

# EMR and Patient Safety

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Southern California HIMSS  
June 25, 2010

**Why implement an EMR?**

The background of the slide is a gradient of blue, transitioning from a darker blue at the top to a lighter blue at the bottom. In the bottom right corner, there are several thick, dark blue wavy lines that create a sense of motion and depth.

# Physician Order Sheet

PAGE 1/1 \* RCVD AT 3/1/2009 3:39:47 PM [Pacific Standard Time] \* SVR:SOCCRFAXDBSQL3 \* DMS:7832080 \* CSID:858 939 4037 \* DURATION (mm-ss):00-54

DO NOT USE	DATE & TIME	ECC-unit copy AM 3/1/09	
		L to chart	
No "u" Write "unit"		<del>12/1/08</del>	
No "qd" or "QD" Write "Daily"		4/1/09 Fey code write, long table	
No "QOD" Write "Every Other Day"		Beshian as needed	
No "1.0 mg" Write "1 mg"	TIME NOTED	NURSE'S SIGNATURE	DOCTOR'S SIGNATURE
No ".5 mg" Write "0.5 mg"	DATE & TIME	Paul Logans	
No "MS, MSO4" Write "morphine"		<del>3/1/09</del>	
No "MgSO4" Write "Magnesium Sulfate"		<del>3/1/09</del>	
No "IU" Write "International Units"		<del>3/1/09</del>	
PREFERRED NOT USE	DATE & TIME	Zypresol 2.5 po M, W, F po	
No "@" Write "at"		Simvastatin 20/100 qd po - staten	
No "cc" Write "ml"		3/2/09	
No "ug" Write "mcg"			

PATIENT IDENTIFICATION

# Clinical information technologies and inpatient outcomes: a multiple hospital study.

Archives of Internal Medicine January 2009

Amarasingham R, Plantinga L, Diener-West M, Gaskin DJ, Powe NR.

Parkland Health & Hospital System, Dallas, TX

We examined whether greater automation of hospital information was associated with reduced rates of inpatient mortality, complications, costs, and length of stay for 167,233 patients

RESULTS: For all medical conditions studied, a 10-point increase in the automation of notes and records was associated with a 15% decrease in the adjusted odds of fatal hospitalizations (0.85; 95% confidence interval, 0.74-0.97). Higher scores in order entry were associated with 9% and 55% decreases in the adjusted odds of death for myocardial infarction and coronary artery bypass graft procedures, respectively. For all causes of hospitalization, higher scores in decision support were associated with a 16% decrease in the adjusted odds of complications (0.84; 95% confidence interval, 0.79-0.90). Higher scores on test results, order entry, and decision support were associated with lower costs for all hospital admissions (-\$110, -\$132, and -\$538, respectively;  $P < .05$ ).

**Conclusion:** Hospitals with automated notes and records, order entry, and clinical decision support had fewer complications, lower mortality rates, and lower costs.

# Patient Safety

## Where is Sharp Headed?

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### Patient Safety Strategic Plan

- Implement a culture of safety
- Education, teamwork and communication
- **Technology infusion**
- Redesign for specific safe practices

# Patient Safety Technology Strategy

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## Reduce risk of clinical errors

- Promote patient safety
  - Smart IV Pumps
  - Electronic QVR
- Increase technologies
  - CPOE
  - Decision Support
  - Wireless, bar code and others

# Safety Impact of EMR

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- Legible record
- Access to record and previous history
- Summary screens
- Results reporting
- Decision support
- Pharmacy review
- Interfaces

