King Saud University
College of Business Administration
Department of Health Administration - Masters` Program

PA 505 –The Quality of Healthcare First Semester
1436/ 1437

Mohammed S. Alnaif, Ph D.
alnaif@ksu.edu.sa
Office Phone # 469-3681

Evaluating Performance

Assessment
Are we meeting expectation

- **Performance assessment** is the evaluation stage of quality management. Measurement data have been gathered and now must be reported and analyzed.
- If an organization constructs measures carefully, collects accurate data, and reports results in a meaningful way, it produces information useful for decision making.

Evaluating Performance

Assessment
Are we meeting expectation

- **Assessment** involves judging or evaluating measurement data for the purpose of reaching a conclusion.
- **Judgment** is formation of an opinion after consideration or deliberation.
- **Measurement** results are compared with performance expectations to judge the quality of patient care and business services.

Evaluating Performance

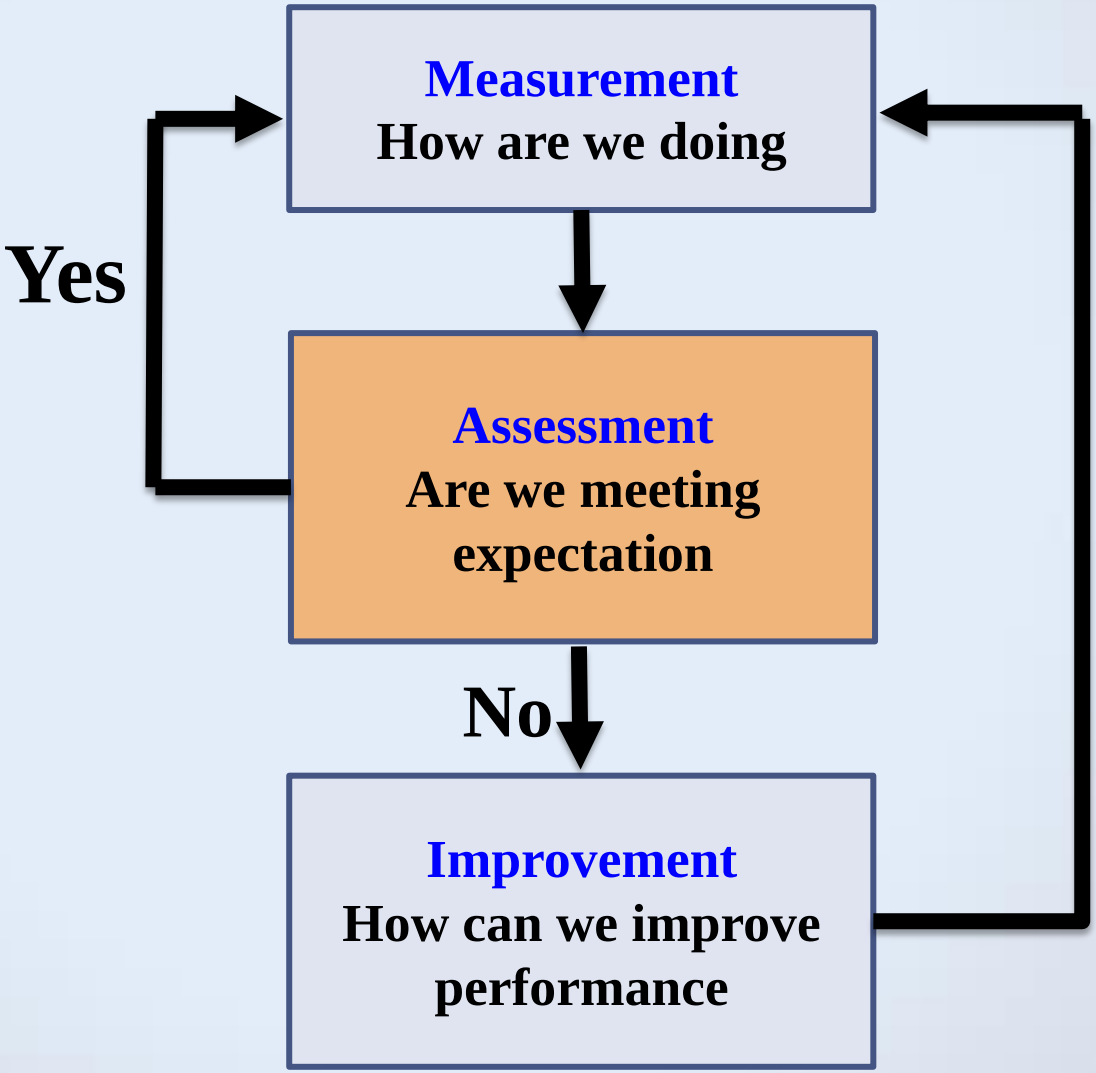
Assessment
Are we meeting expectation

Assessment in Quality Management

As shown in Exhibit 4.1, the assessment step follows performance measurement. In this step, the organization first judges whether its performance is acceptable. If it is acceptable, the organization continues to measure performance to ensure it does not deteriorate. If its performance is not acceptable, the organization advances to the improvement step.

