

Transforming Care From the Ground Up: Critical Success Factors

Institute of Medicine Engineering Workshop

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Health System



University of Pennsylvania Health System

A comprehensive array of clinical services with locations throughout the greater Philadelphia metropolitan region, serving 2 million patients annually with \$2.9 billion net revenue

§ Hospitals

- Hospital of the University of Pennsylvania
- PENN Presbyterian Medical Center
- Pennsylvania Hospital
- Penn Medicine at Rittenhouse (LTAC/Rehab)
- Multiple other clinical affiliations

§ Faculty Practice Plan (Clinical Practices of the University of Pennsylvania)

§ Primary Care Network (Clinical Care Associates)

§ Home Care & Hospice Services

§ Top-3 NIH funded Medical School

§ HUP on US News “Honor Roll”

§ Hospital financial rating upgraded 4 times in 4 years



Successful Transformation at UPHS

Focused on areas that patients are concerned about:

§ **Billing**

§ **Waiting times and ease of scheduling physician appointments**

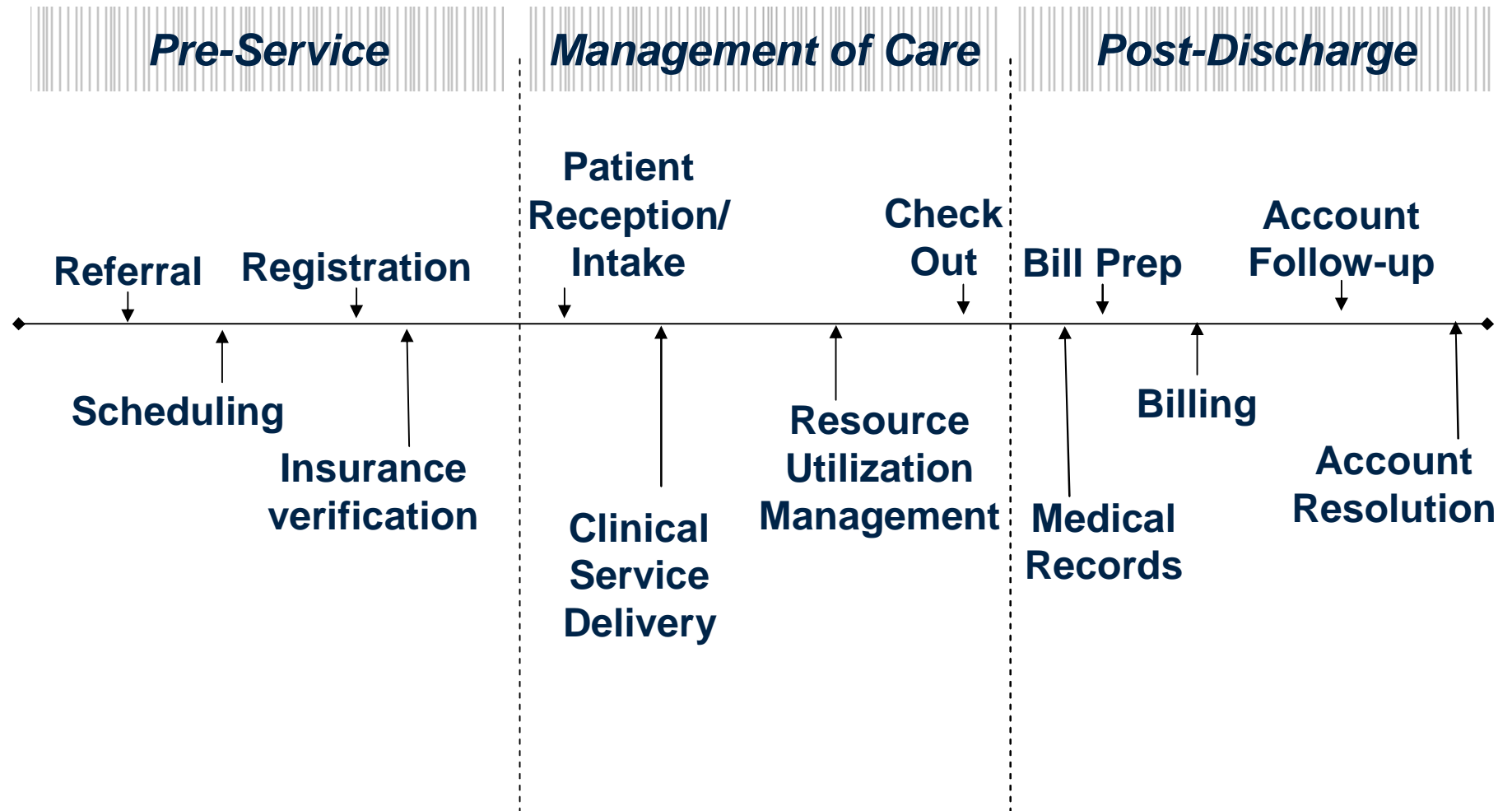
§ **Real time, longitudinal patient information: electronic medical record**

§ **Hospital complexity: course of treatment during hospital stay**

Common Factors Enable Transformation

- § Diagnose root cause
- § Do work in a different way
- § Keep checking every day
- § Reward improvement

