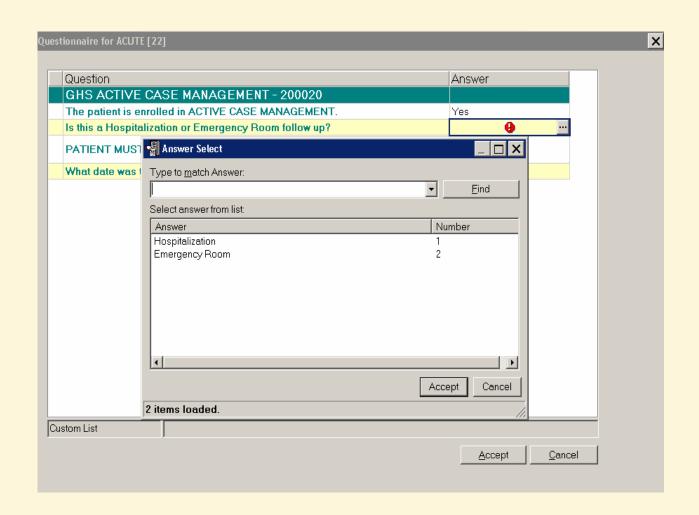


Post-Discharge Alert (case manager)





Data Capture





Precisely Informed Actors

- Data Capture
- Data Movement



Data Movement

- Scanned Documents
 - Electronic management
- Hand Entry
- Information Exchange
 - EHR access
 - Scanned documents
 - Machine-readable data (LOINC)



Precisely Informed Actors

- Data Capture
- Data Movement



Data Presentation

Status	Trend	Score	Problem List	
<u>/!\</u>			CHF, Stage 2	
			HTN	
			CKD, Stage 3	
O			Diabetes Type 2, with Nephropathy	
			Acute UTI	
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Precisely Informed Actors

- Data Capture
- Data Movement
- Action Support

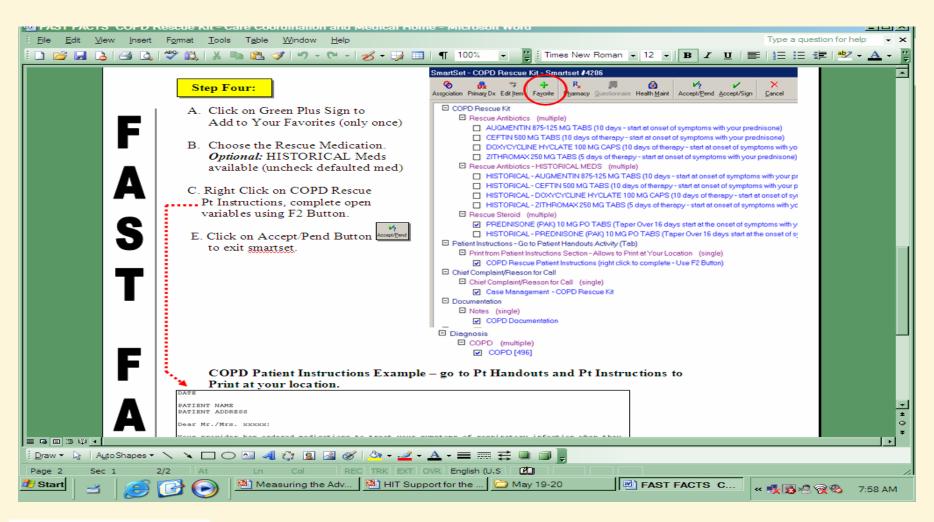


Action Support

- Diagnoses linked to care plans
- Order Sets linked to diagnoses and care plans
- Patient instructions linked to order sets



Order Sets and Patient Communications



Action Support

- Diagnoses linked to care plans
- Order Sets linked to diagnoses and care plans
- Patient instructions linked to order sets
- Pre-Filled Referrals
- Direct-to-patient reminders linked to self-scheduling



PHR: Data Access

- Problem List
- Med List
- Tests
- Visit review
- Prevention
- Chronic-Disease Management
- Case Management



PHR: Communications

- Appointment Requests
- Secure e-Mail with
 - Providers
 - Case Managers



PHR: Self-Service

- Medication Renewals
- Self-Scheduling (appointments, shots, tests)
- eVisits and other data input
- Referral requests



Precisely Informed Actors

- Data Capture
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Data-Response Center



A Flood of Incoming Data

- Lab results
- Radiology results
- Patient input (depression scale)
- Monitor input
- Pharmacy input
- Case Manager input



Data-Response Center - Actors

- Business-Process Management software
- Call Center
- Schedulers
- Clinical Educators
- Nurses
- Case Managers (high-risk patients)
- Physicians



Discharge (transition of care)



Transitions of Care

- ED Discharge
 - PCP communication
 - Home-health referral
- Hospital
 - Early post-discharge patient monitoring
 - PCP communication



- Transitions of care
- No result
 - Call Center invitation
 - Clinical Educator
 - Physician discussion



- Transitions of care
- No result
- On-target result
 - Normal mammogram letter.



- Transitions of care
- No result
- On-target result
- Off-target result
 - Breast Clinic contacts patient within 24 hours.



Levels of Automation

- The software activates a protocol
 - without notifying a human.
 - and notifies a human.
 - which allows a human a restricted time to veto it.
 - contingent on a human's approval.
- The software suggests one action (among many options) for human approval.
- The software narrows the options to a few.
- The software offers a full set of options.
- The software presents data clearly, but offers no other assistance.



Agenda

- The Goal of HIT
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- Precisely Informed Actors
- Transparent Reporting

Transparent Reporting

- To Patients
 - Reminders
 - Updates (e.g., depression status)
 - After-Visit Summaries
- To Providers (by variance)
- To Managers (by variance)
- To Payers, Regulators, Public Health



Implications

 Providers will want to buy "medical-home systems", not EHRs per se.



