



**CardinalHealth**

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# Turning Drug Data into Information

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# Topics

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- Clinical and Drug Data
- Clinical Risk Adjustment
- Manage Information
- Client Examples in Use of Information
- Short Term Implications
- Future Implications

# Patient Level Clinical and Drug Data

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- Claims data
  - Demographic
  - ICD Dx, Procedure, DRG
  - Charges
- Clinical data
  - Patient Lab results and aggregate categories
- Drug data
  - Aggregate classification and groupings
  - Line item drug name, route, dose, etc.

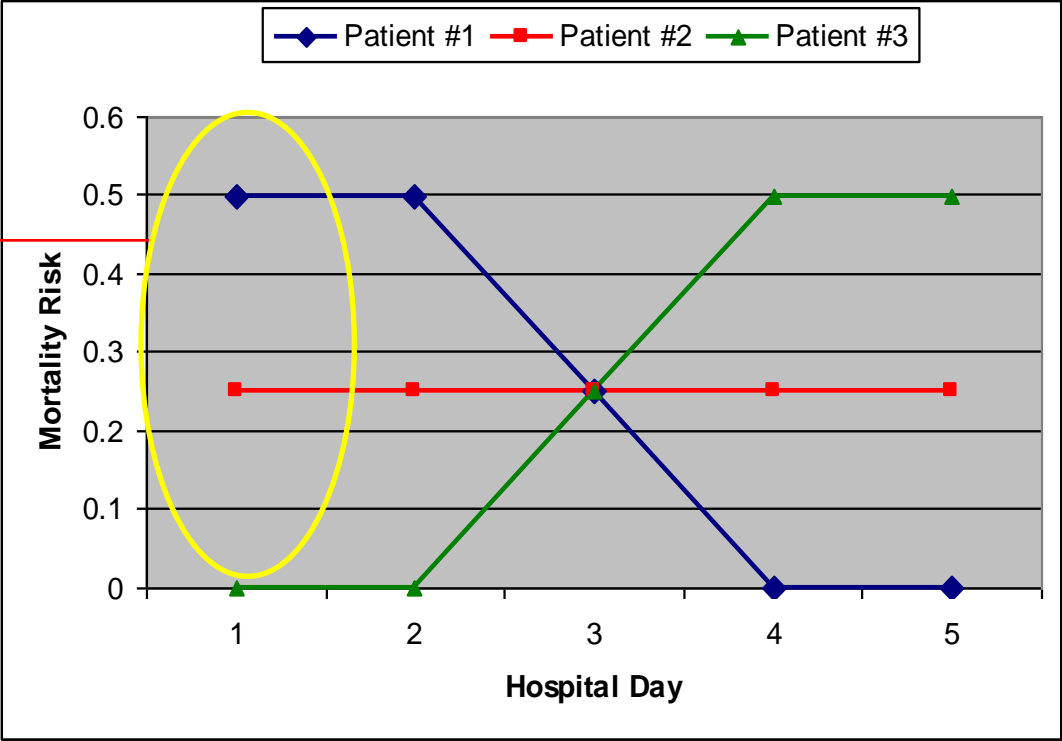
# Admission Based Clinical Risk Adjustment

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- Risk adjustment provides meaningful “apples to apples” comparisons of healthcare outcomes.
  - Providers value using electronically available clinical data as it provides greater predictive power
  - Admission based model accounts for risk factors that patients bring to healthcare encounters that could affect their outcomes.
  - Essential for drawing useful inferences about treatment effectiveness, provider performance, quality of care or clinical outcomes

# Patients have varied hospital courses

**Admission** based estimate of risk is **key** to comparing hospital performance



All 3 patients have the same “average risk” across the hospital stay

# Data enrichment: Going beyond UB92

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- External project (UB 07) looking at getting better data
  - Frees the models from the criticism that late hospital stay events are used for adjustment
  - Better separation of comorbidities from complications
- Enhances face validity and transparency

# Organization's Use of Risk Adjustment

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- Identify risk profiles and predict outcomes (especially mortality and LOS).
- Allow comparisons of a local population to an external standard.
- Draw useful inferences about treatment effectiveness, provider performance, quality of care or clinical outcomes.

# Manage Information

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- Clinical teams need aggregated information about patients' risk profile and drug utilization by disease and outcomes to:
  - Make decisions
  - Improve care delivery systems
  - Establish care guidelines
- Patient safety and medication errors must be systematically collected, measured, reviewed and reduced.
- Pay for Performance programs require more accurate methods of measuring and improving clinical quality, leading to cost reductions.