Billing: Revenue Cycle Engineering



Root Causes: Billing Diagnostic Results

§ Silos

§ Rework

§ Lack of consistency

§ Information lags/gaps

§ Limited tools

§ Lack of productivity standards

Do Work Differently: Process Improvements

§ Reorganization

- By function
- By payer (e.g., Medicare, Blue Cross)

§ New IT systems/work lists to organize and prioritize work

§ Productivity and quality measures included in job descriptions, used in periodic and annual performance evaluations

§ Reporting systems: daily, weekly, monthly management information

Detailed Tracking at Unit/Individual Level

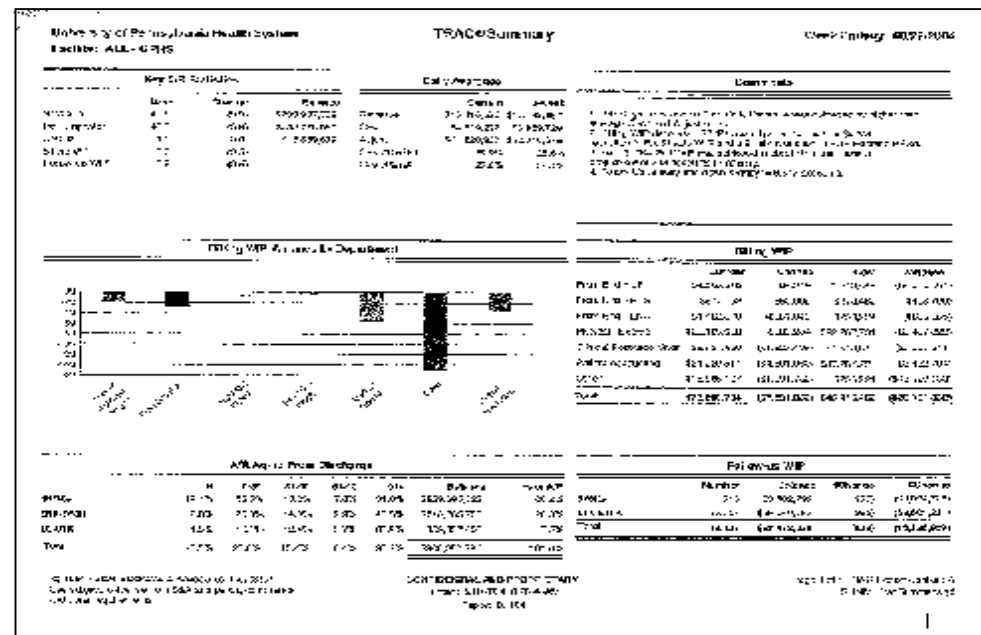
Information Granularity: Roll-up/Drill Down

§ System-wide

§ Operating unit
(e.g., by hospital)

