How do we incorporate patient perception data into Control Charts?

Control charts, or "Shewhart charts," have become increasingly popular as part of a hospitals' quality improvement regimen. They are often used when analyzing hospital acquired infections, emergency room wait times, and several other quantitative processes that need tracking. When it comes to patient perceptions, though, using control charts to monitor the data is complicated.

Control charts answer the question, "Is this movement random?" They seek to distinguish changes in data between normal variation and unusual variation brought on by change. The great value when using control charts to monitor patient perception data is that they can help muffle the panic alarms based on one point of data; they help make the interpretation and response to findings more scientific and less emotional.

Even with this important aim, there are three reasons why control charts are difficult to manage and explain with patient perception data: sampling; "significance" and thresholds; the measure of perception.

Sampling

Control charts work well for tracking things like employee absenteeism and allowing managers to determine if the general ebbs and flows in human resources are just random chance or indicative of an underlying issue. Control charts, however, do not work as well with data collected through sampling. When we use control charts to track slips and falls, we are tracking ALL slips and falls and not simply the number occurring on a "sample" of the previous month's days. Since we are not interviewing all patients discharged, we are always dealing with data that is an approximation of what the population feels.

"Significance" and Thresholds

Control charts establish thresholds or boundaries that separate "normal variation" from noteworthy deviations. Since we know that there is going to be some level of variation caused by the sample we select, the obvious threshold to establish would be one that represents a "statistically significant" change in the data. The challenge here is that this is a difficult line to draw. Since a statistically significant change is dependent on the size of the sample, the size of the population, and the observed percentage, one can see that range vary—sometimes dramatically—depending on how you slice and dice the data.

The Measure of Perception

If you understood the issues and limitations, you *could* establish a threshold, but you still have to deal with the fact that this is a measure of perceptions. While social science methods confidently measure people's attitudes, they cannot

completely explain their interactions. As anyone who has seen their number one Key Driver climb, but their Overall Quality of Care question stubbornly stay static knows, we cannot guarantee a lock-step relationship between the variables we measure. This is generally not a problem in the long-term, but it can be frustrating to manage in the short-term. A control chart is not unique in its inability to explain these data movements, but since they are often used in situations measuring concrete events (like slips and falls) they can provide an illusion of precision that does not exist.

When it comes to using control charts for patient perceptions, we have seen success with hospitals using them to track *perceptions of processes.* For example, you could build a control chart on whether administrator rounding is occurring, thereby measuring the quantity, not quality, of the event. You could ask a question related to hourly rounding on the survey and focus your tool on the fact that you expect 70% of inpatients to recall being rounded upon by an administrator. The chart, then, could track the monthly scores relative to that number.