# Client Examples in Use of Information

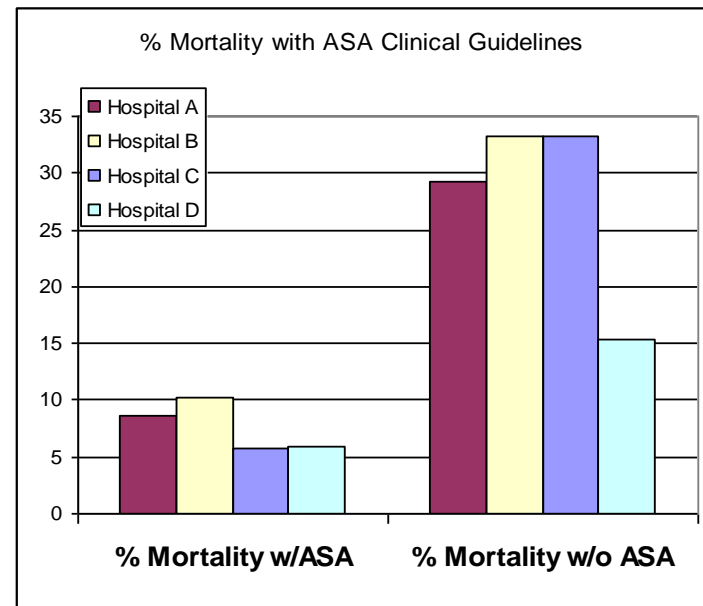
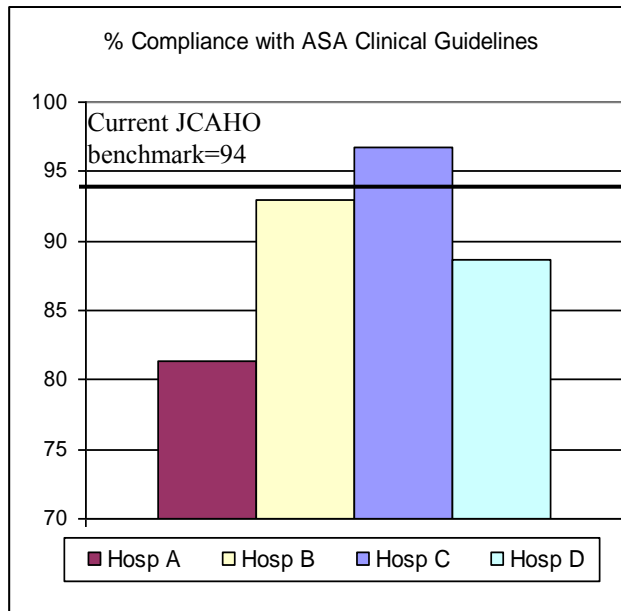
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- Clinical
  - AMI- Aspirin and Outcomes
  - AMI-ACE Inhibitors and Outcomes
  - CHF Outcomes with Beta Blockers
  - Outcomes Related to Adverse Effect of Medications
- Operational
  - Thrombolytic Therapy-Door to Needle Time
  - PN Antibiotic Timing
  - IV to PO Changes
- Financial
  - Outcomes for High Cost Drugs
  - Pharmacy Costs by Practitioner
  - Cost Impact of Drug Selection

# Case Study: Clinical Protocols

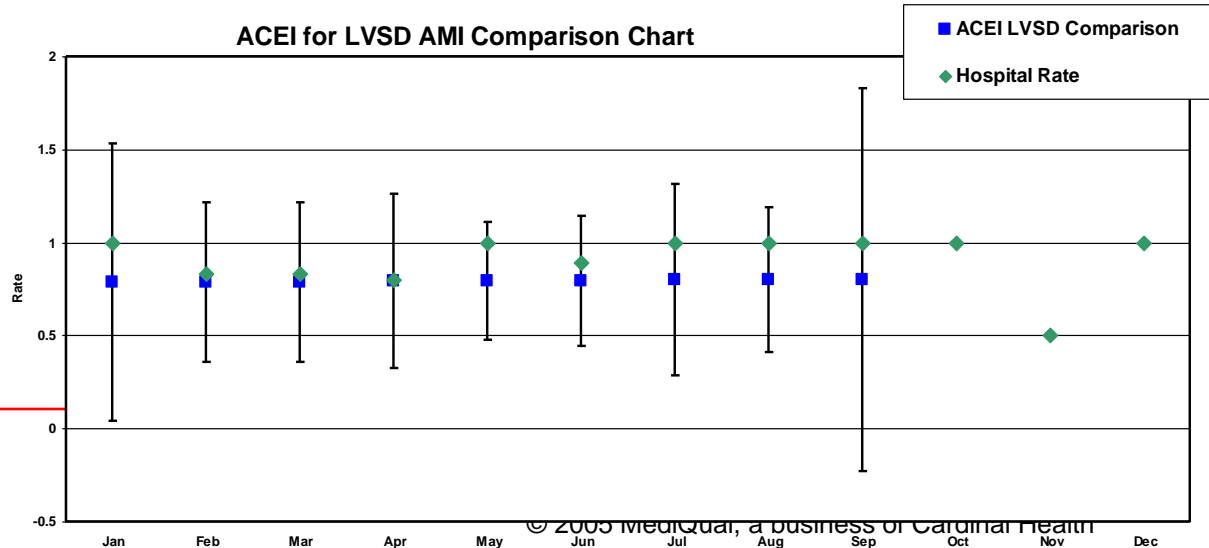
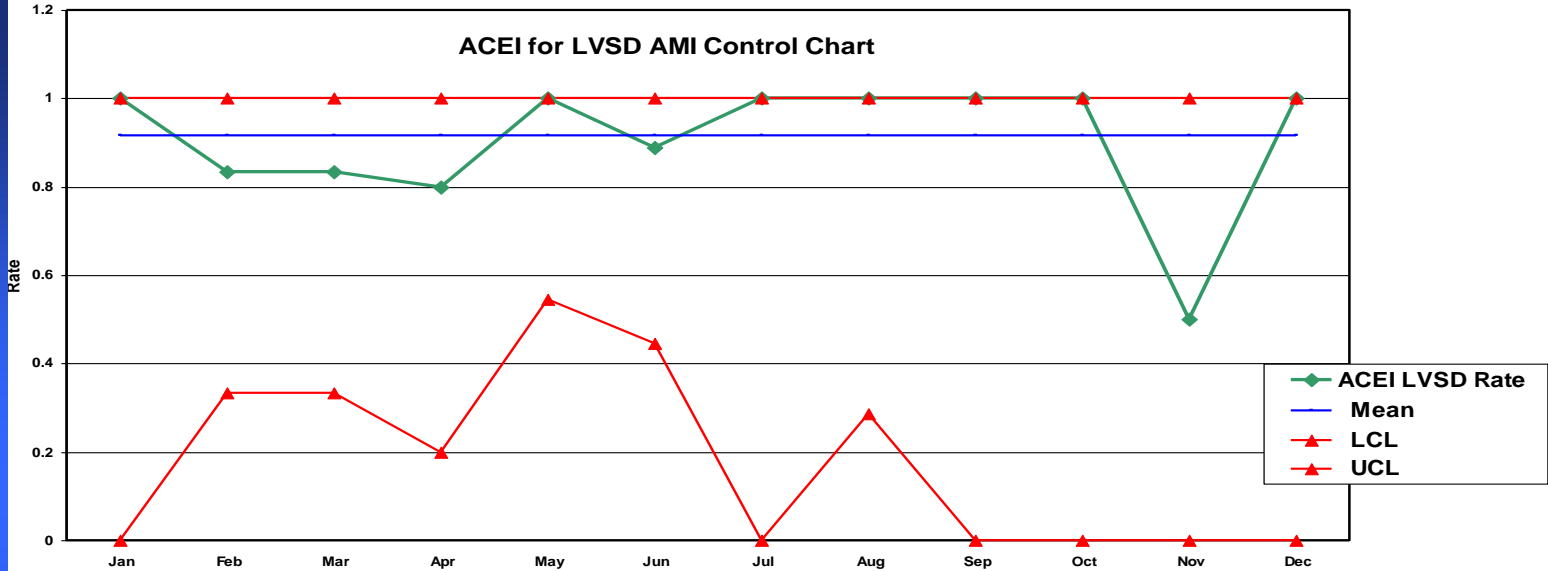
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Treatment Protocol	Hospital A	Hospital B	Hospital C	Hospital D
# Cases Aspirin	104	78	87	101
# Cases No Aspirin	24	6	3	13
<b>% Cases ASA</b>	<b>81.3</b>	<b>92.9</b>	<b>96.7</b>	<b>88.6</b>
% Mortality w /Asprin	8.7	10.3	5.7	5.9
% Mortality w /o Aspirin	29.2	33.3	33.3	15.4



