

Examples of Glucometric Reports

Also see the [Glucometrics section](#).

Example 1. For hypoglycemia from non-critical care wards

This example from UCSD data should illustrate the principles in the [Glucometrics section](#).

Source of data: point-of-care (POC) blood glucose readings from all non-critical care units. For hypoglycemia, all POC followed, even if patient only had one value. Patients admitted with hypoglycemia or with hypoglycemia for reasons other than iatrogenic are included throughout.

Definition of hypoglycemia: POC \leq 60 mg/dL.

Expressed as: *Unit of analysis is glucose value, denominator all glucose values:* % hypoglycemic readings;

Unit of analysis is patient: % patients with any hypoglycemia;

Unit of analysis is monitored patient-day: % monitored patient-days with

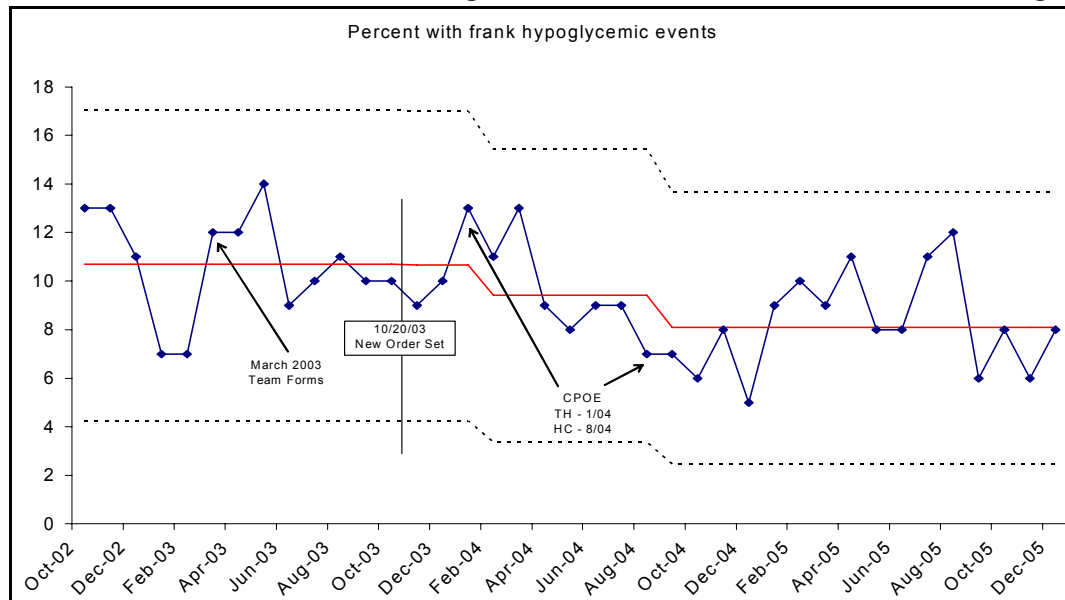
hypoglycemia.

The following table with values for all three parameters illustrates the different messages that might be derived from the same data: all parameters show significant reductions in hypoglycemia, from 24% to > 30% from the baseline period. In November 2003 the standardized subcutaneous insulin order set was instituted. In April 2005 a paper algorithm directing prescriber on insulin dosing and regimens was piloted.

\leq 60	November 2002– October 2003 (baseline)	November 2003– April 2005	May 2005– December 2005	Total
Total number of glucose readings	37,614	71,219	39,961	148,794
Values \leq 60 (n)	675	950	449	2,074
Values \leq 60 (%)	1.79%	1.33%	1.12%	1.39%
Total number of patients monitored	2927	5318	2812	11,057
Hypoglycemic patients (n)	307	480	223	1010
Hypoglycemic patients (%)	10.49%	9.03%	7.93%	9.13%
Total number of patient-days	13,784	25,597	14,085	53,466
Days with hypoglycemia (n)	507	717	365	1589
Days with hypoglycemia (%)	3.68%	2.80%	22.59%	2.97%