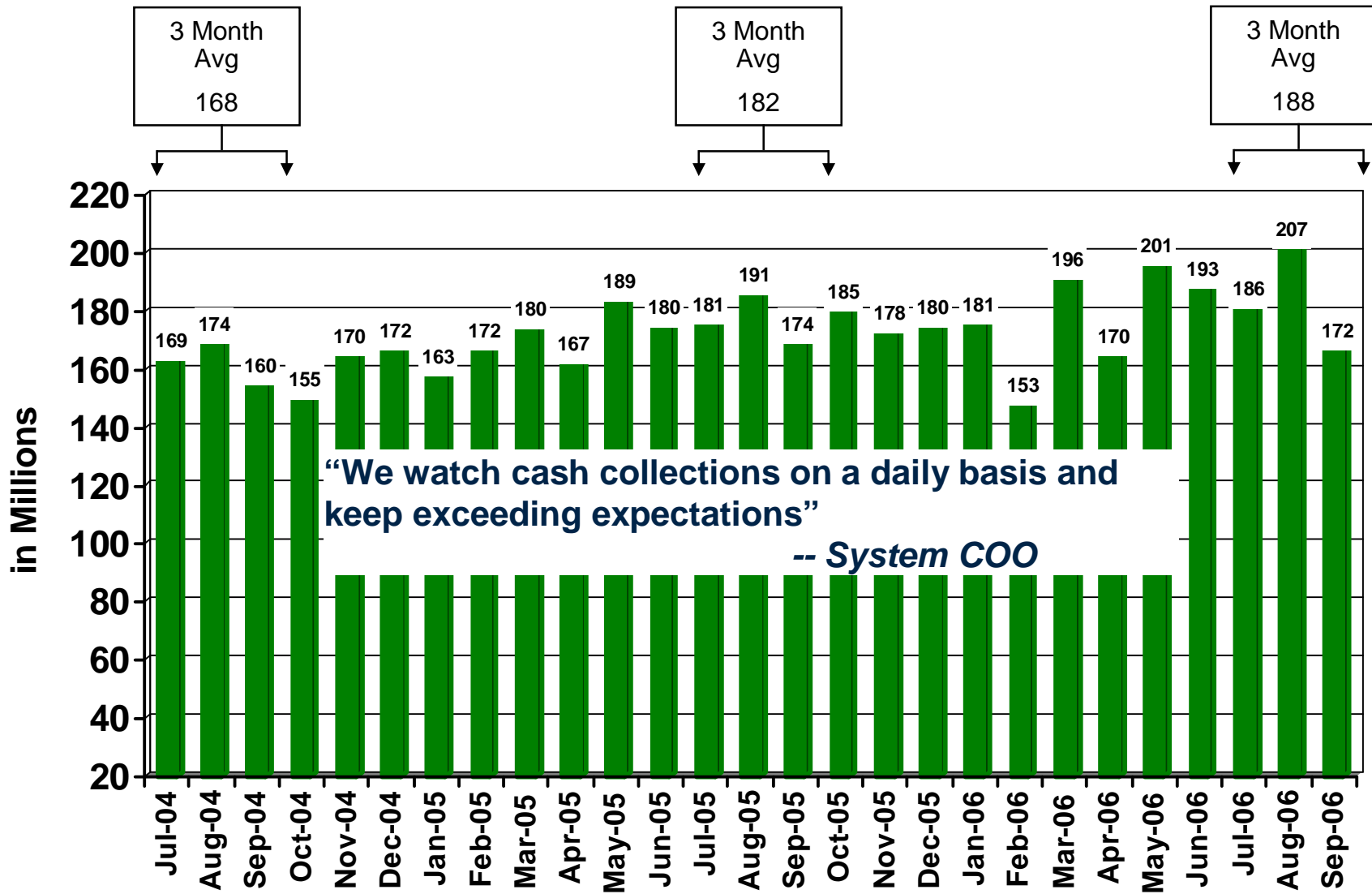
§ Supervisor

§ Employee



Keep Checking: Monthly Cash Collections

Cash collections - indicator of overall performance – tracked closely



Results: Billing Process Improvement

- § **\$57 million annually recurring income statement improvement (2% of revenues)**
- § **\$73 million balance sheet cash benefit (5% of total net assets)**
- § **50% reduction in days in accounts receivable (from 80 to 40 days)**
- § **Increase in follow-up productivity equal to adding more than 15 FTEs to the central billing office (hospital) and 5 FTEs to physician billing office (practice plan)**
- § **>97% patients financially certified at the time of admission**

Improving Access to Physicians

Background and Context

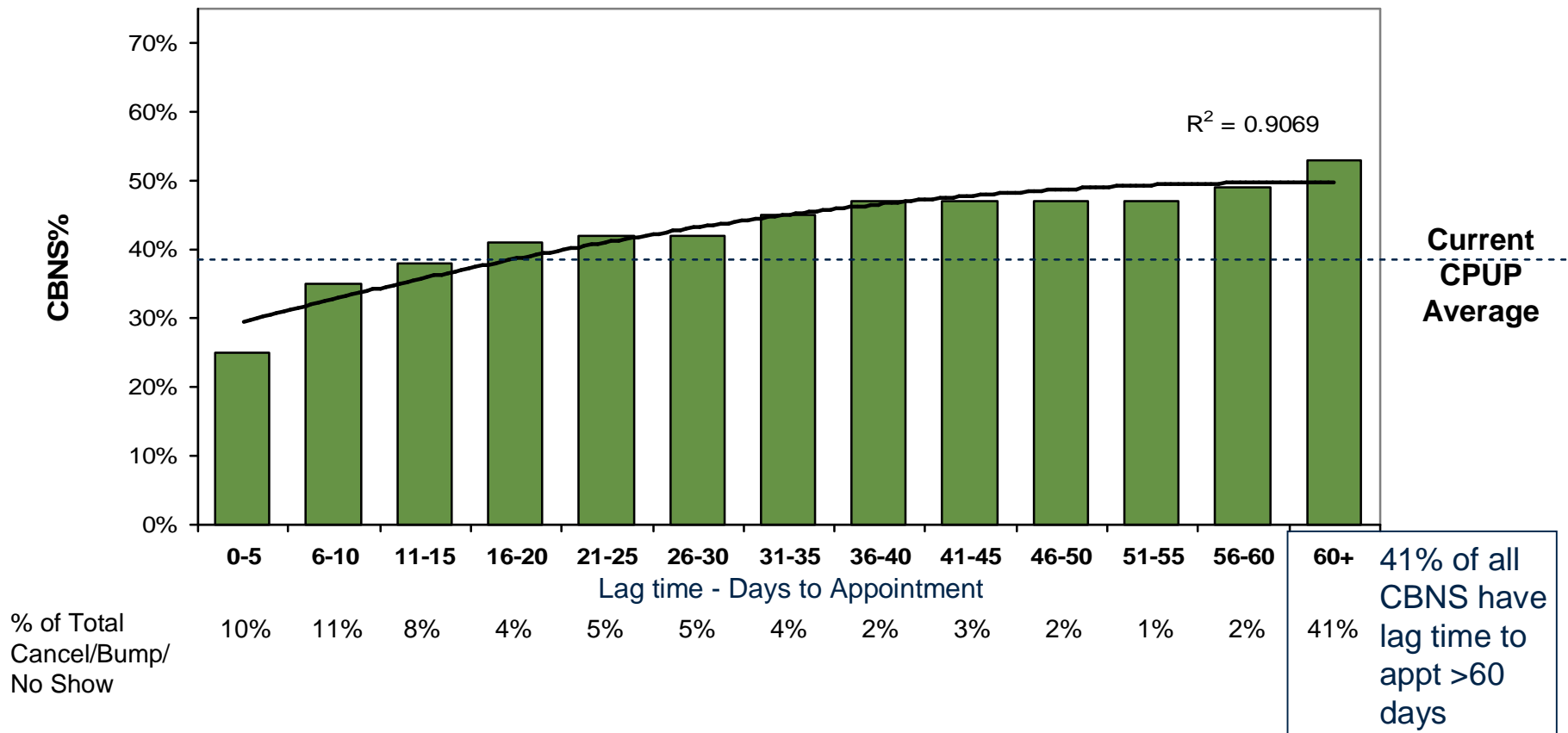
- § 1,000+ physicians practicing in 150+ sites without standard processes
- § Large volume of unserved calls from patients (Over 300,000/year, 22% of total)
- § High frequency of appointment “bumping” as well as patient cancellations and no-shows (60,000 bumps/cancellations/no shows per year)
- § Long delays during patient visits, sometimes with multi-hour waits to see the physician