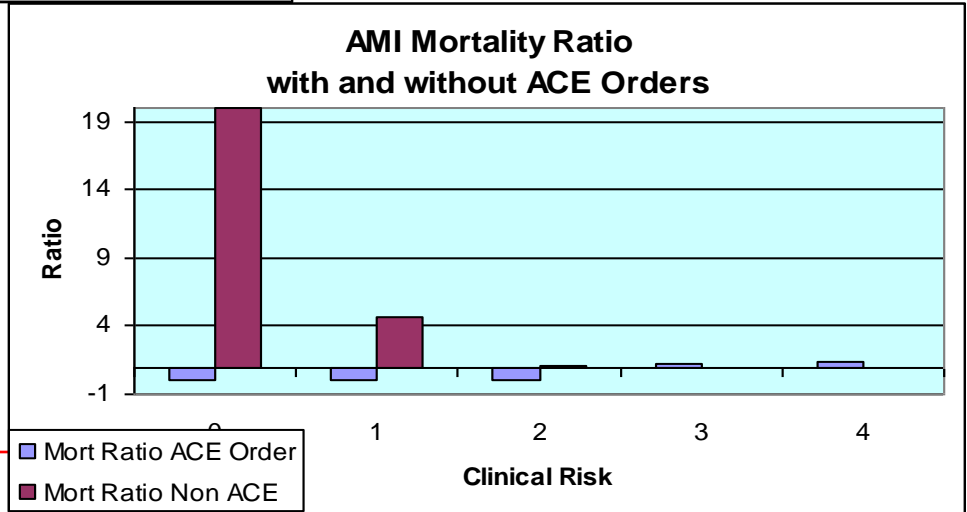
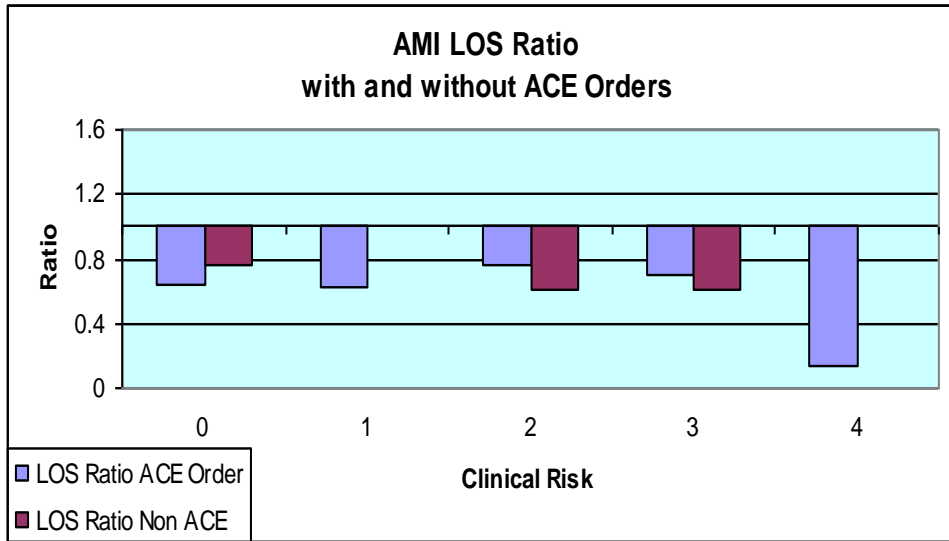
# Case Study: AMI ACE Trends & Comparison

