

Perioperative Glucose Control and SSI

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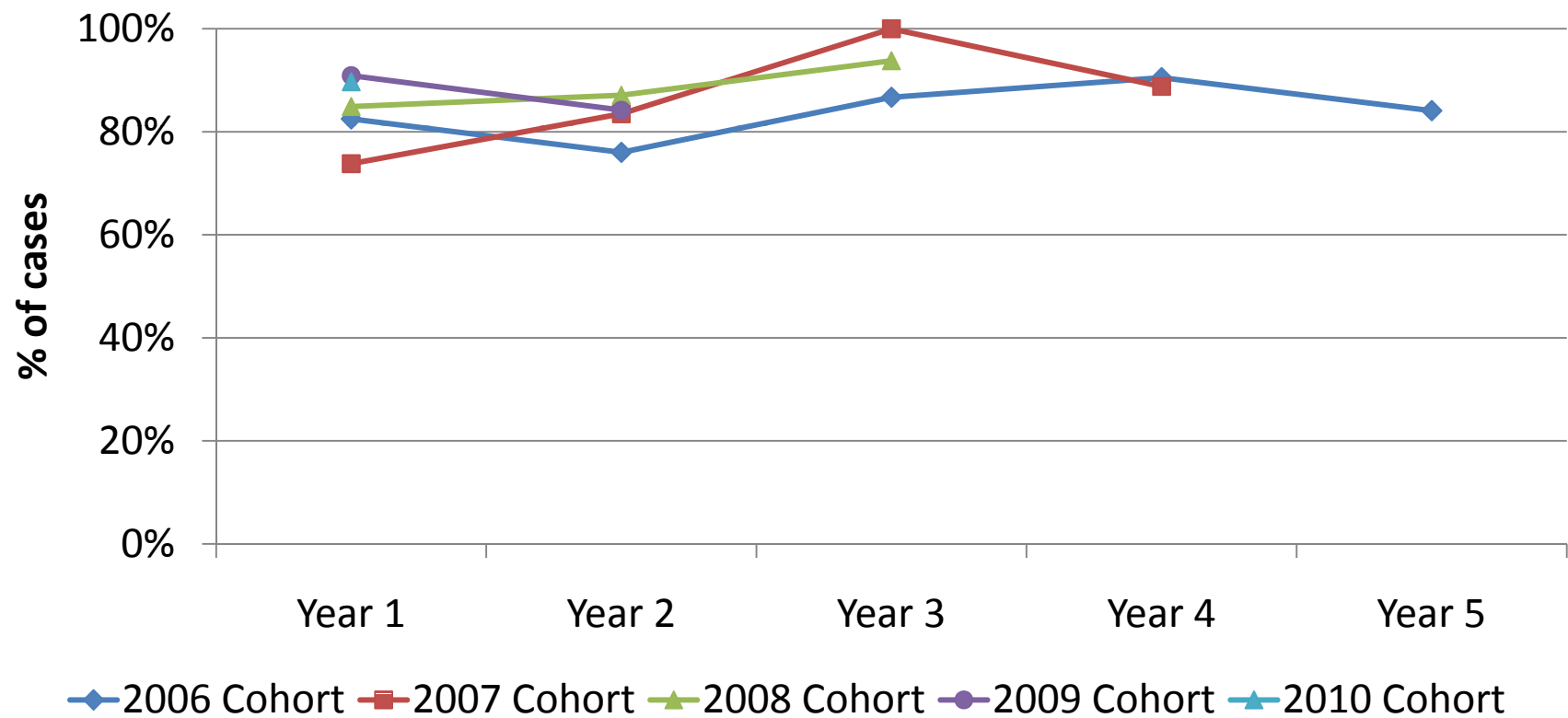
University of Washington Medical Center



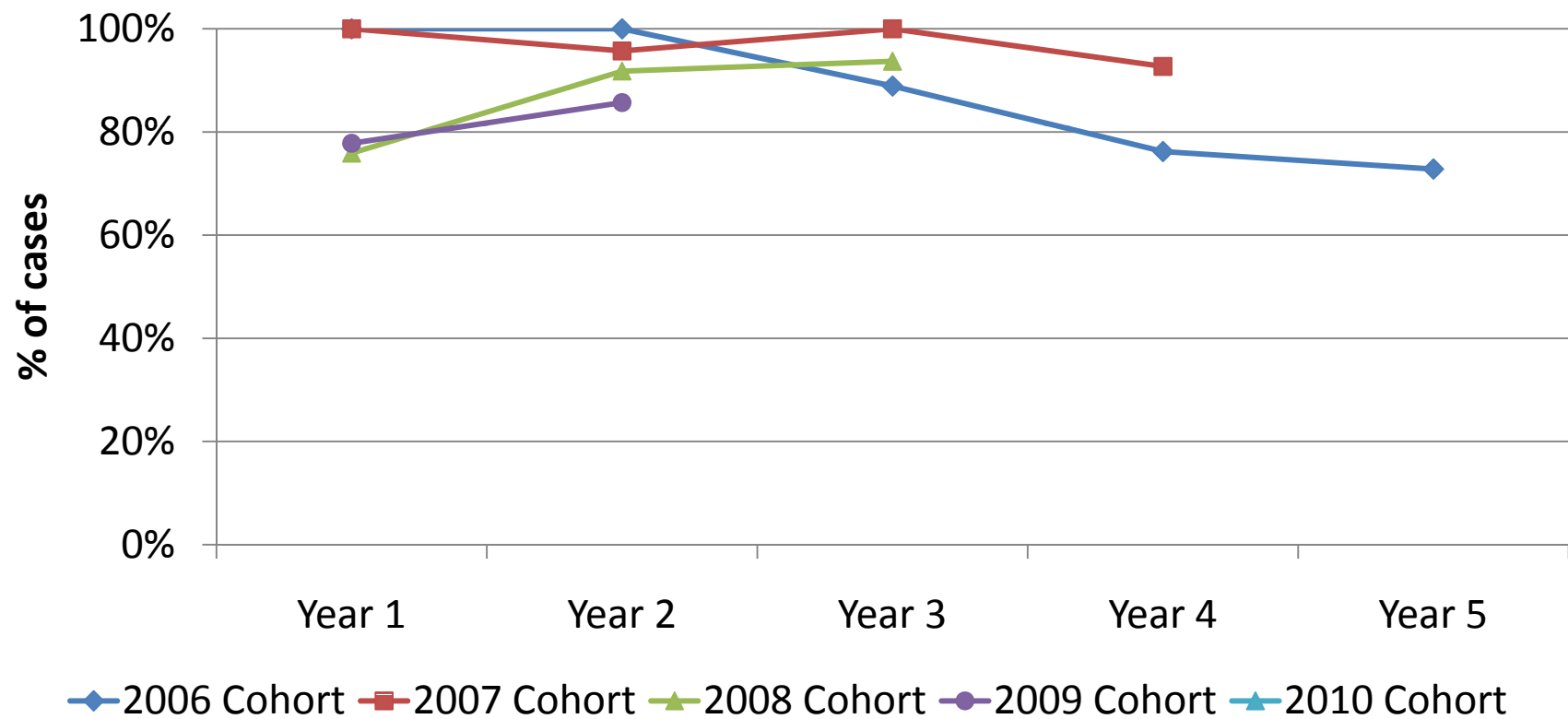
SCOAP Glycemic Metrics

- Glucose checked periop (pre-op to recovery)
- Insulin started
- POD 1
- POD 2
- Lowest blood sugar