Transformation Goals

- § Improve access:
 - *Appointment availability* – reduce lead time to schedule an appointment
 - *Telephone access* – reach a human being when trying to contact the office
 - *Patient Flow* in the practice setting – process by which patients are received and move through the practice
- § Create a state-of-the-art practice model to go with our state-of-the-art facility

Root Causes: Appointment Availability

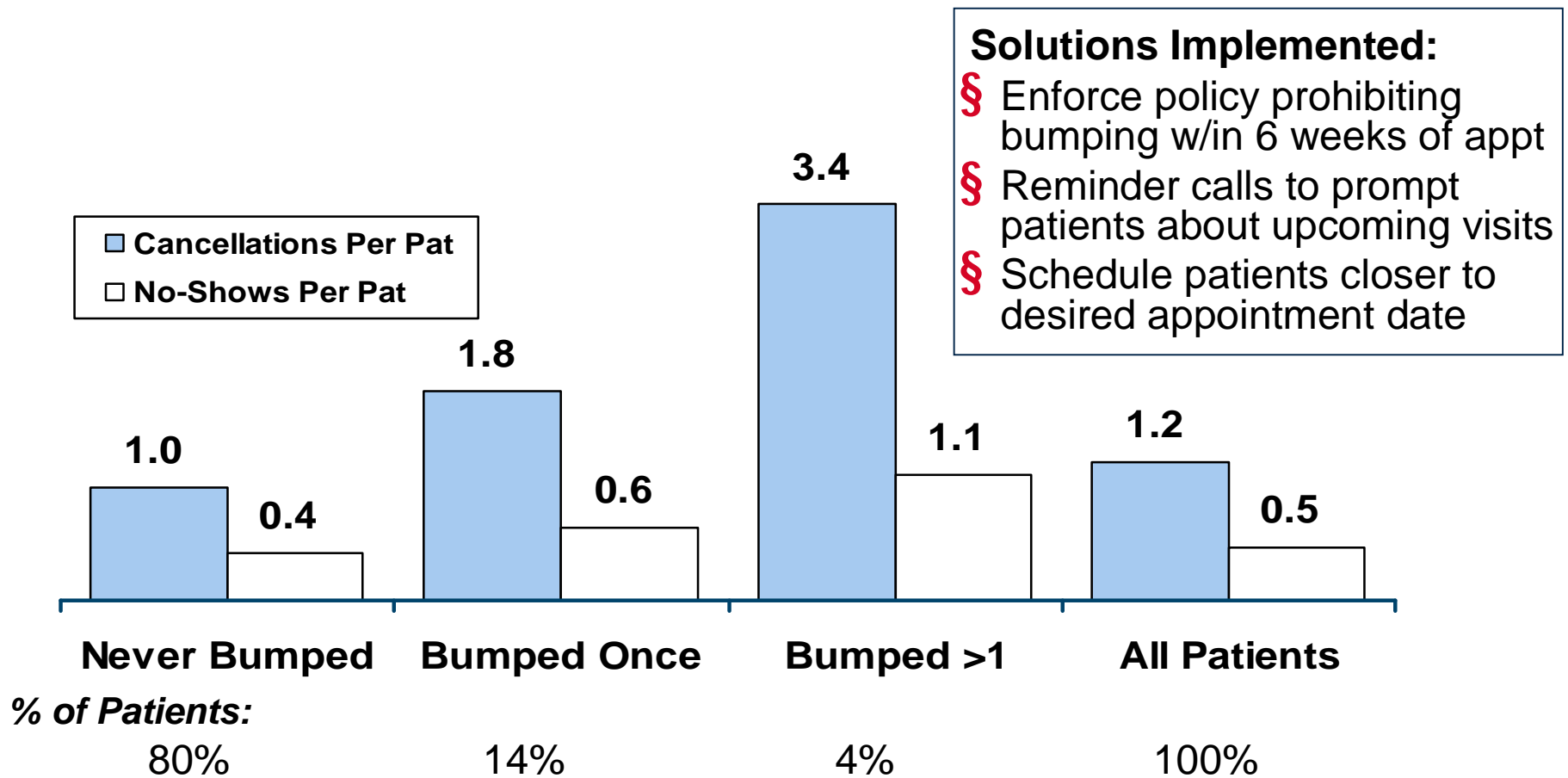
Lag Time to Appointment Highly Correlated with Patient Cancellation/Bumping/No Shows (CBNS)