The quality management cycle

Exhibit 4.1



Evaluating Performance

Assessment
Are we meeting expectation

Assessment in Quality Management

Second, the organization evaluates measurement results to determine whether processes are performing as expected.

Finally, it assesses those results to judge the impact of improvements.

Evaluating Performance

Assessment
Are we meeting expectation

Assessment in Quality Management

Assessing quality does not rely on data alone. Performance goals, external factors, and other conditions must be considered when evaluating measurement results.

Evaluating Performance

Medical Care

Medical care is a process or activity in which certain inputs or factors of production (such as doctors' and nurses' services, services of medical instruments and equipment, and pharmaceuticals) are combined in varying quantities to yield an output. Thus HSOs are settings in which inputs (resources) are converted to output (work results and objective accomplishment). Management is the catalyst.

Evaluating Performance

System Theory

- **A system is a set of interrelated parts that operate together as a whole to achieve a common purpose**
- **Cybernetic System, or self regulating system is controlled in order to adjust the future functioning of the system within a predetermined set of standards**

General System Concept

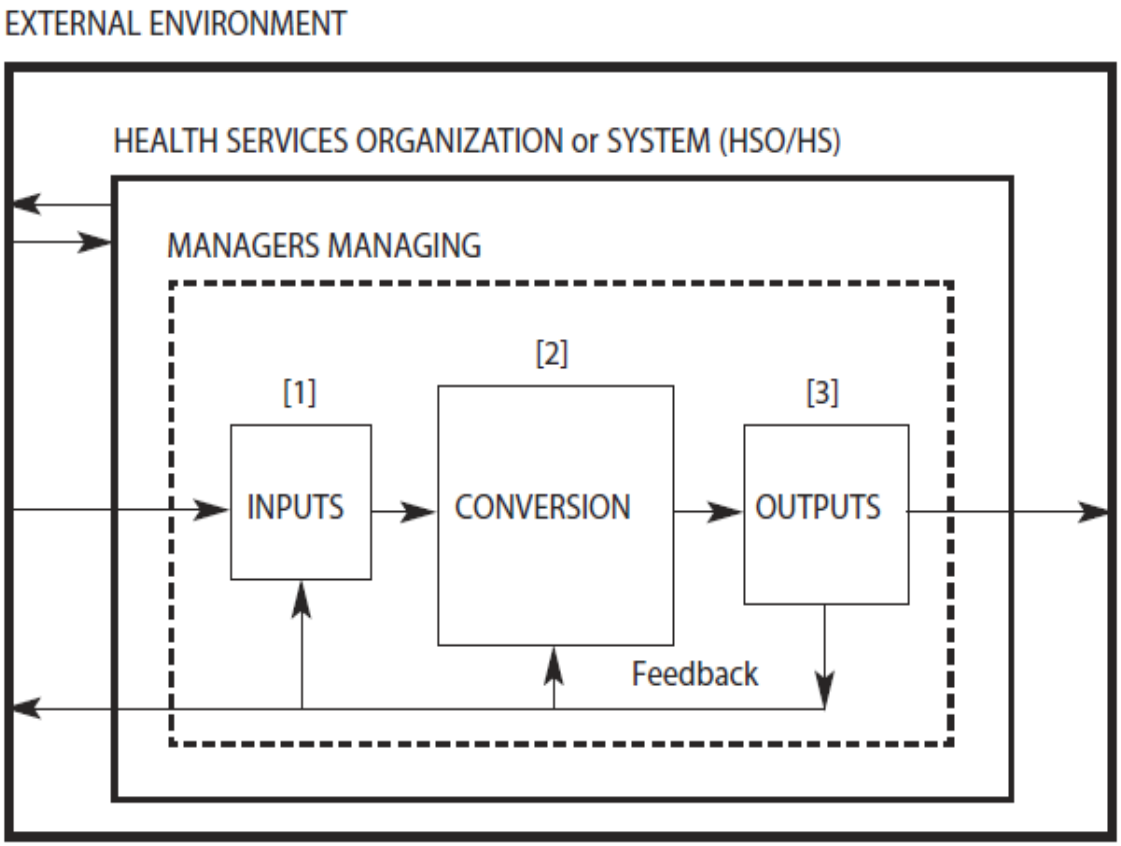


Figure 5.6. Management as an input–conversion–output process.