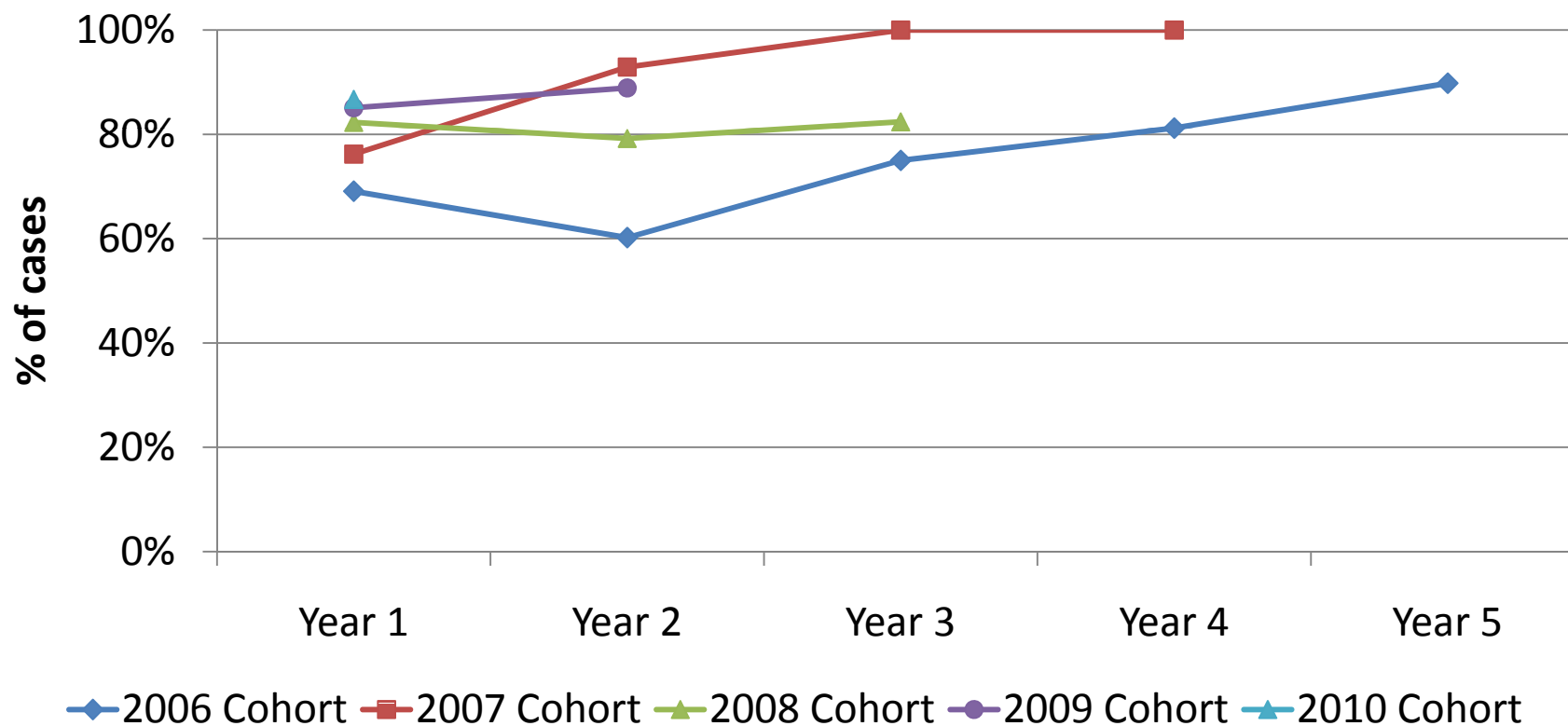
Peri-op Blood Glucose Checked among Diabetics Gastric Bypass Procedures



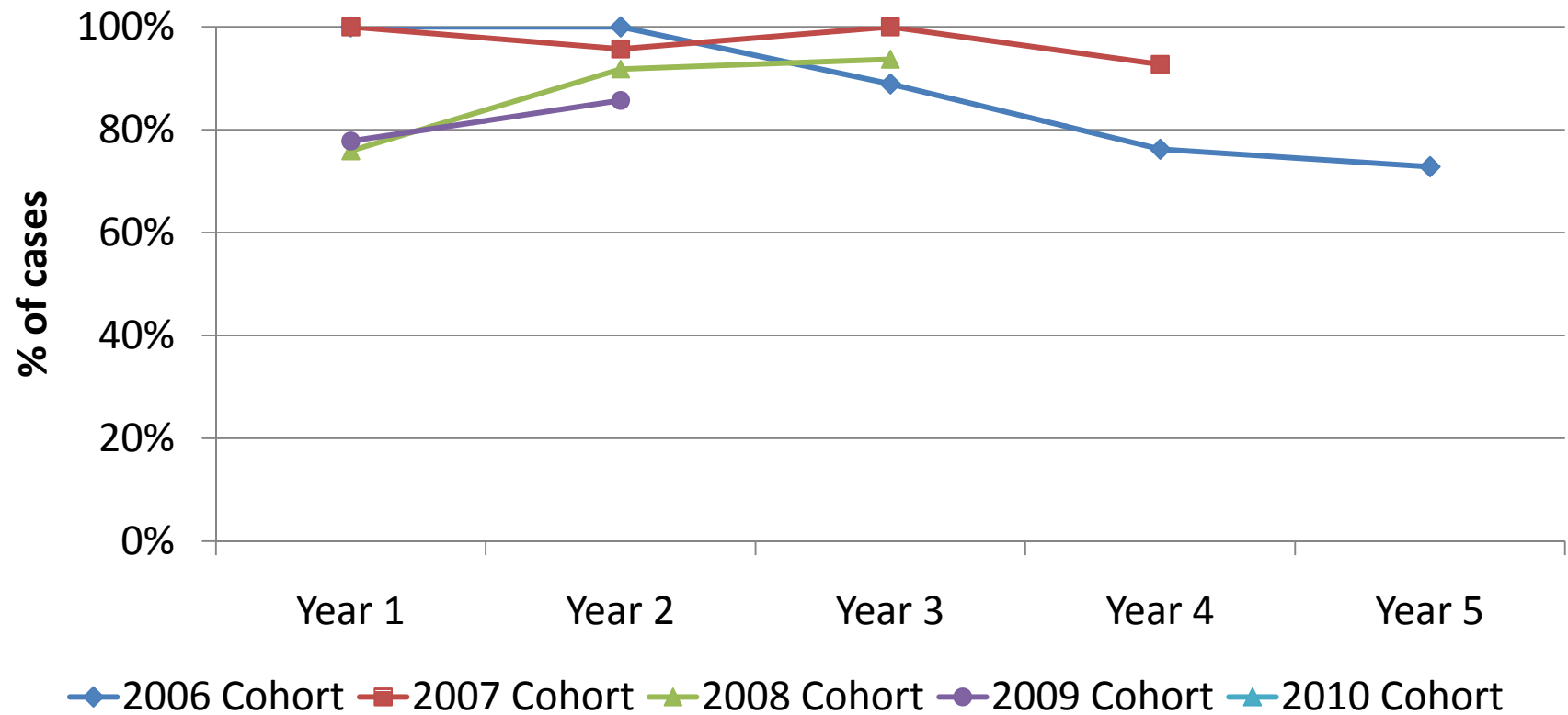
Peri-op Insulin Used when PBG High Gastric Bypass Procedures