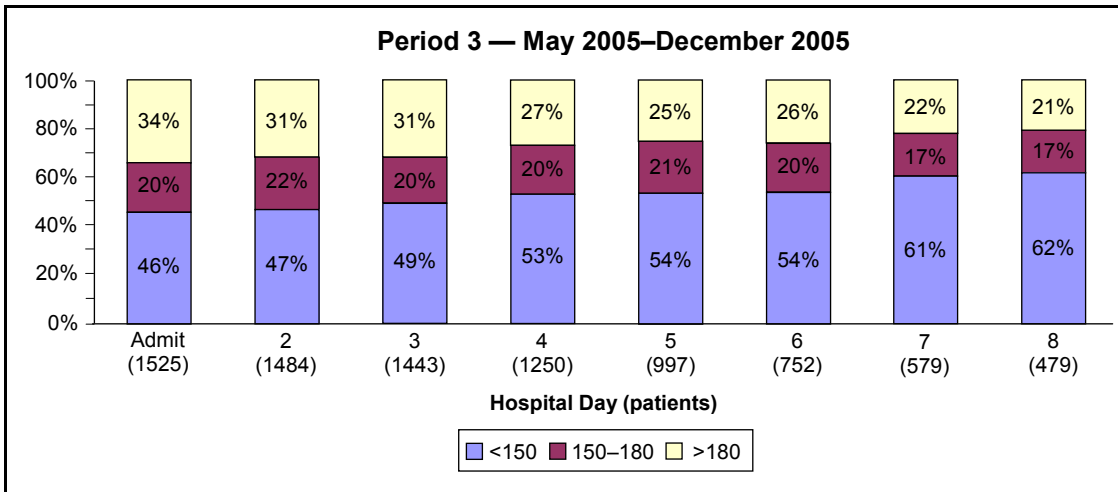
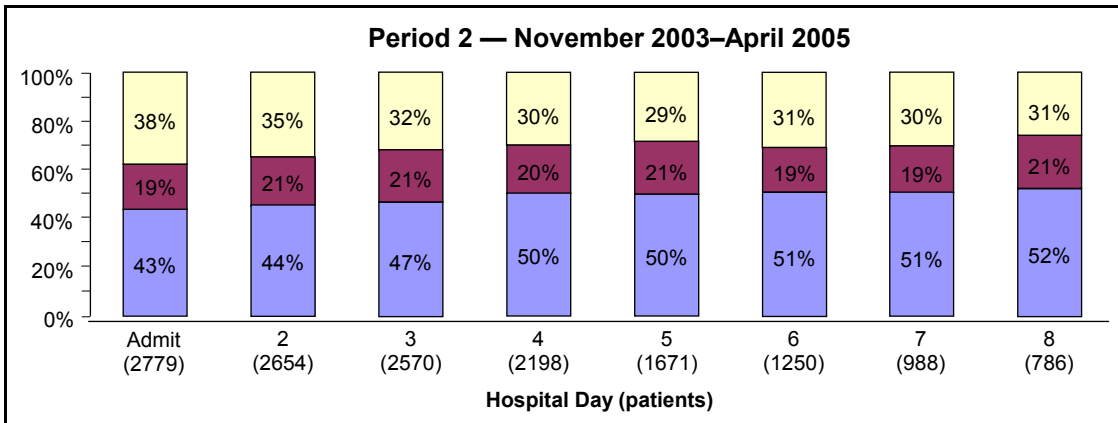
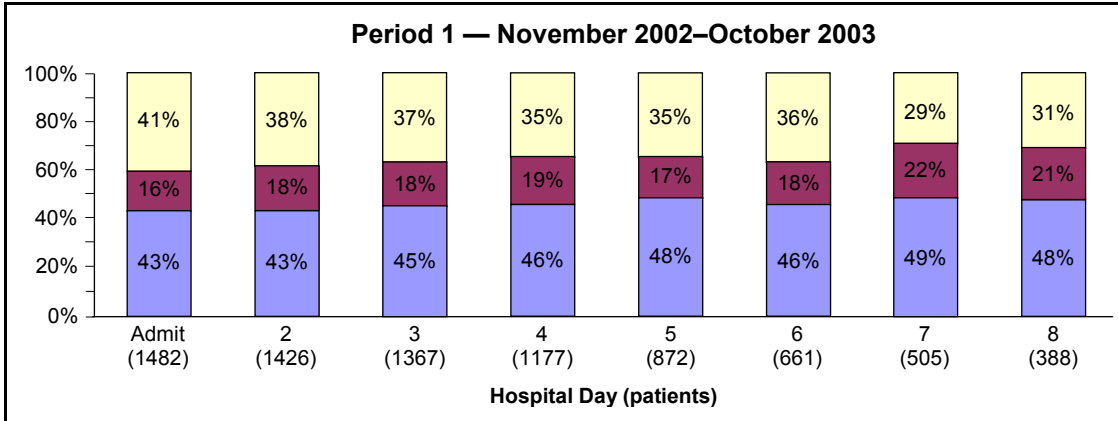
A run chart of hypoglycemia is actually more informative to the team on a month-to-month basis.

Run Chart with SPC Limits: Percentage of Patients with \geq 1 Glucose Values \leq 60 mg/dL



Example 2.