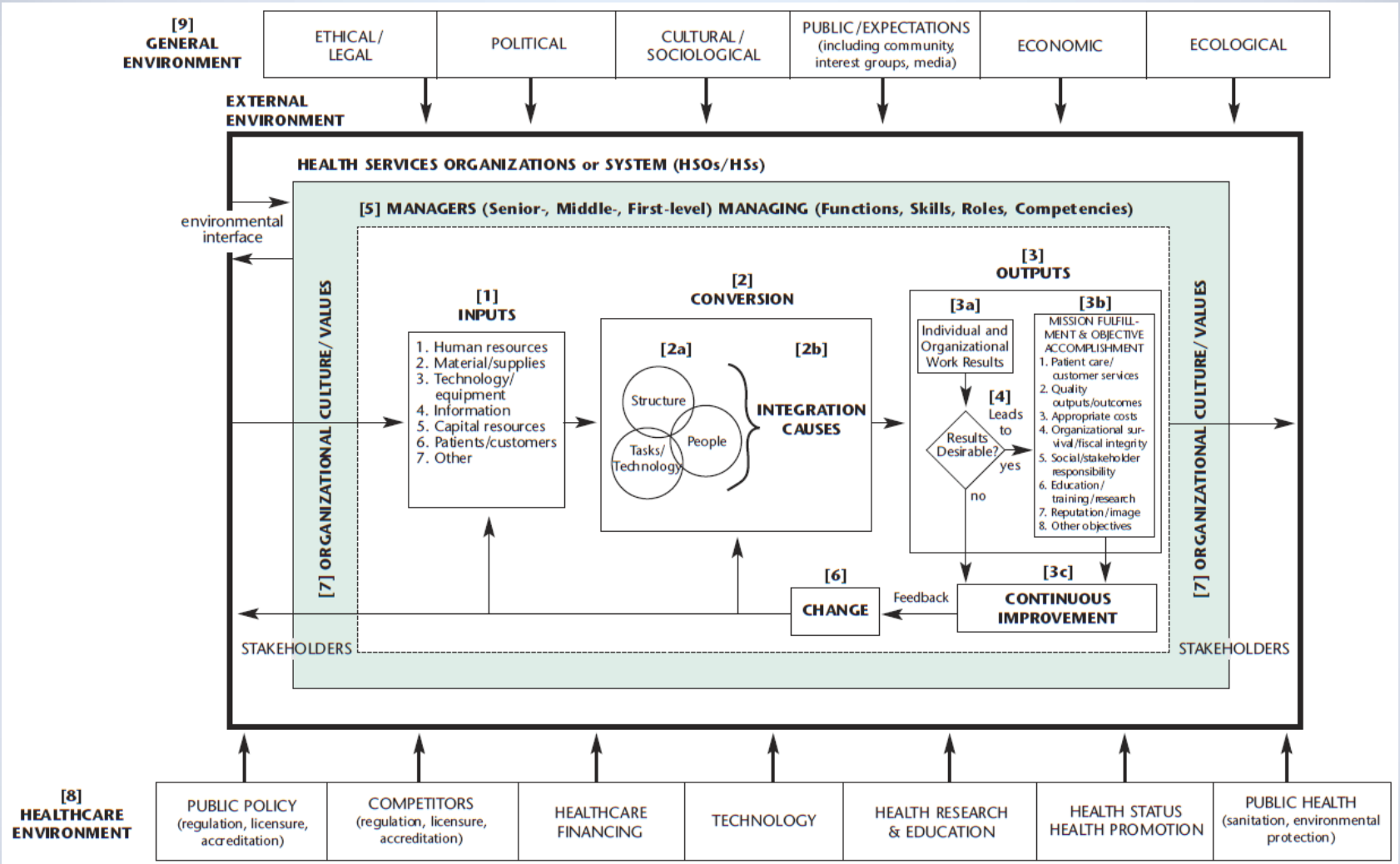
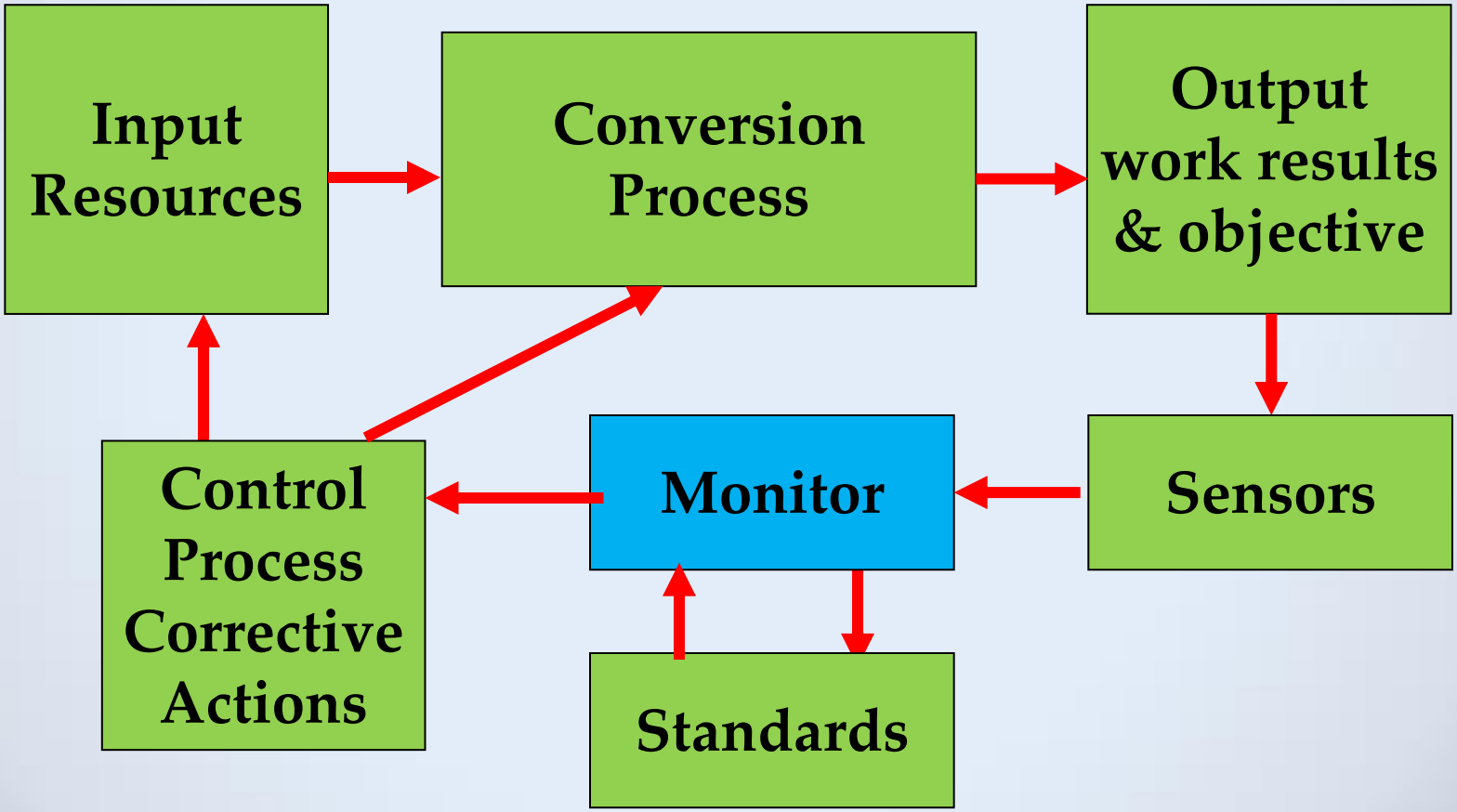