OPERATIONAL



# AMI Outcomes-with vs without ACE

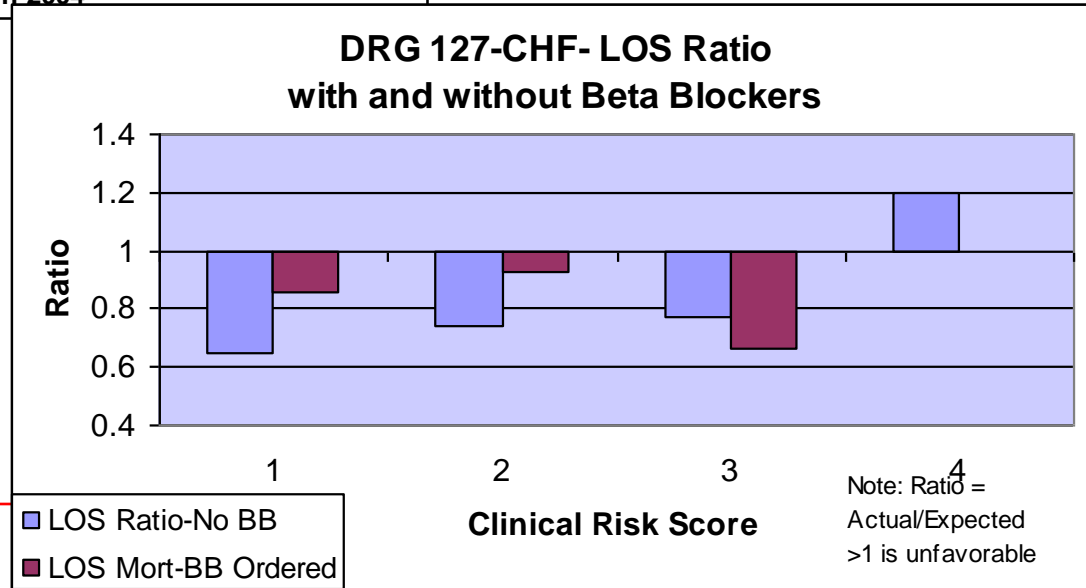
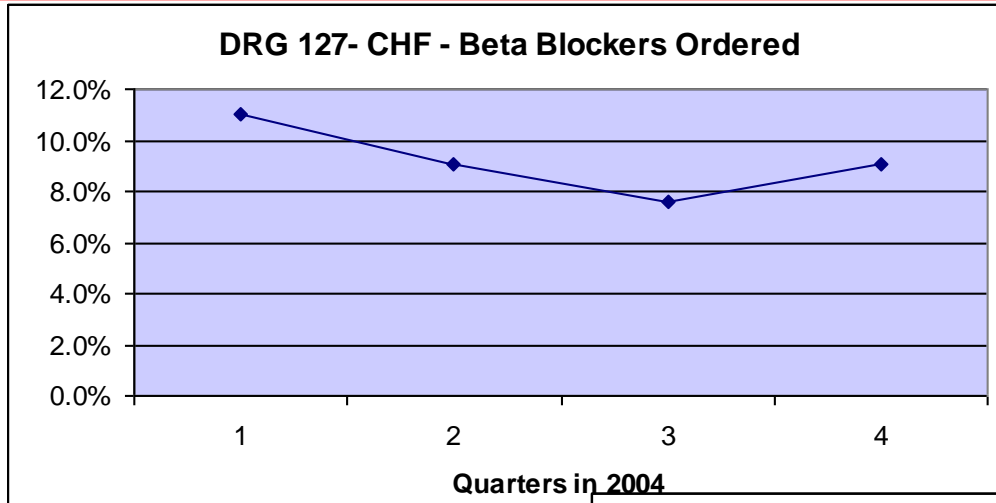
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Note:  
 Ratio = Actual/Expected  
 >1 is unfavorable

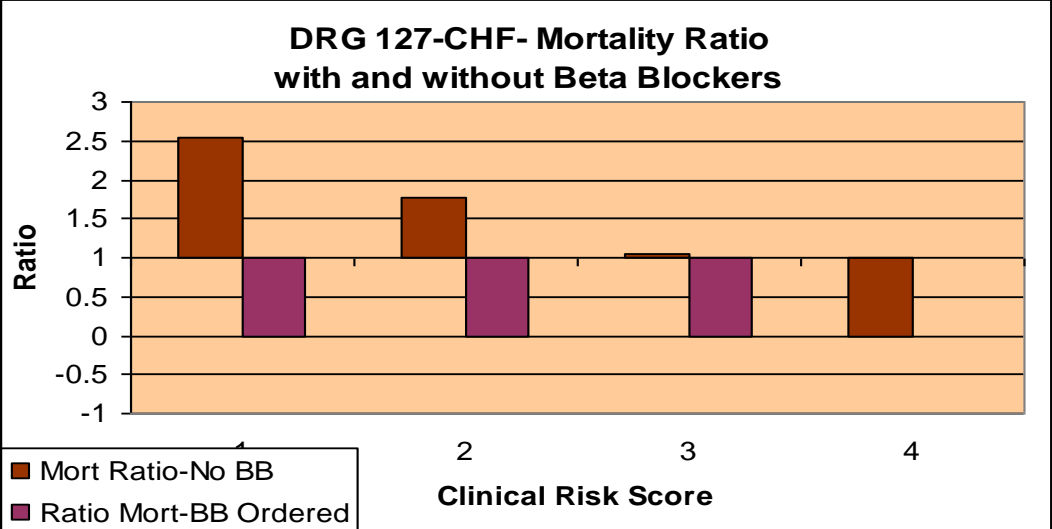
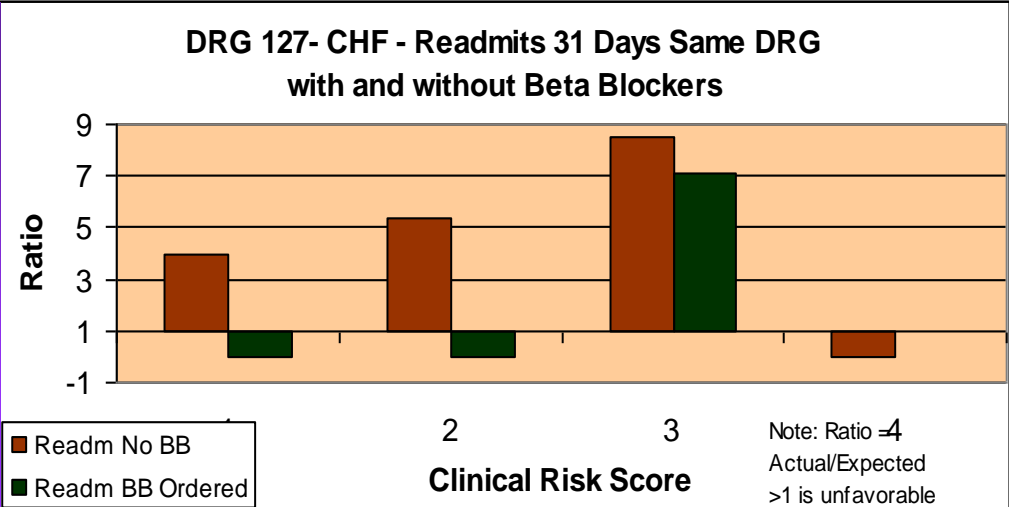
# Case Study: CHF Trends and LOS