This example demonstrates the inroads into clinical inertia that have been made. The distributions of each patient’s mean glucose by day of hospitalization are depicted. The inertia appears to be improving as the same interventions are implemented.



Examples 3 and 4.

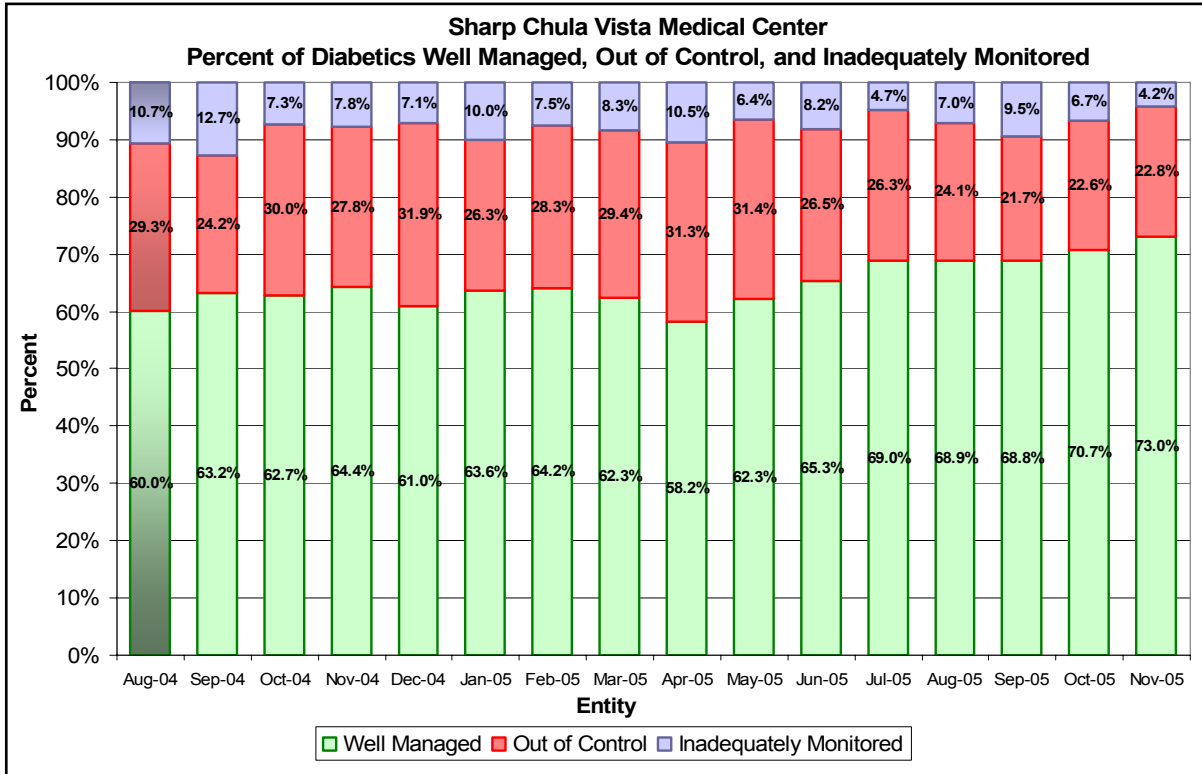
Sharp Chula Vista, in San Diego, California, has robust reporting ability that gets down to the unit level. This example is a report on the percentage of monitored days in control. Note: the definition of “control” used by Sharp Chula Vista is different than that

used by UCSD. In the absence of national standards, your institution needs to be consistent in its own definitions.

Sharp Chula Vista Medical Center - Percent of Monitored Days in Control - November 2005