Source: IDX Scheduling

Root Causes: Patient Bumping

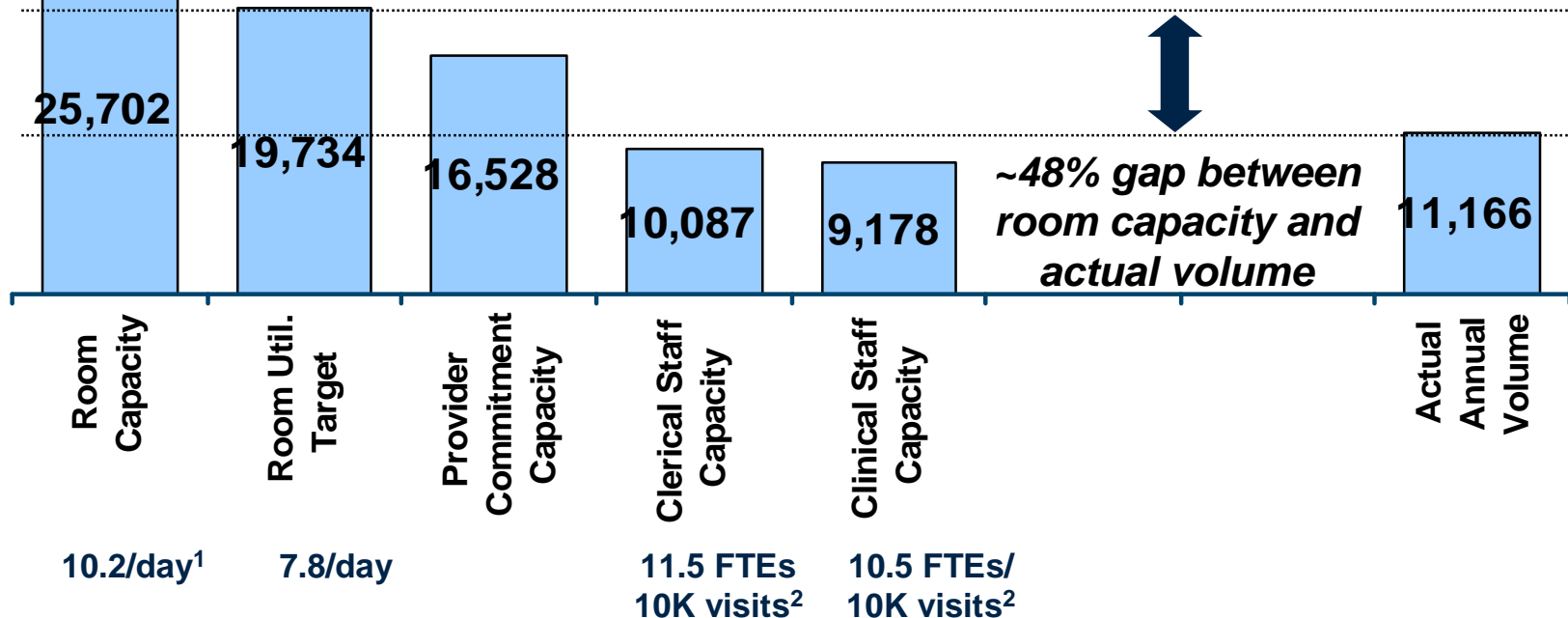
Impact of Bumping Patients (physician initiated appointment rescheduling) on Patient-Initiated Cancellations & No-Shows



Root Cause Analysis Identifies Opportunity

Understanding site capacity utilization across all dimensions – room, provider (physician, nurse practitioner), clinical and clerical staff – highlighted opportunities to increase outpatient volumes and address patient service problems.