Peri-op Blood Glucose Checked among Diabetics Elective Colon & Rectal Procedures



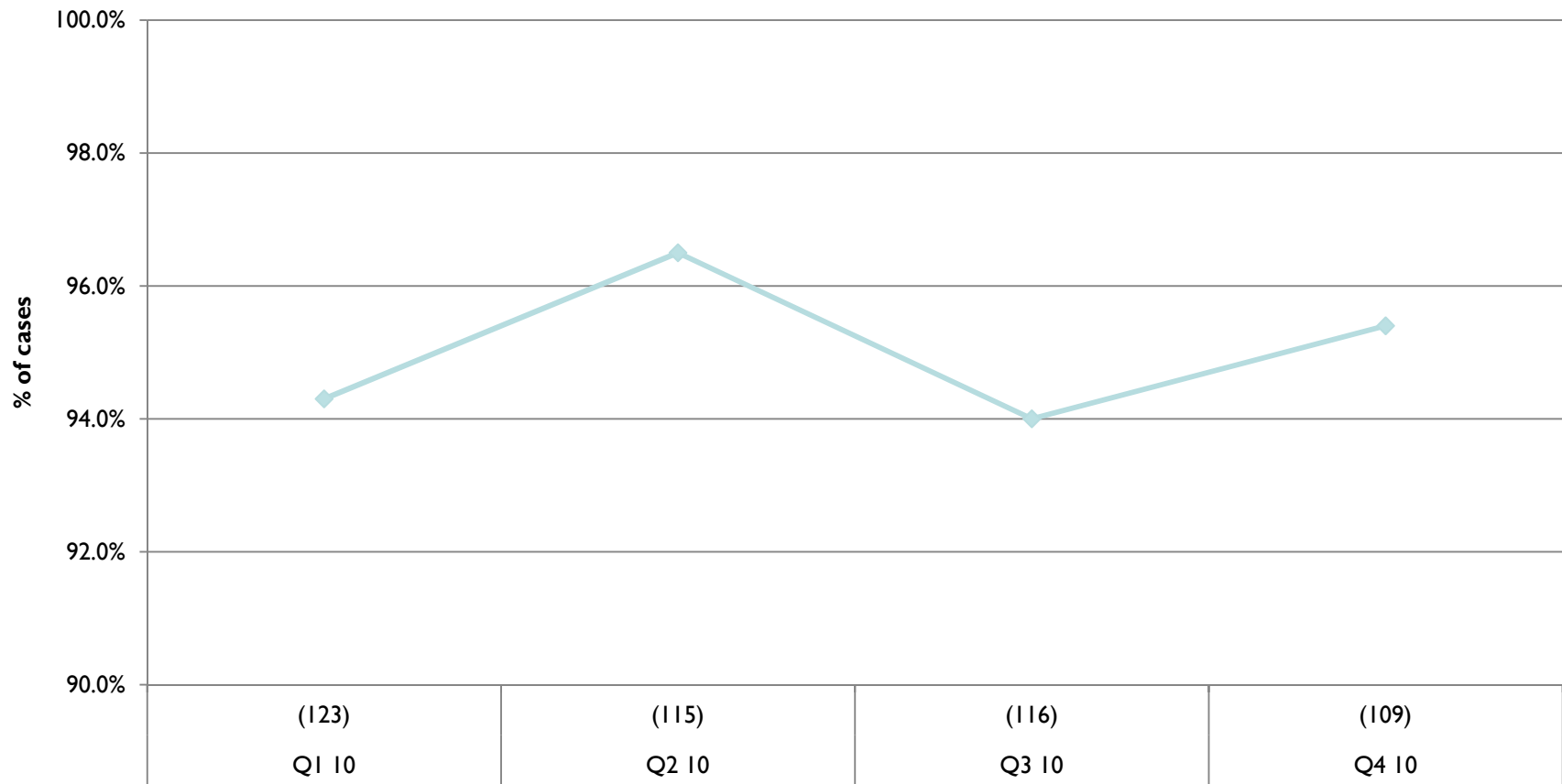
Peri-op Insulin Used when PBG High Elective Colon & Rectal Procedures



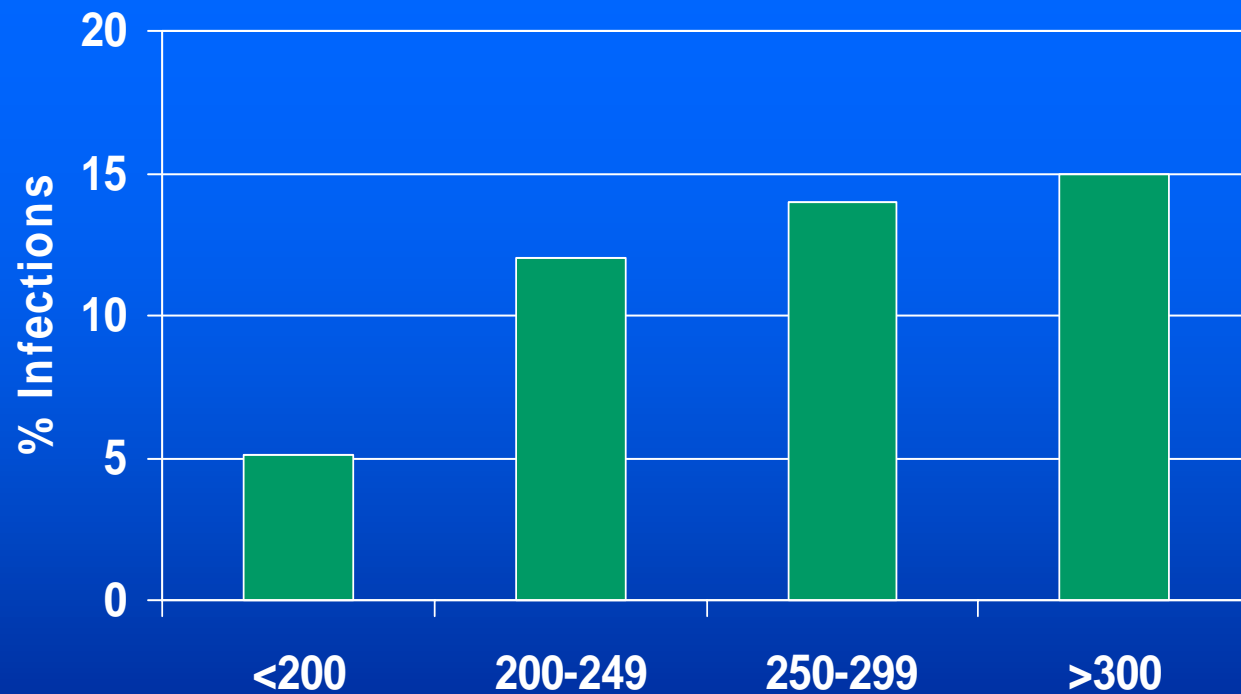


Avoiding Hypoglycemia

Post-op Hypoglycemia Avoided
Elective Colon & Rectal Procedures



Diabetes, Glucose Control, and SSIs After Median Sternotomy



Latham. ICHE 2001; 22: 607-12

Hyperglycemia and Risk of SSI after Cardiac Operations

Hyperglycemia - doubled risk of SSI

Hyperglycemic:

48% of diabetics

12% of nondiabetics

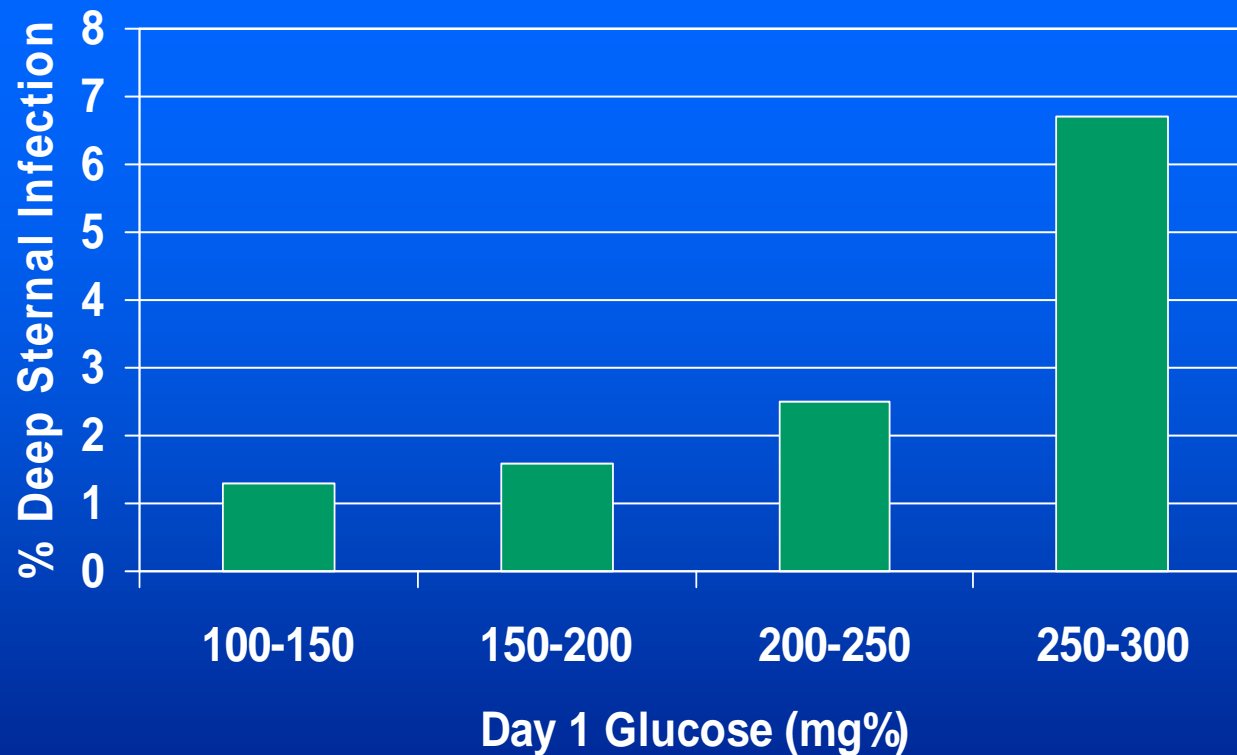
30% of all patients

47% of hyperglycemic episodes were in
nondiabetics

Latham. Inf Contr Hosp Epidemiol. 2001;22:607

Dellinger. Inf Contr Hosp Epidemiol. 2001;22:604

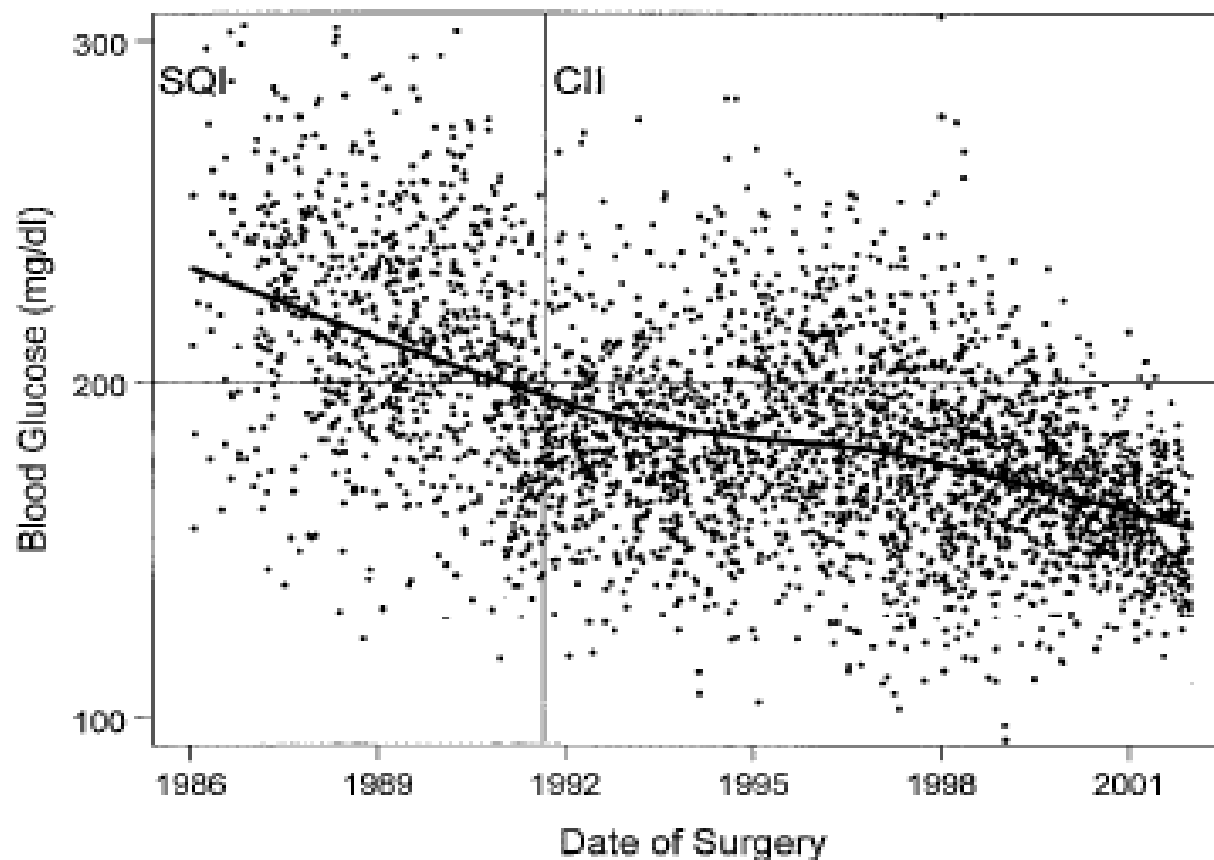
Deep Sternal SSI and Glucose



Zerr. Ann Thorac Surg 1997;63:356