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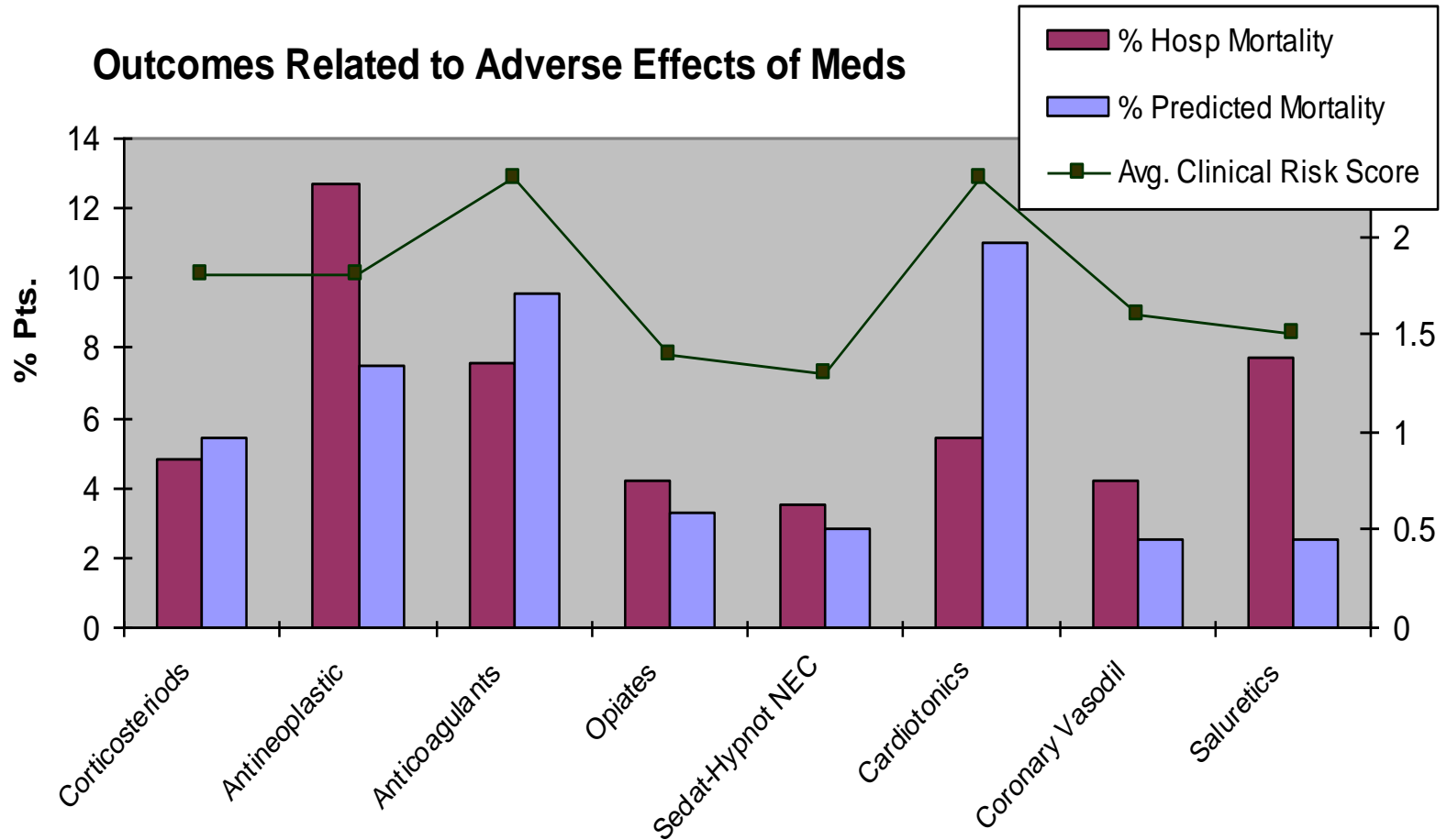
# CHF Outcomes-with vs without Beta Blockers