Clinic X Visit Capacity Comparison to Actual Visits



1 Based 15% new pats; 85% return pats. average; 60 minutes for new pats; 45 minutes for return pats.; 8 hours per day

2 2005 MGMA based on 2004 data; Median values

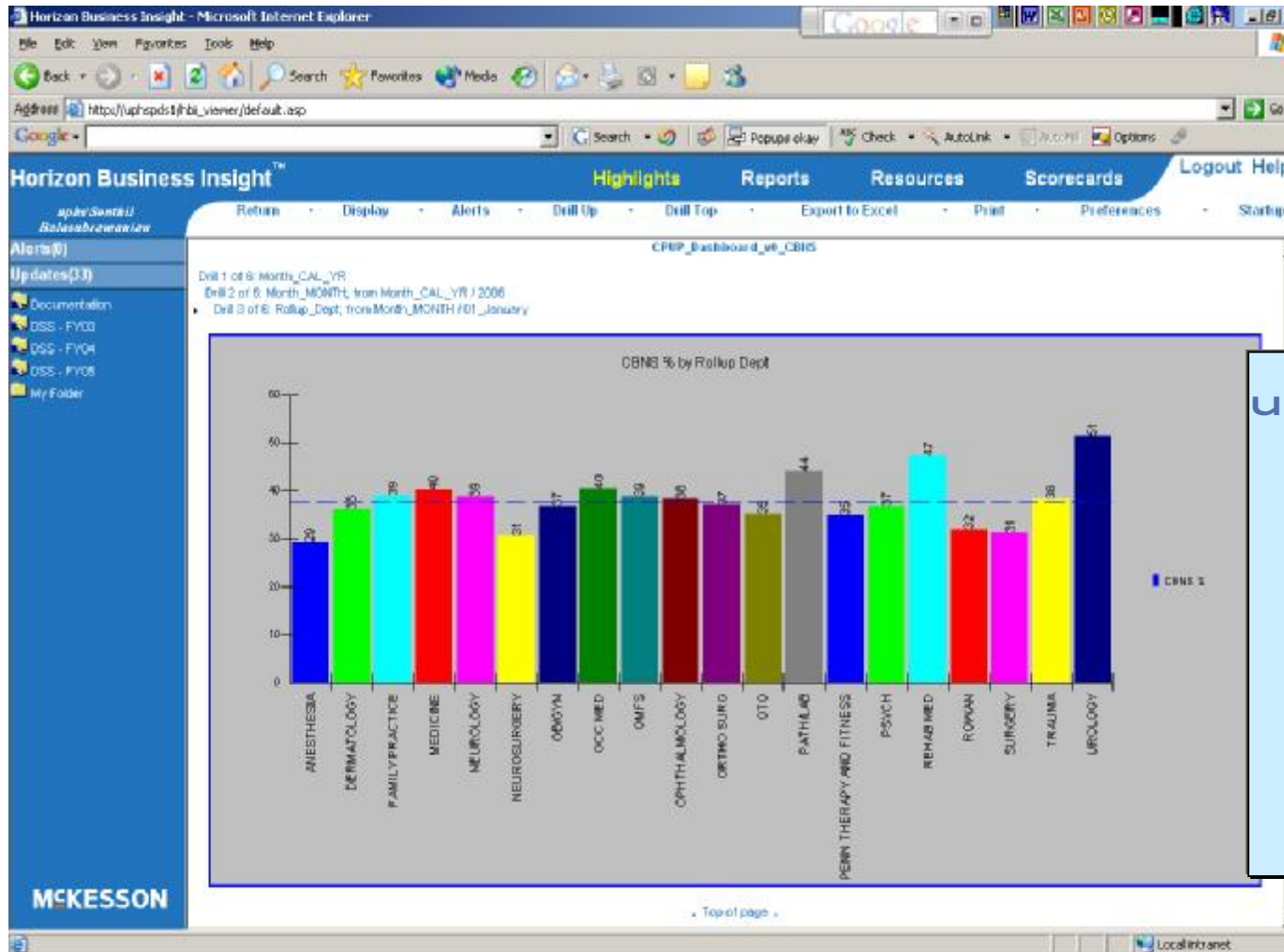
3 Patient slots / session X number of sessions per year less 2 weeks holidays and 4 weeks vacation

Do Work Differently: Process Improvements

- **Increase effective provider and exam room capacity:**
 - Multi-purpose exam rooms
 - Balance load rooms (across providers, days of week)
 - Optimize master schedules: team scheduling; super-slot/flexible schedules
- **Redesign patient flow processes**
 - Patient intake redesign (history, meds, chief complaint checklist)
 - Patient prep & front desk redesign (rapid patient check-in, patient chart prep/collection process, electronic medical record implementation)
 - Throughput management & tools (e.g., room status flags, patient tracking systems)
 - Complete patient requests during visit (e.g., medication renewals) to reduce follow up steps needed

Keep Checking: Timely Reporting Critical

Management information – along with training and coaching on how it should be interpreted and applied – raised awareness of issues and supported transformation



Real time information (e.g., % Cancel/Bump/No Show) by department, division, and provider available on-line

Electronic Medical Records

Background and Context

- § >1 million annual outpatient visits, 1,000 physicians (mostly specialists)
- § 10 years ago, only basic patient registration and billing systems were in place: primarily “back office” systems
- § Clinical system silos had been established in high volume, high automation, procedural areas, e.g., Pathology, Radiology, Pharmacy
- § Most areas used paper records
- § Clinicians had to tap multiple sources for information

Transformation Goals

- § Improve access to critical information: medication records, patient history, lab results etc. available to all care givers at site of care
 - Information known or collected by each member of the care team available to all
- § Support efficient practice workflow redesign, e.g.:
 - Reduce documentation time
 - Reduce redundancies
 - Improve physician and patient satisfaction

EMR Optimization Life Cycle

	<i>Practice Status</i>	<i>Optimization Actions</i>
Stage IV (Future State) Business Transformational <u>Reporting</u> : Provide data needed to drive decisions/strategy and support mission	§ Increased patient satisfaction § Increased productivity for entire team	§ Advanced reporting § Cycle time § Dashboard metrics § My Epic § Auto notifications
Stage III (Optimization) Leverage Leading to Outcomes 6-9 months after go-live	§ Reduced documentation time § Workflow streamlined § Follows standards § Communication improved	§ Workflow reevaluation § Application configuration analysis, reconfiguration § Metrics reporting § Training
Stage II (Ongoing Support) Epic Proficiency <6 months after go-live and ongoing	§ Preference lists used § Smart phrases customized § Eliminate duplication of work	§ Regular practice visits § Super users § Issues database § Workflow modifications § Systems enhancements
Stage I (Go-Live) Start Up Go Live period	§ Provider complete visit in exam room § Maximize work in real time § Schedules return to normal	