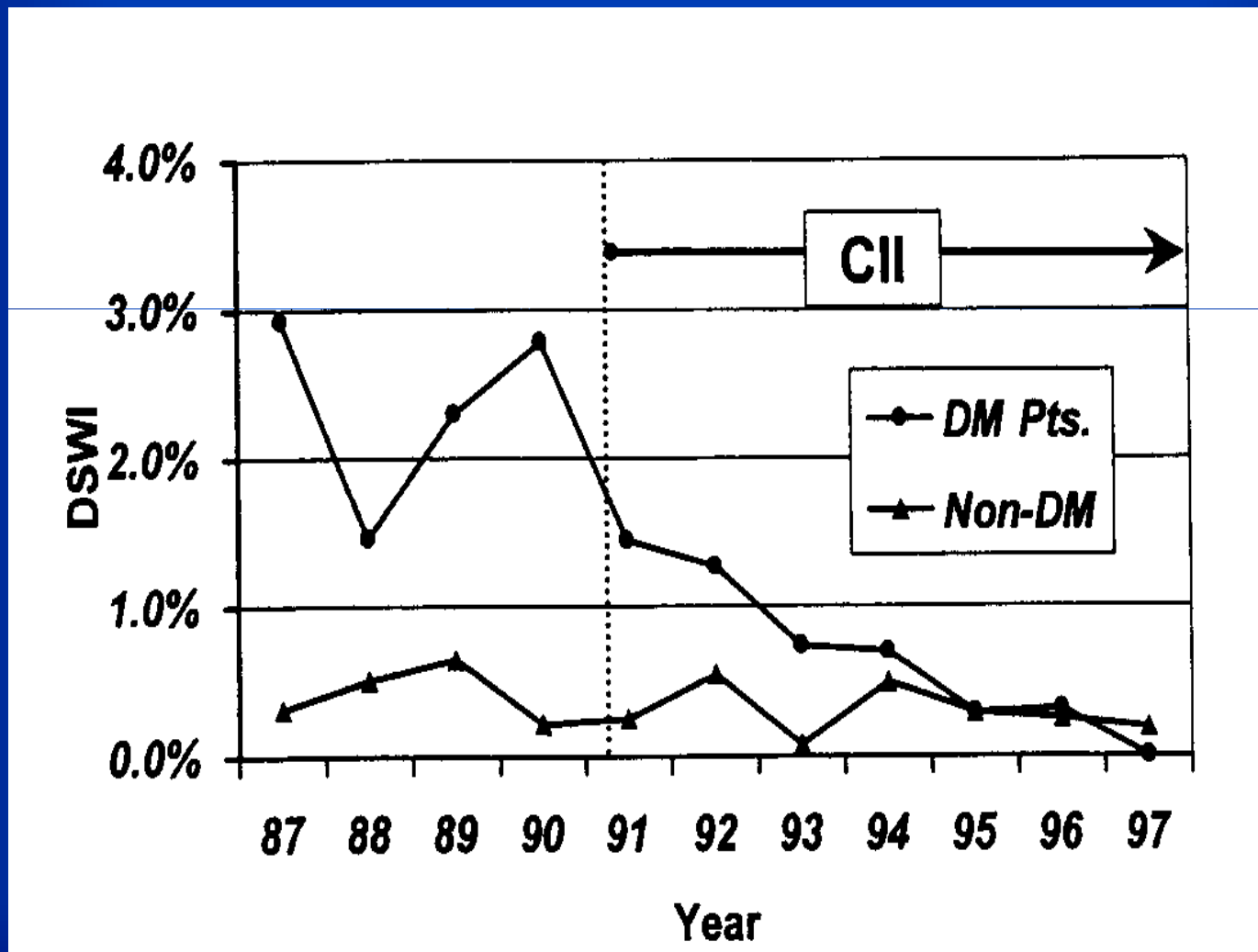
Glucose Control after Cardiac Surgery

Sliding Scale vs Insulin Infusion

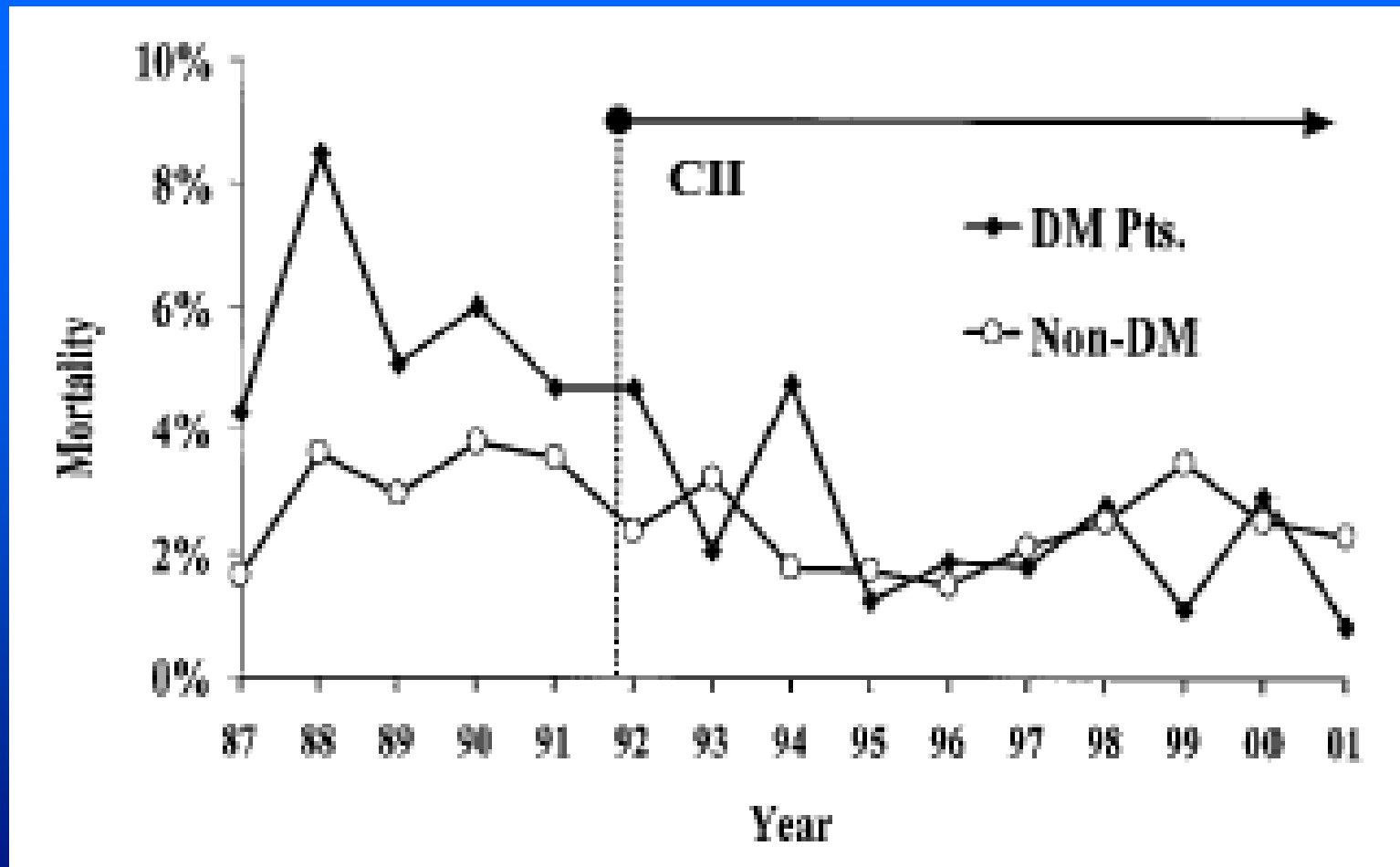


Furnary. J Thorac Cardiovasc Surg 2003;125:1007

Glucose Control and Deep Sternal Wound Infections

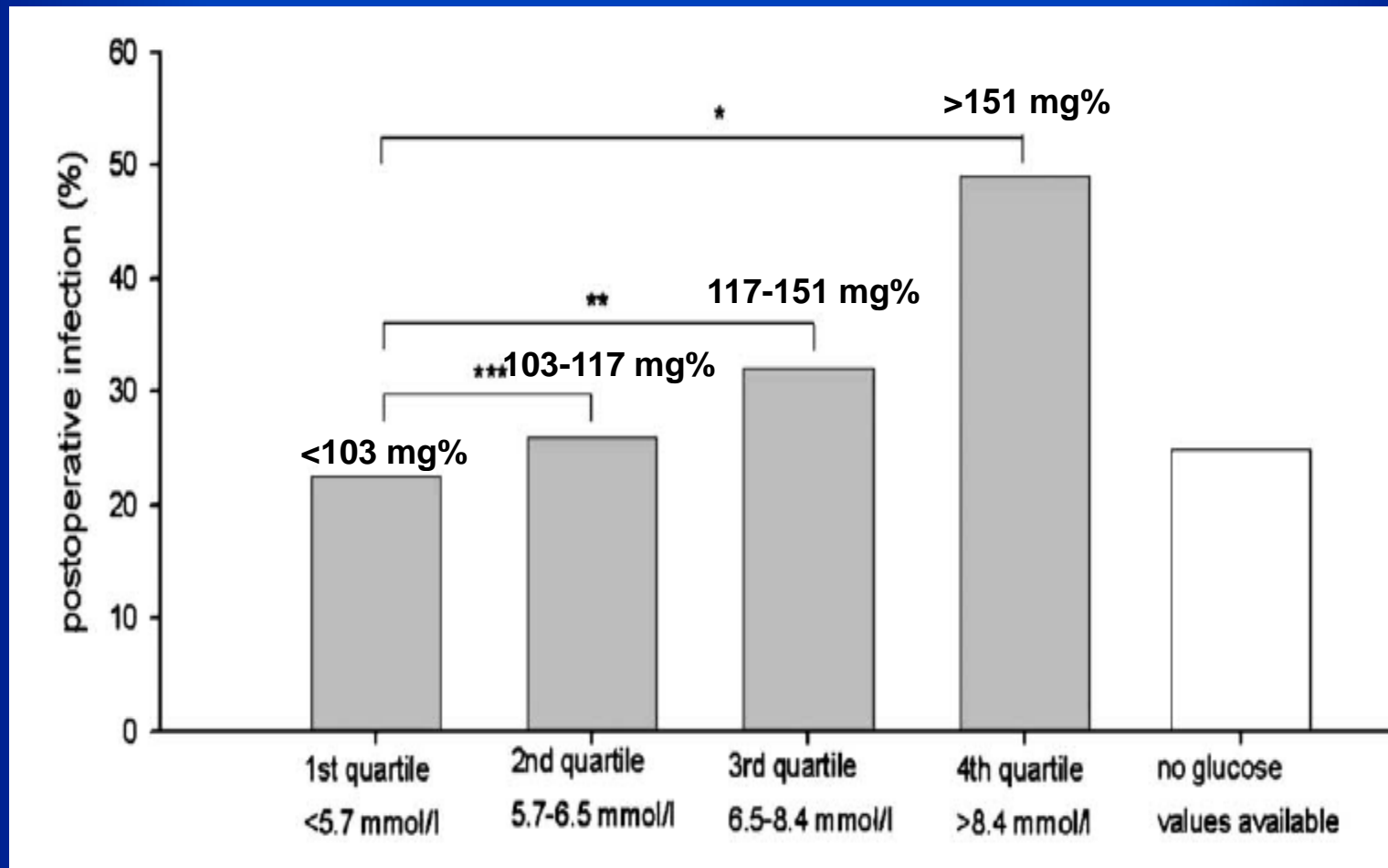


Glucose Control and Mortality after CABG in 3554 Diabetics