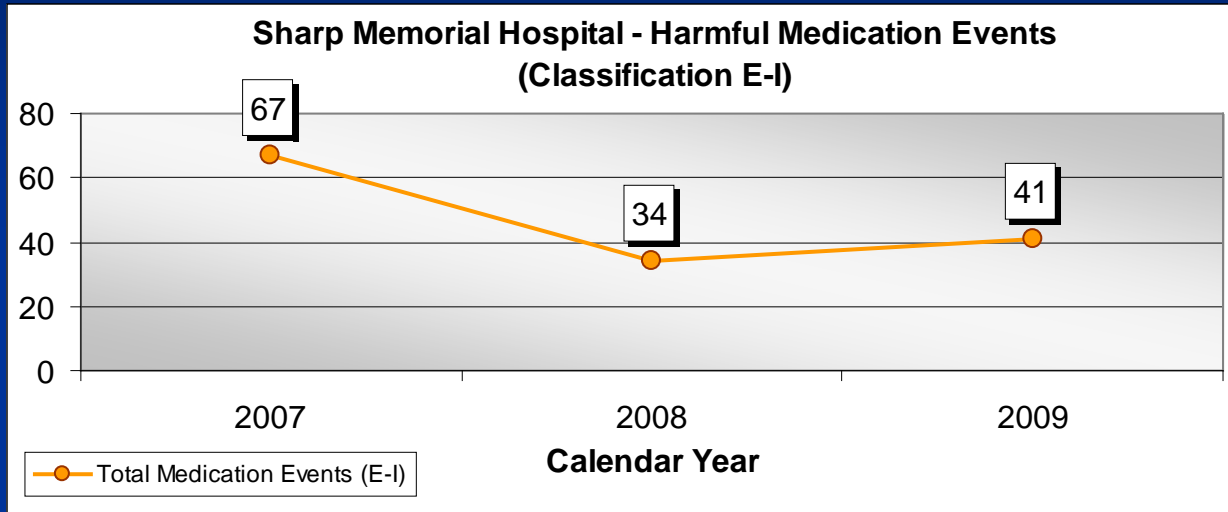


# Safety Impact of CPOE

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- Legible orders – easy to see all orders
- Evidence-based standard order sets
- Frequently used order sentences
- Alerts such as drug-allergy; drug to drug interaction; duplicate drugs
- Reference text linked
- Medication reconciliation

# Reduction in Harmful Medication Events



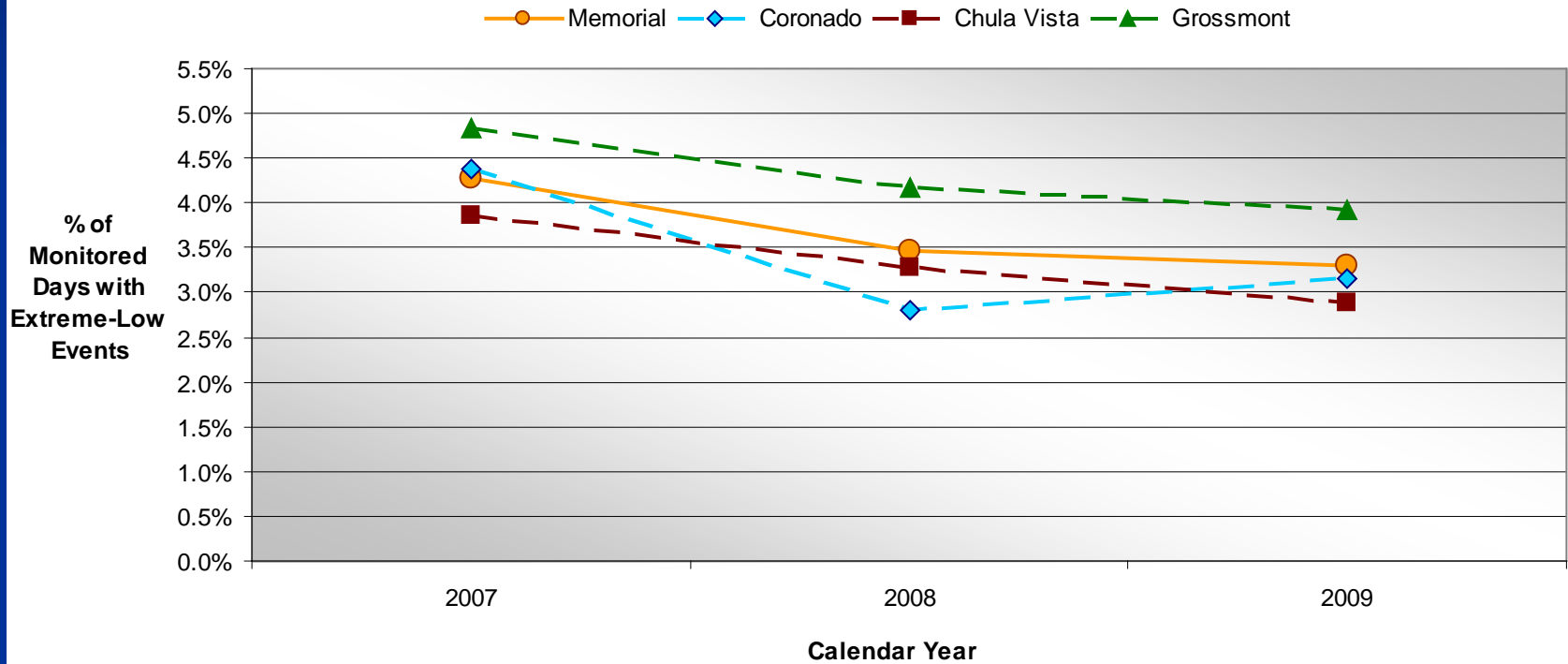
## ADES

<b>E</b>	An <i>event</i> occurred that may have contributed to or resulted in temporary harm to the patient and required intervention.
<b>F</b>	An <i>event</i> occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization.
<b>G</b>	An <i>event</i> occurred that may have contributed to or resulted in permanent patient harm.
<b>H</b>	An <i>event</i> occurred that required intervention necessary to sustain life.
<b>I</b>	An <i>event</i> occurred that may have contributed to or resulted in the patient death.