CLINICAL



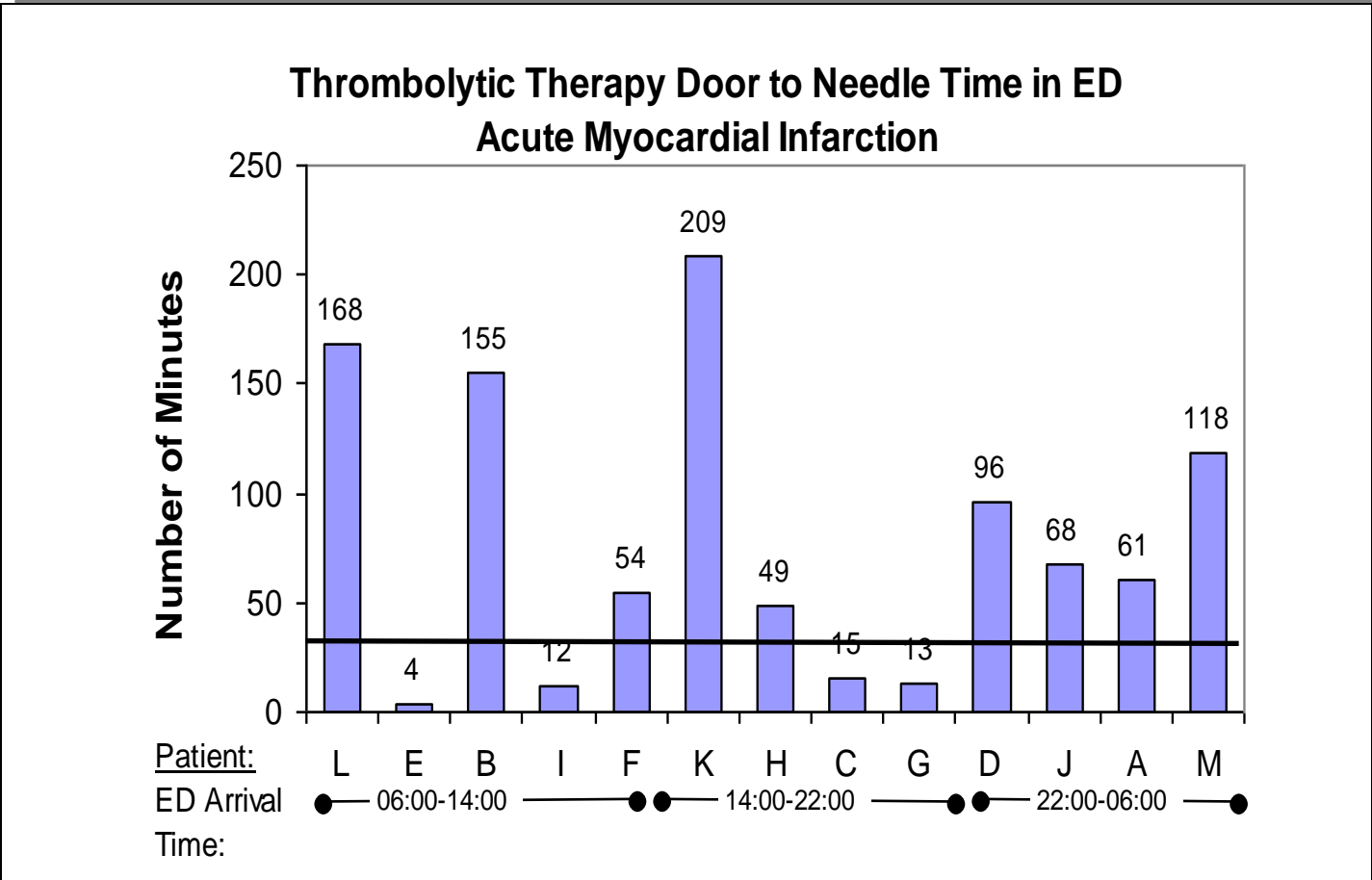
# Case Study: Adverse Effects

LAC-N-C



# Case Study: Process Benchmarks

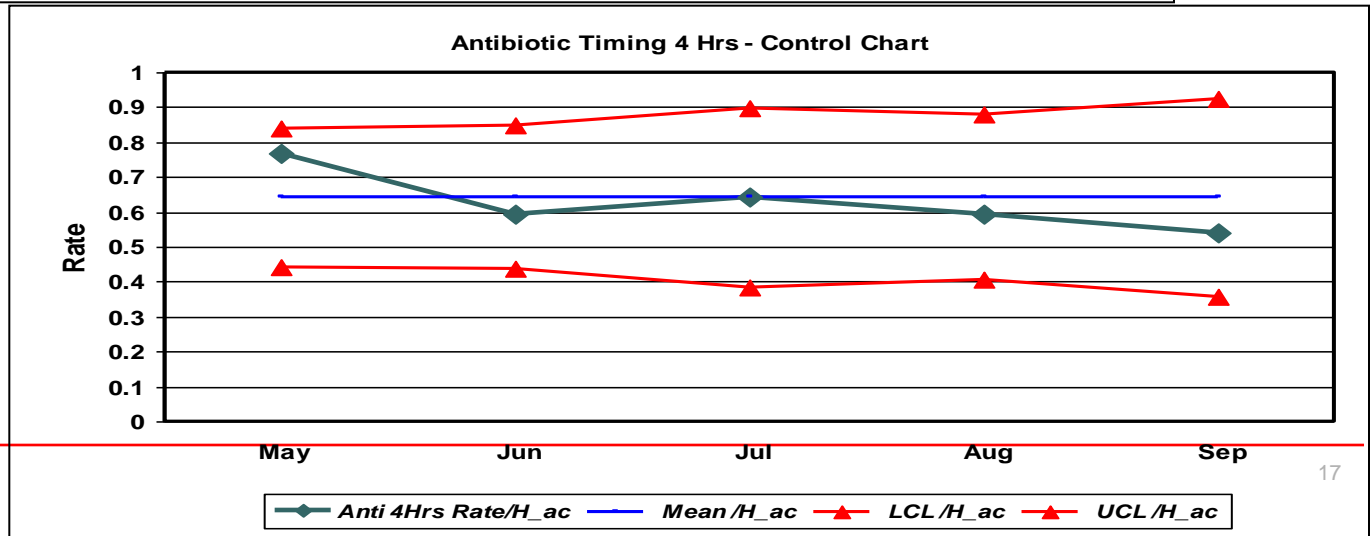
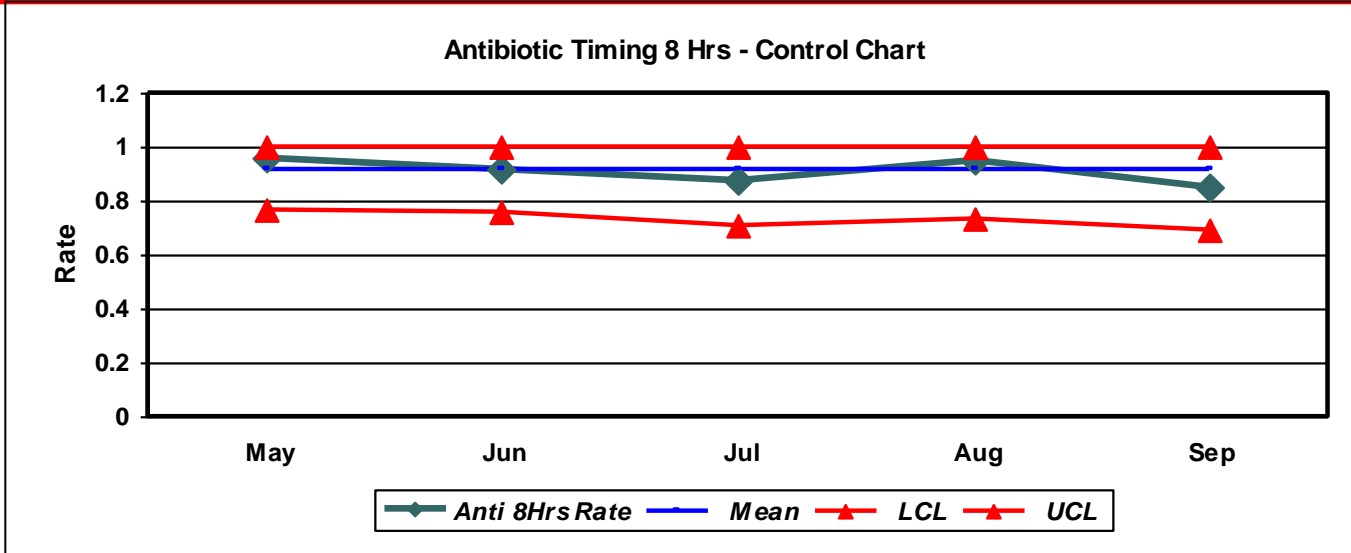
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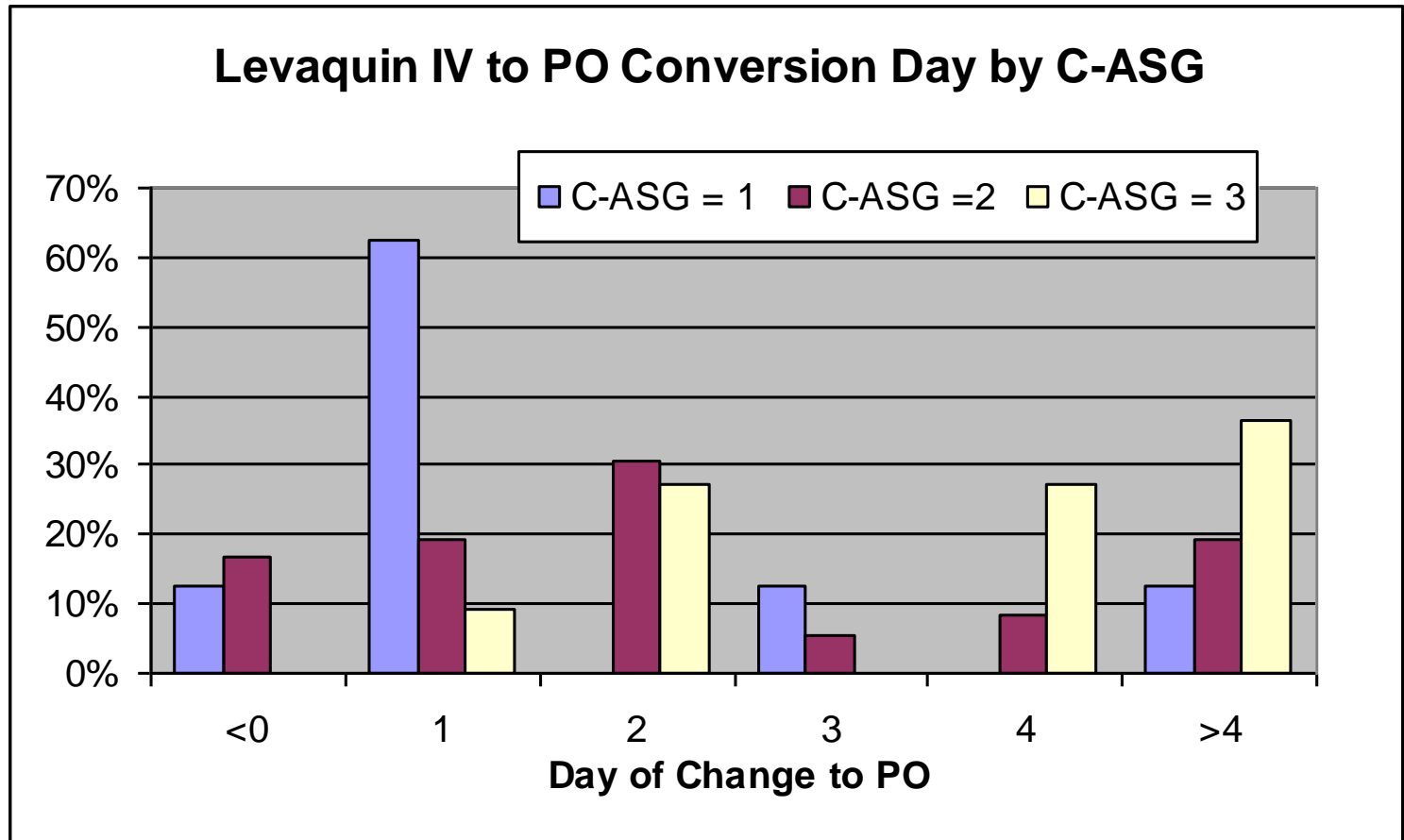
# Core Measure - PN- Antibiotic Timing