Furnary. J Thorac Cardiovasc Surg 2003;125:1007

Early (48h) Postoperative Glucose Levels and SSI after Vascular Surgery



Perioperative Hyperglycemia in Noncardiac Surgical Patients: Does it Increase Postoperative Infections?

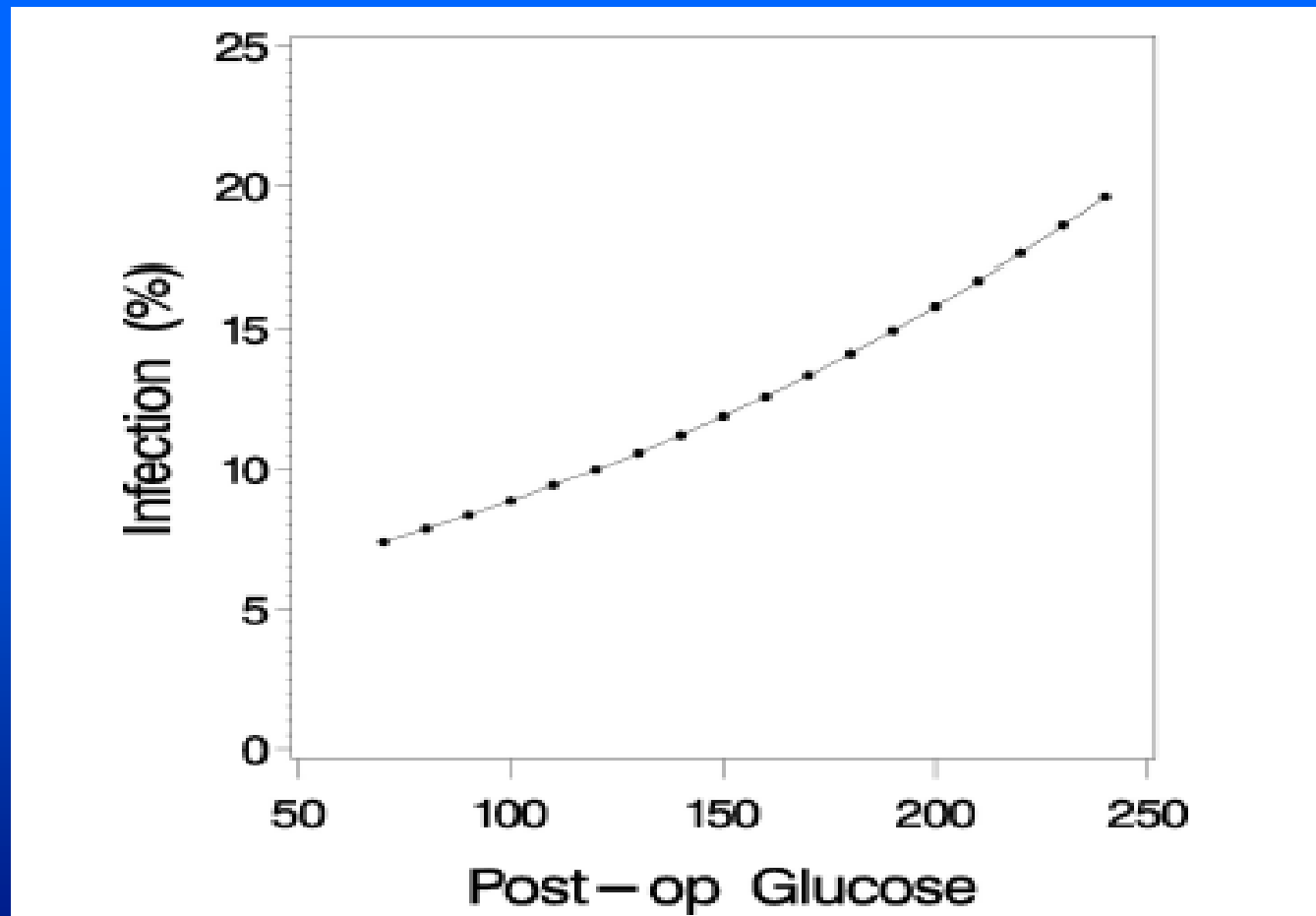
Postop inf = pneumonia, SSI, UTI, sepsis within 30 d