# Reduction in Hypoglycemia

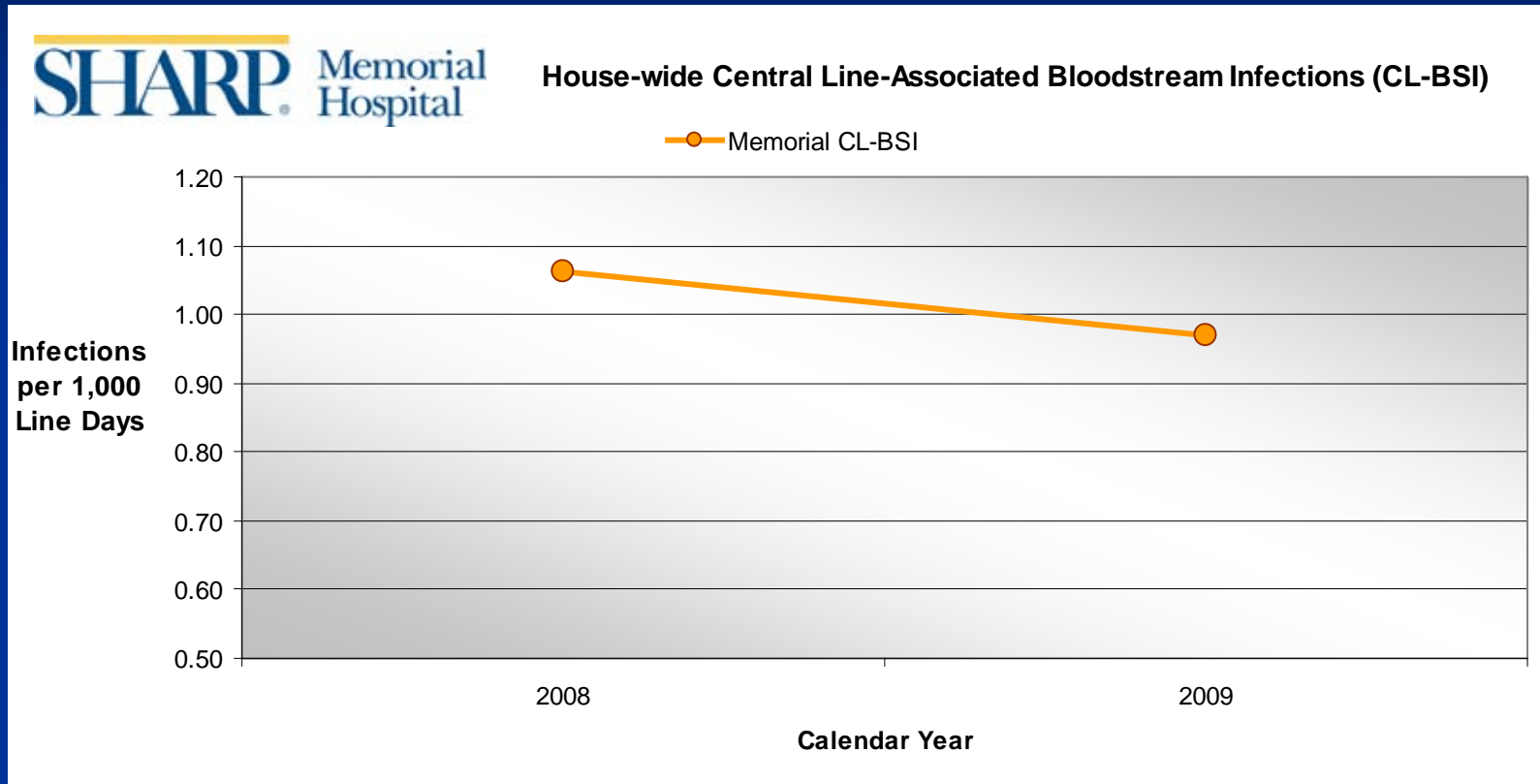


## Hypoglycemia (Blood Sugar < 60) Rates in Diabetic Patients



Memorial			
	% Days	Num	Den
<b>2007</b>	4.3%	977	22824
<b>2008</b>	3.5%	726	20967
<b>2009</b>	3.3%	779	23556

# Reduction in Central Line Associated Bloodstream Infection Rate



Memorial		
	2008	2009
<b>Infections</b>	27	31
<b>Line Days</b>	25406	31998
<b>Rate*</b>	1.06	0.97

*\*CL-BSI per 1,000 line days*

2007 Rates are not available as denominator data was not available at that time

# Future Safety Features

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- Smarter alerts
- More summary pages
- Physician documentation
- Voice to data dictation
- Wireless connectivity for anywhere access

# Safety Challenges

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- Overlapping or duplicate patient records
- Over-reliance on technology
- Alert fatigue - ignoring warnings
- Reliance on visual cues

# Take-away

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Technology can help keep patients safe  
but it does not replace clinical judgment  
and vigilance