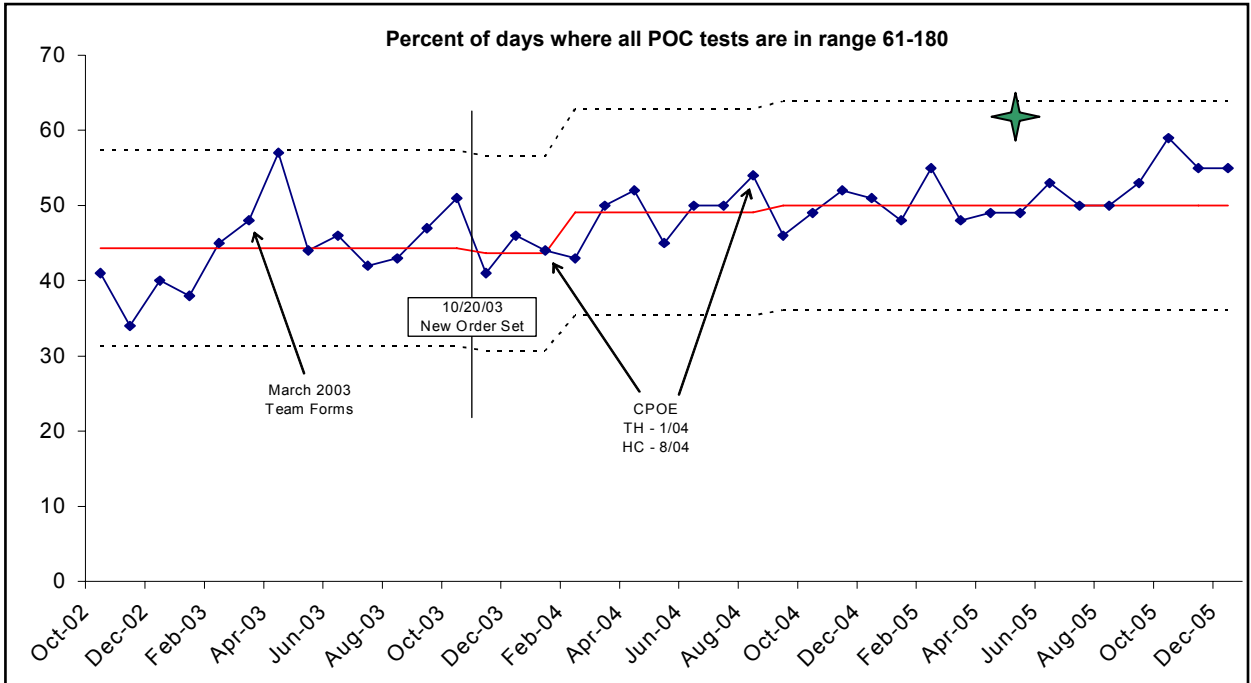
Unit	3 East Telemetry	4 East Oncology/Med-Surg	4 West/South Ortho/Med-Surg	5 East Telemetry & MICU A	MICU	SICU	Emergency Services
Percent of days In Control	69.7%	80.3%	78.8%	75.9%	66.8%	83.8%	67.9%
Days In Control	251	256	186	355	185	57	19
Total Days Monitored	360	319	236	468	277	68	28

Another great Sharp Chula Vista report uses bar charts to show glycemic control trends by month. You'll need to define what "well managed" and "out of control" mean for your own institution.



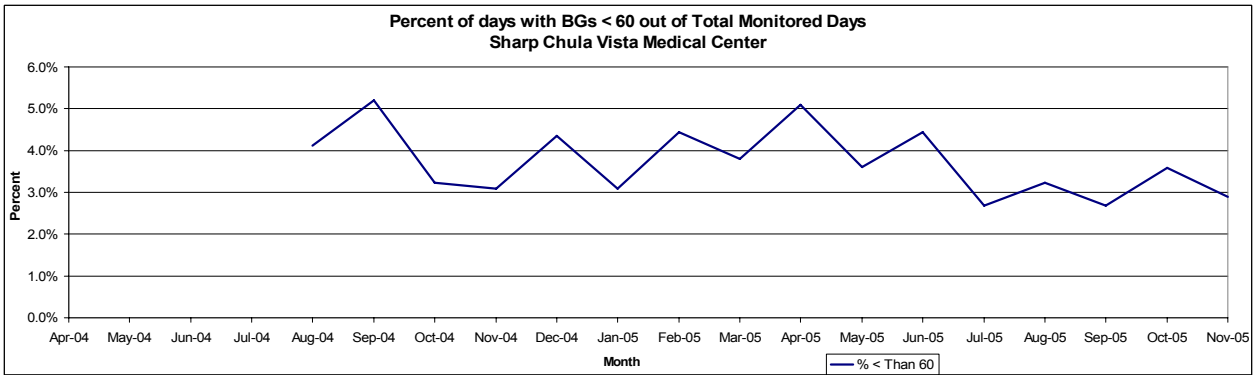
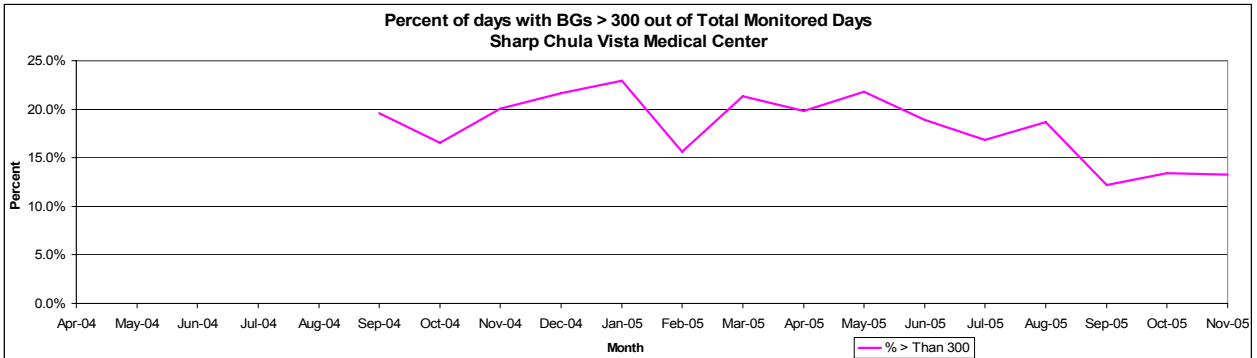
Example 5. Glycemic control by patient-day