Sample Report- Medication Reconciliation

scr Date: 04/14/2008 Per: 04/08/2008 to 04/14/2008

ENN TOWER 16 HEM/Onc

Visit Date: 4/11/2008

RETURN PATIENT VISIT 4/11/2008 9:18:00AM	ALGAZY, KENNETH M
RETURN PATIENT VISIT 4/11/2008 10:44:00AM	HARMER CRNP, LORI HARMER CRNP, LORI
RETURN PATIENT VISIT	
RETURN PATIENT VISIT 4/11/2008 10:04:00AM	ALGAZY, KENNETH M
RETURN PATIENT VISIT 4/11/2008 9:16:00AM	LUGER MD, SELINA
RETURN PATIENT VISIT 4/11/2008 8:28:00AM	HARMER CRNP, LORI
RETURN PATIENT VISIT 4/11/2008 11:37:00AM	ALGAZY, KENNETH M
RETURN PATIENT VISIT 4/11/2008 10:35:00AM	MATO MD, ANTHONY
RETURN PATIENT VISIT	
RETURN PATIENT VISIT 4/14/2008 9:57:00PM	LUGER MD, SELINA
RETURN PATIENT VISIT 4/11/2008 10:42:00AM	CAPARRO CRNP, MILLIE
RETURN PATIENT VISIT 4/11/2008 11:18:00AM	MATO MD, ANTHONY

Visit Date: 4/14/2008 Total Visits: 52 Meds Not Reviewed: 9 Percentage Reviewed: 83%

- Data available in various cuts (provider, practice, etc)
- Can be dependent upon practice workflow
- First version, working on refinements
- Supplants need for paper chart audit

Show total
by provider
or practice

Hospital Complexity: Patient Flow

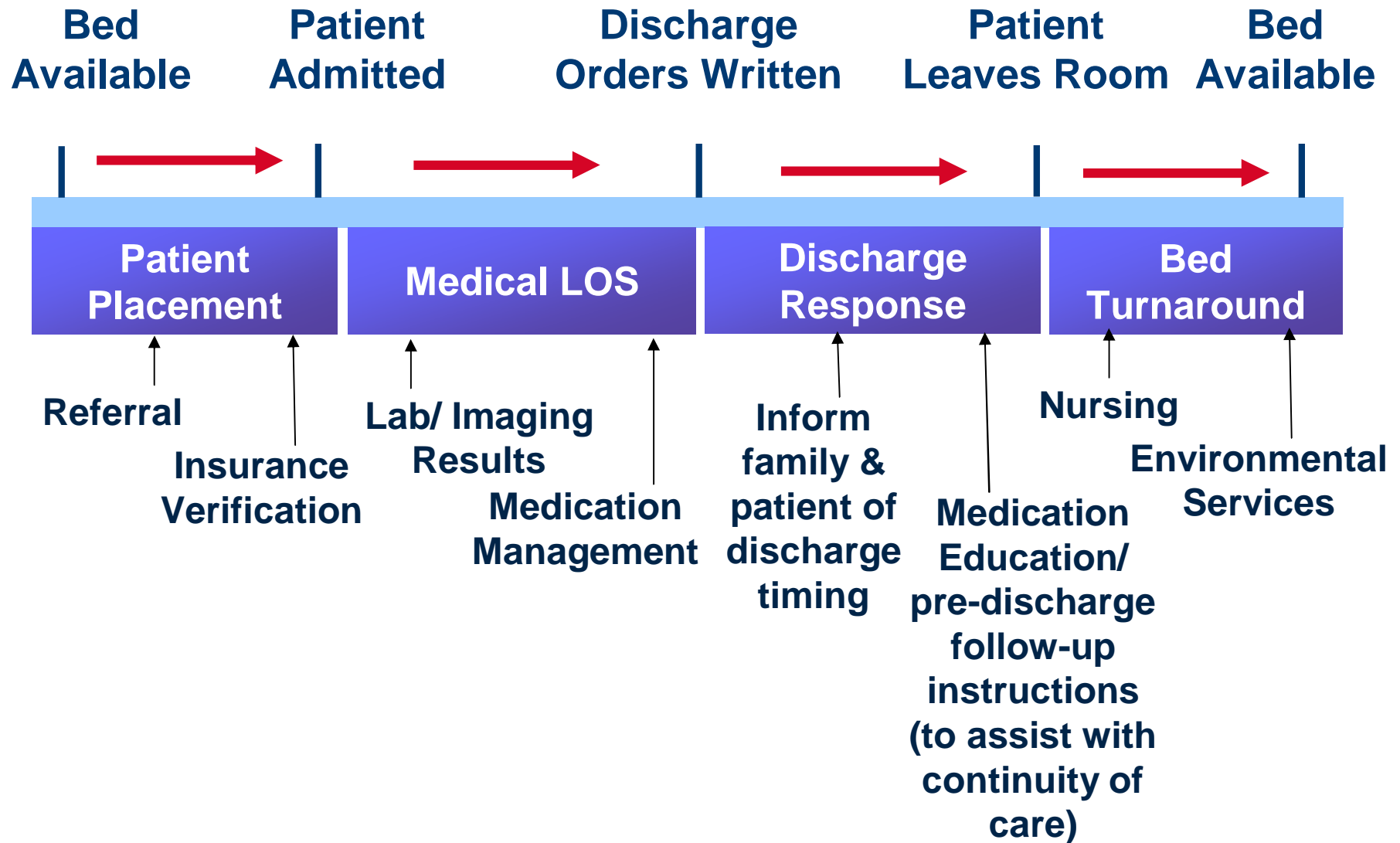
Background and Context

- § Very high occupancy hospital, with pent-up demand for elective admissions and regional referrals
- § Large investment and long lead time needed to add new patient beds
- § Competing needs for scarce capital
- § Regional bed surplus