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# Case Study: IV to PO Changes

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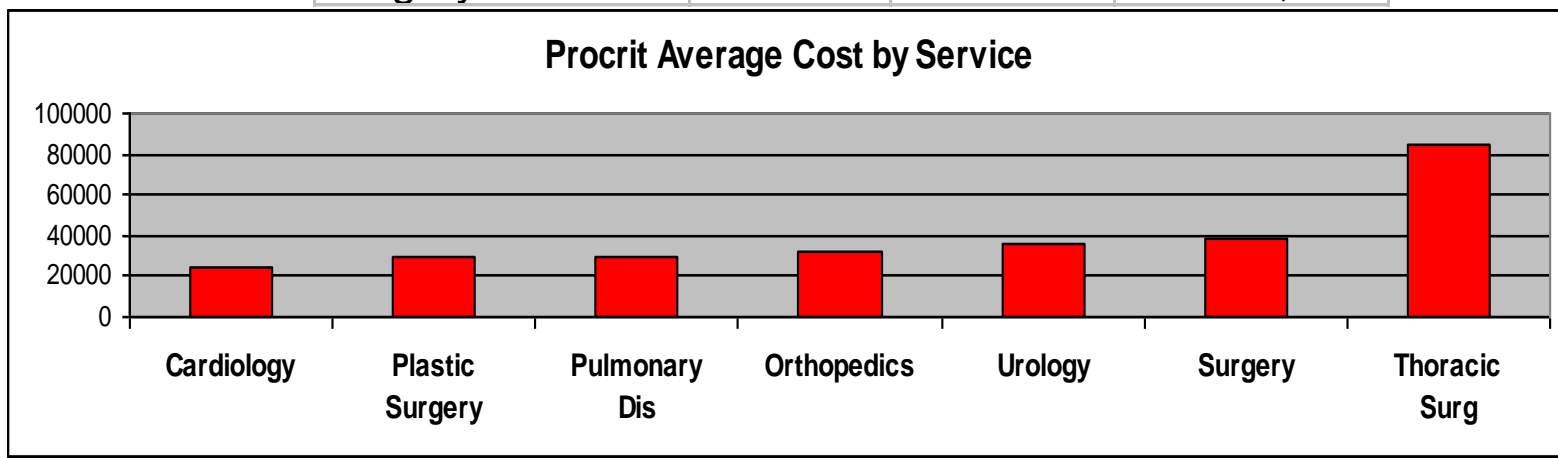


