Here’s the Data, Now What?
Becoming an Effective Change Advocate for Improved Patient Services

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This article is the first of a two-part series on data interpretation and leveraging change within the patient services role.

Improvements are made but not sustained
Difficulty implementing the improvements that are identified
Having knowledge of tools for improvement
Understanding the data

These four themes were the burning issues that emerged as the voice of patient services from a 2013 TAPS survey of members. Without a foundational knowledge of the tools for improvement, it’s difficult to understand the picture being painted through the patient voice data. It becomes even more challenging to mobilize commitment among a team without a full arsenal of tools from the quality toolkit.

Oftentimes, patient services staff work with checklists. They’re easy to manage against and easy to mark. However to leverage the commitment of key stakeholders, often a deeper level of analysis and synthesis of the patient voice and data is necessary. Checking a box doesn’t indicate whether the buy-in needed has been achieved, or that implementation is continuing to run smoothly and on track as planned.

To become a data-driven culture, a foundational knowledge of the types of graphical data is required. Without this knowledge, patient services representatives are unable to adequately speak to the data. Let’s review some of the more common graphical tools, what to watch for, and when they should be used. Part two will examine techniques for achieving successful implementation of improvement initiatives through change management techniques.

Whenever possible, graphics are more engaging than tables and descriptors. For example, when sitting in a presentation, which format would you rather view? Which is easier to quickly understand?
Bar charts can quickly communicate information when looking at count data. It visually draws the eye to the bars with higher counts to rapidly assimilate the information. For easier viewing, bars can be sequenced from the highest volume to the lowest volume. For example, inverting Housekeeping and Facilities/Parking would make the graphic even easier to visually comprehend. However, a bar chart doesn’t tell an individual the percent of total complaints from each area without conducting an additional calculation. While it effectively transforms data into information, it only shows the volumes segmented by area (or different categories being examined) on the graph. The graph you choose depends on what’s important to the story you’re trying to tell. If the volume of counts is important, a bar chart may be the better graphic, while displays of magnitude reflective of proportion or percent may be more visually appealing such as a pie chart.

To look at the percentage volume a department has of a 100% total, the pie chart can be an effective tool, rather than the bar chart, to quickly communicate a message. On the
below graphic, both the sample size for the department and the percent of total is provided; the entire pie comprises 100% of the data being examined. Pie charts are often in the format of illustrating both the sample size and the percentage, or they list only the percentage the pieces that each segment of the pie accounts for of the 100% whole.

The above graphic is intentionally presented in different shades of vibrant, contrasting colors. Notice from the pie chart representation that although Nursing accounts for a smaller percentage than Food Services, visually the eye is first drawn to the neon green color. When creating a pie chart, the color palate used should be neutral enough to let the data tell the story rather than particular colors that draw attention. The number of categories also needs consideration when providing a graphical display. With too many categories, it becomes difficult to not only interpret, but also to read the classifications on a pie chart. For example, if 30 departments had been noted as having complaints, the pie chart becomes less of an effective mode for visual display. A more illustrative graphical example in this situation may be a high-level view of the departments as represented in the previous pie chart, Departmental Complaints for Month, and if a particular area needs further commentary to create a second pie chart (e.g. the magnitude of complaints by nursing department) as illustrated below.
When looking at counts of information where you need a granular level of specificity, a dot plot can be useful as a way of displaying the data. Let’s say that an expectation of the dietary department is to have trays delivered to the patient within 30 minutes of ordering an item. Assume that each dot on the dot plot graphic represents 5 counts of the same number, for a 50-bed unit of one day. Although this is a low sample size as an educational display, a review of the dots reveals that most of the values are close to the target time of 30 minutes. We also see quite a few data points beyond the 30-minute target where further drill down into the data could be done. What variables would you consider? Time of day? Shift? Staffing levels? Hot or cold food selections? The data starts to paint a picture to investigate further. Also, some of the data points are much less than the targeted time of 30 minutes. Although desirable, were these simple requests, or did they create other requests to take longer? It could be a situation where a couple of patient orders were filled quickly, but another patient order took 64 minutes rather than working the orders in the sequence that they had been received. Similarly, in looking at the data points that took less time, are there lessons to be learned of efficiencies within the process that happened during those orders?
The dot plot becomes less useful with large sample sizes. Histograms can be meaningful with large amounts of count data where it becomes ‘binned’. Let’s increase the sample size a bit larger, and run a histogram of the same type of data that we were looking at with the dot plot.

Collecting more data from the dietary department, and using a histogram with the larger data set, we start to see a two-peaked illustration. When this occurs, there’s a high probability of different processes happening within the dataset to create each arch (called a bimodal distribution). Upon further investigation, it may have been discovered that the longer
times were due to a relocated nursing unit, which was further away from the hospital food preparation area during construction that was occurring. Another variable to investigate may be whether or not the longer durations for items to be delivered were due to a staff call-in. Although staffing fluctuations happen, what would be a proactive contingency plan that could be developed to ensure that trays are still delivered on time should this occur? Possibly it was an equipment failure with a food cart unable to maintain a stable temperature, which resulted in more travel time delays while the cart was being fixed. The extended wait times at 70 minutes and beyond may have been patients going for procedures, where the nurse called down and noted for the dietician to hold the order until the patient returned for the food to stay hot. The data paints part of the picture—the other part involves some sleuthing by the key stakeholders to determine why the data is pointing in the direction that it does from the graphical display.

Transitioning beyond checklists allows for greater discovery of what’s occurring within hospital processes. It enables staff and leaders to better understand what’s happening on their units and the variables that need more attention. Looking at data beyond the use of checklists engages individuals to a deeper level and helps them to understand the reasons for concerns by patients. Stakeholders and patient services advocates can then become better positioned for taking action. Additionally, the use of numerical data allows for tracking and trending over time. Checklists don’t allow for improvement visibility to the same level as a graphical display. Remember, it’s important to choose wisely from the options that will showcase your quality data. Let the graphics tell the story of what the process is communicating as it unfolds. Understanding the different graphics that can be used with data not only empowers patient advocates in their role, but also helps stakeholders better understand the patient voice and ultimately improves the quality of care and services that are received.