Variables = postop gluc, age, race, diabetes, ASA, emergent, op duration, transfusion

Significant:

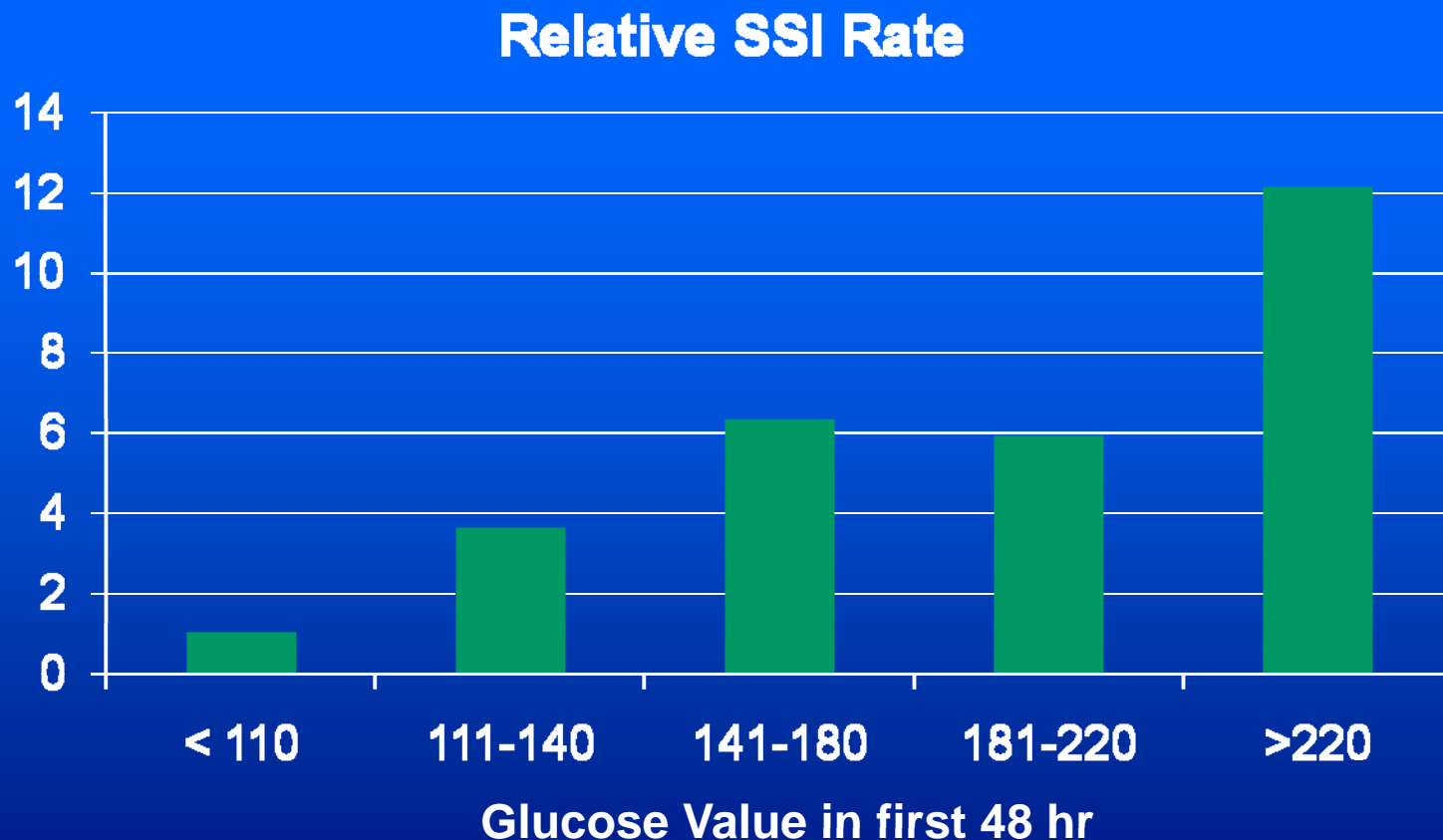
postop gluc > 180	O.R.=2.03
gluc increase of 40	O.R.=1.9
ASA & emergent	

Perioperative Hyperglycemia in Noncardiac Surgical Patients



Ramos. Ann Surg 2008;248: 585–591

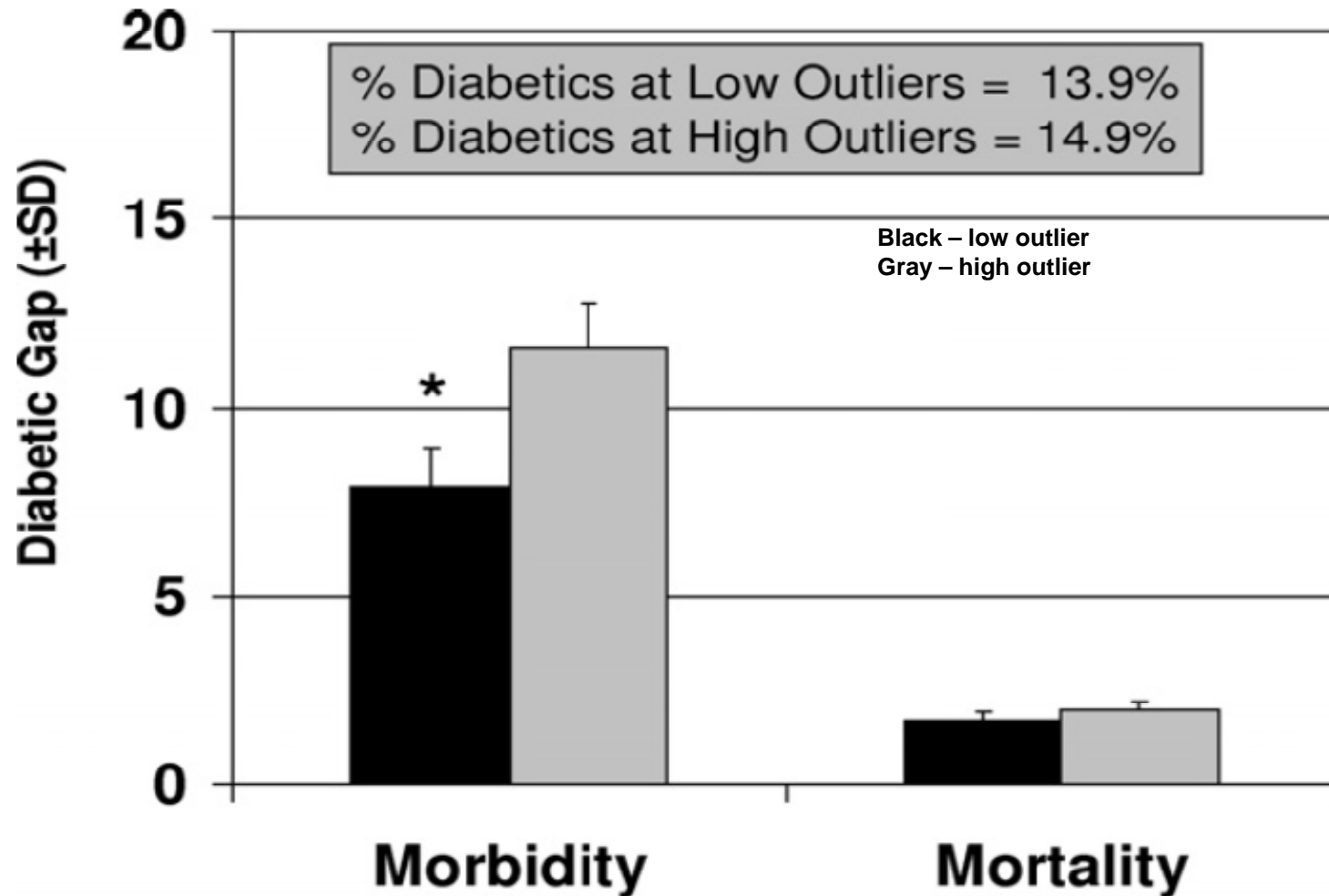
Postop Hyperglycemia and SSI in General Surgery Patients