# Case Study: Outcomes for High Cost Drugs

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PROCRIT

<u>Order Svc</u>	<u># Pts</u>	<u>Avg IP LOS</u>	<u>Avg Tot Hosp Cost</u>
Cardiology	12	9.2	24,697
Plastic Surgery	1	16	29,465
Pulmonary Dis	2	22	30,079
Orthopedics	3	11	32,160
Urology	5	13.2	35,594
Surgery	8	19.9	38,072



# Case Study: Cost Impact of Drug Selection

## High Volume Cephalosporin Use in Respiratory Infections

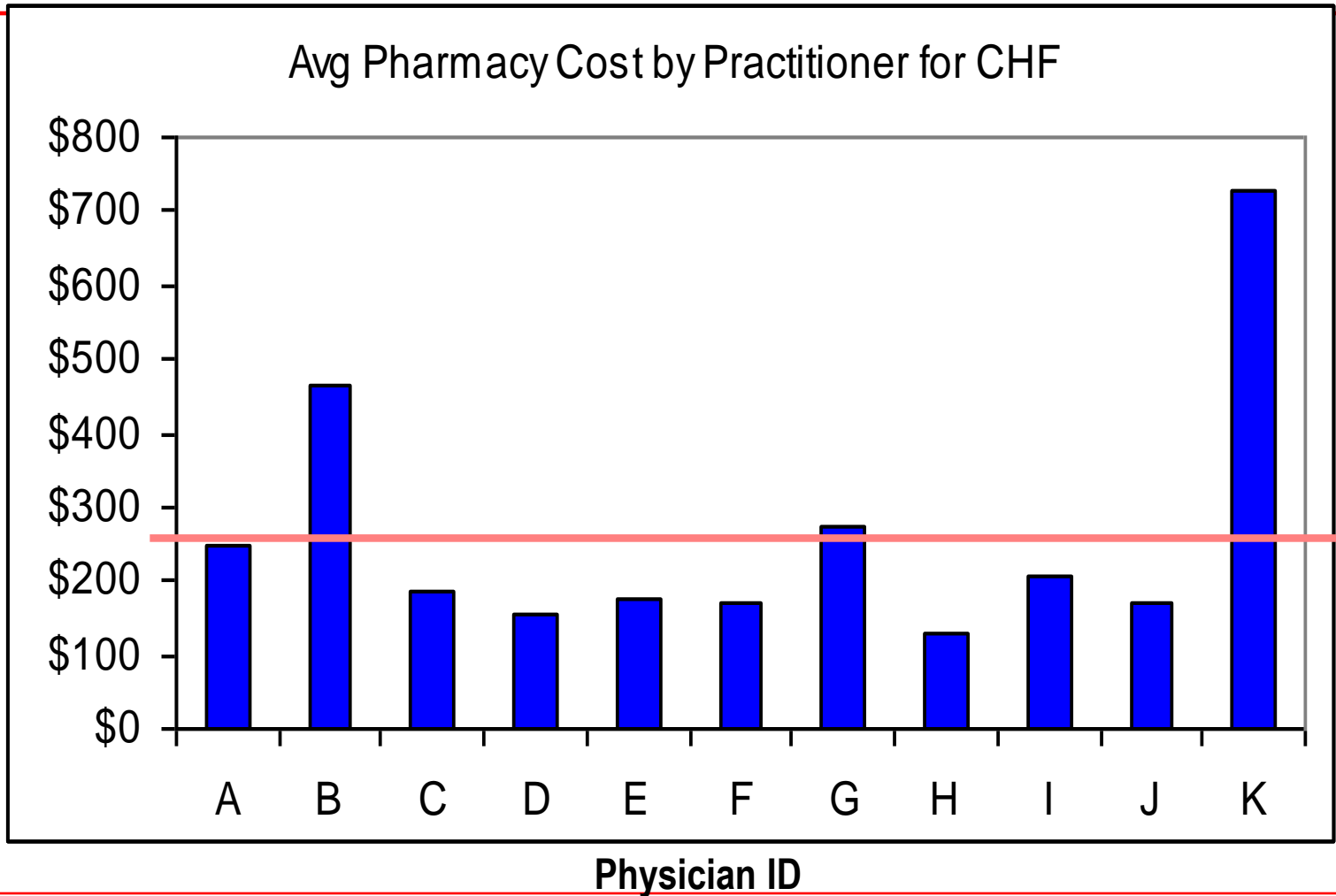
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<u>Drug Ordered</u>	<u># Pts</u>	<u>Total Patient Days</u>	<u>Total Expected Days</u>	<u>Excess Days</u>	<u>*Cost of Patient Days</u>
Rocephin	47	338	338	0	\$0
Zinacef	25	175	182.7	-7.7	-\$3,850
Cefazolin	16	146	124	22	\$11,000
Ceftazidime	14	155	125.2	29.8	\$14,900

**Severity adjusted LOS measures in Atlas target potential benefits of specific medications.**

# Case Study: Pharmacy Cost by Practitioner

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# Short Term Implications

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- Feed information to care delivery teams, nursing units, QI and P & T Committee.
- Determine best practice.
- Report comparisons of actual care delivered and outcomes to published evidence.
- Support Intensive Case Management and medication monitoring and management.

# Future Implications

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- Implement prospective risk identification.
- Stratification of risk defined by clinical elements can drive therapeutic medication plan.
- Develop Benchmarks for errors and events by patient profile, risk categories, disease, and drug categories.



**Using detailed patient level data for clinical risk adjustment and medication management yields valuable information enabling clinical care delivery teams to drive clinical, operational and financial improvements.**







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