Project Goals

- § Create incremental inpatient capacity (up to 20 bed equivalents) and avoid \$40M construction
- § Improve the patient, family and physician experience with inpatient clinical services (Medicare, Blue Cross expectation)
 - Care coordination
 - Communication
 - Discharge planning

Patient Flow Process Complexity



Do Work Differently: Process Improvements

§ In-depth diagnosis: process flow bottlenecks

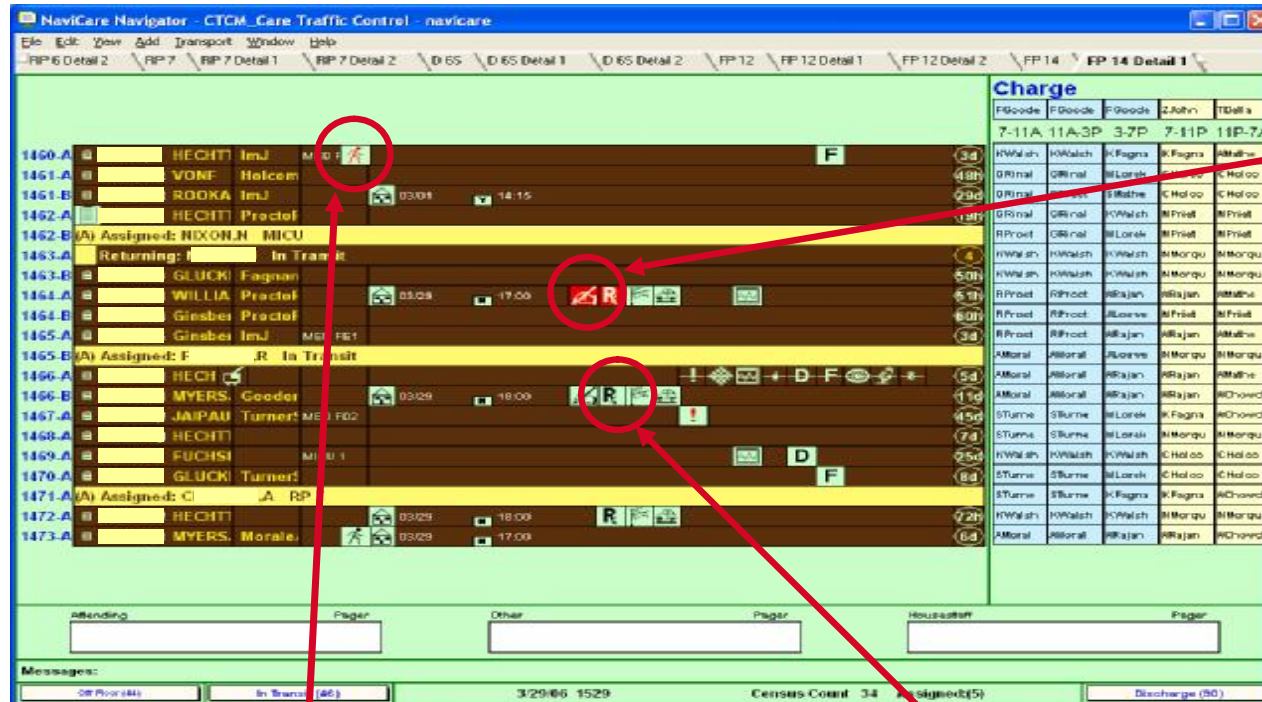
- Patient placement – identifying bed for the patient
- Care management – coordination of patient care during inpatient stay
- Discharge coordination – planning/education for follow-up post-discharge
- Bed turn around – physically preparing the room for the next patient

§ Process and staffing changes

- New “bed traffic control” function – track all key steps in care management and discharge planning process
- Daily, unit-based care coordination meetings – physicians, trainees, nursing, social services and other personnel meet to discuss patient care plans
- Patient transportation and environmental services process and staffing changes

§ Process changes and communications supported with new information system

NaviCare Care Traffic Control Module



Discharge Orders Written
 (Expected no later than 2 hours prior to the expected discharge **red** indicates late)

Patient off unit in Imaging
 (Shares basic information about patient status with all team members)

Discharge Prescriptions Written
 (Expected no later than 1.5 hours prior to the expected discharge **green** indicates on schedule)

Provide Incentives

§ Management Plan has specific goals for quality and patient service, as well as financial performance

- All members of senior leadership team, department chairs
- Incentive based compensation system for all faculty, developed by each department, with similar goals
- Goals also reflected in middle manager plan

§ Other reward and recognition programs

- Annual quality improvement project awards for teams in each operating unit and system-wide
- Multiple opportunities for individual recognition of faculty & staff

Keys to Transformation

- 1. Use data and analysis to identify opportunities and motivate change**
- 2. Redesign workflows and restructure roles, integrating information technology**
- 3. Establish goals and monitor performance in real time**
- 4. Create meaningful incentives for physicians, management, and staff**