Ata. Arch Surg 2010; 145: 858-64

“Diabetic Gap” and SSI Risk

Low Outliers Have Lower Diabetic Gap



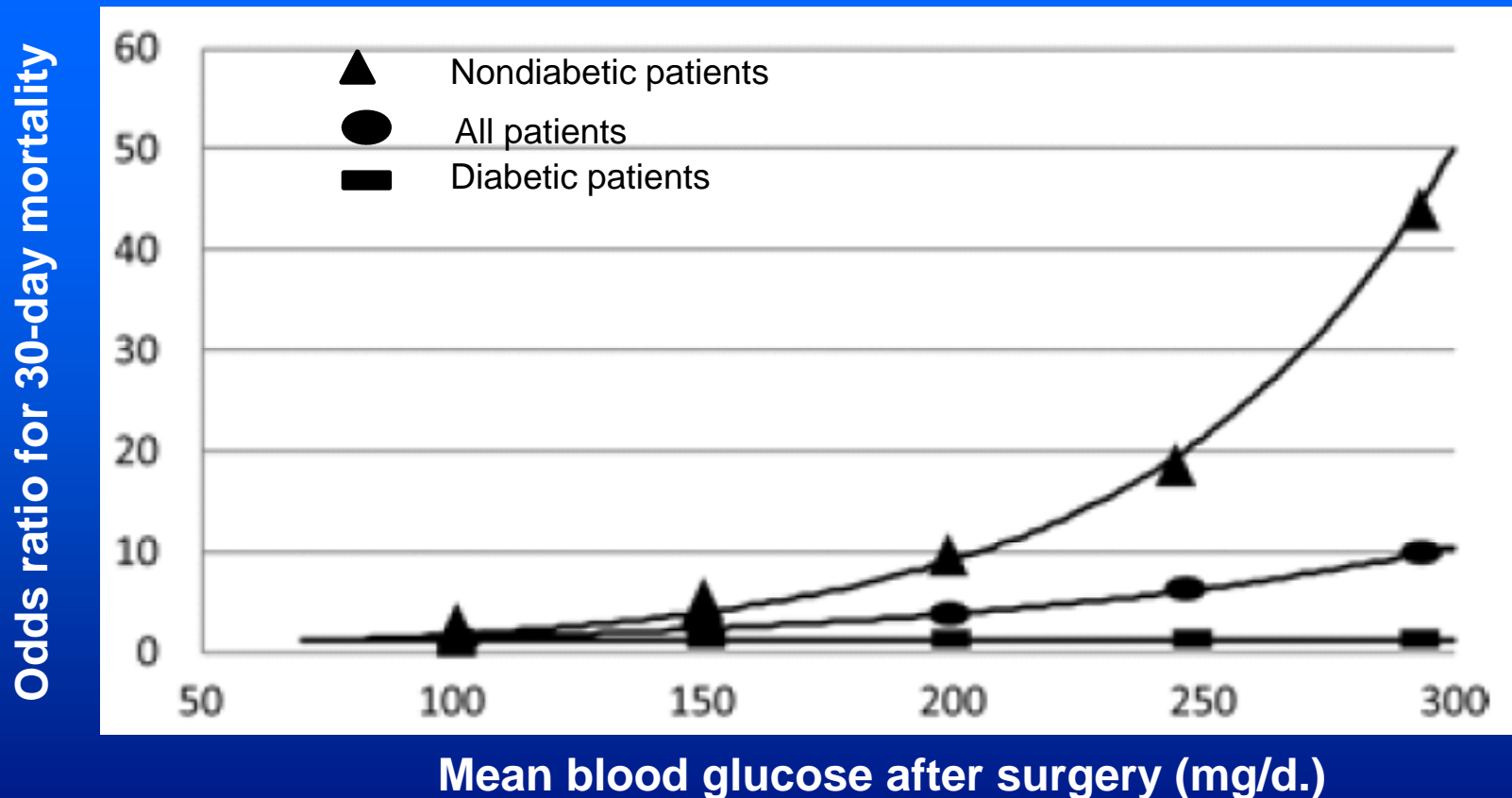
Mastectomy, Hyperglycemia, and SSI

260 patients, 5 glucose determinations (pre-op, at anesthesia induction, intra-op, in PACU, at 24 hrs)

<u>Risk Factor</u>	<u>Odds Ratio</u>	<u>C.I.</u>
Age > 50	3.7	(1.5-9.2)
Pre-Op ChemoRads	2.8	(1.4-5.8)
Any gluc \geq 150 mg%	2.9	(1.2-6.2)

Postoperative Glucose and Mortality in Noncardiac Surgery

Hyperglycemia is More Dangerous in Nondiabetics



Frisch. Diabetes Care. 2010; 33: 1883-8

Rabbit 2 Study – Surgery

Basal/Bolus vs Sliding Scale Insulin

	<u>Basal Bolus</u>	<u>Sliding Scale</u>	<u>p value</u>
Patients	104	107	
Mean Fasting	155	167	0.04
Mean Daily	157	176	.001
Readings < 140	53%	31%	.001
Wound infections	3	11	.05
Any complication	9	26	.003

Glucose Levels & SSI

- The exact “best” level of glucose control in the perioperative period is not known.
- High glucose levels unequivocally increase the risk of SSI and other perioperative infections.
- Tight glucose control in the perioperative period is tricky.
- Hypoglycemia increases the risk of morbidity and mortality.

Slides of Published Data Available by Request

patch@uw.edu

Glucose-SSI Refs - 1

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