At UCSD, for a day to be considered a “controlled patient-day,” all glucose values must be between 61 and 180 mg/dL. Once again, the baseline period (before the order set) is different from the period after the order set, and the period after the institution-specific algorithm was introduced (indicated by the green star) again demonstrates improved control.



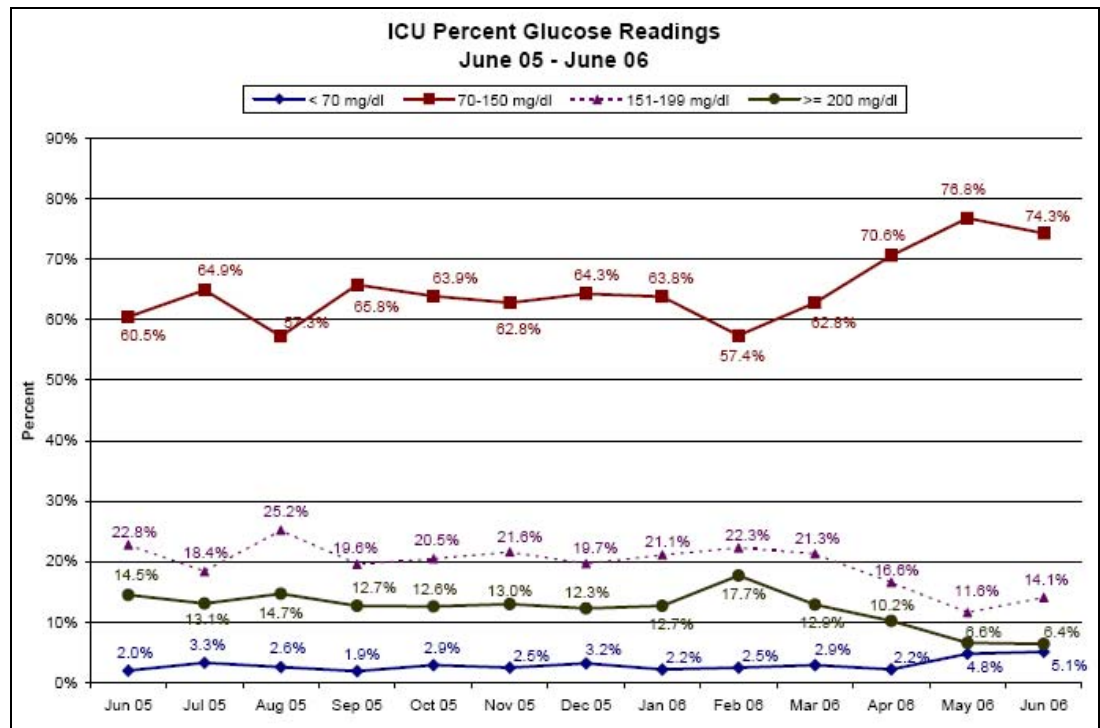
Example 6. Days with extreme of out-of-control values

Another fine example from Sharp Chula Vista in San Diego that is very informative. It reveals findings consistent with the UCSD experience: with improved glycemic control on the medical wards, using more physiologic insulin regimens, the rates of hypoglycemia fall. It's a win-win situation!



Example 7. Report submitted by Chris Hogness, Southwest Washington Medical Center, Vancouver, Washington

Unit is individual glucose readings.



Example 8. Time to reach glycemic target and performance of infusion protocol over first 72 hours of insulin infusion.

Excerpt from Yale protocol article: Goldberg PA, Siegel MD, Sherwin RS, et al. *Diabetes Care*. 2004;27:461-467.