Figure 5.7. Management model for HSOs/HSs.

Cybernetic System



Evaluating Performance

Assessment in Quality Management

The assessment phase in quality management involves data analytics, an examination of raw data by which to draw conclusions about that information. This phase involves three activities:

1. **Displaying measurement data**
2. **Comparing actual performance with expectations**
3. **Determining whether action is needed**

Evaluating Performance

Displaying measurement data

- **The first step in analyzing performance data is deciding how the information will be presented or displayed.**
- **To display data in an understandable format, three factors must be considered:**

1. **The type of data to be reported**
2. **The audience**
3. **The information's intended use**

Evaluating Performance

Displaying measurement data

More important than the format in which data are displayed, however, is the accuracy and reliability of the information to help the audience answers the following questions:

- **What is current performance?**
- **Do the data reveal a trend?**
- **Should action be taken? What kind of action?**

Evaluating Performance

LEARNING POINT Reporting Results

Assessment involves judging or evaluating measurement data for the purpose of reaching a conclusion. The way in which the data are presented influences their interpretation. To display data in an understandable form, three factors must be considered: the type of data to be reported, the audience, and the information's intended use.

Evaluating Performance

Displaying measurement data

- **Reporting performance information in the right format is critical to successful quality assessment. In some cases, performance information may be displayed more effectively in a graphic format than in a tabular format.**
- **Data visualization is the communication of information clearly and effectively through graphical means.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Some performance reports provide information collected at a particular point a snapshot of time. To create reports that represent these snapshots, data are gathered for a certain period and summarized for analysis. Common types of snapshot report formats are tabular reports, pie charts, scatter diagrams, bar graphs, histograms, Pareto charts, and radar charts.

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Tabular reports, sometimes called data tables, are used to display numeric data gathered at a snapshot of time.**
- **Pie charts, are graphs in which each unit of data is represented as a pie-shaped piece of a circle. Pie charts portray the contribution of parts to a whole.**

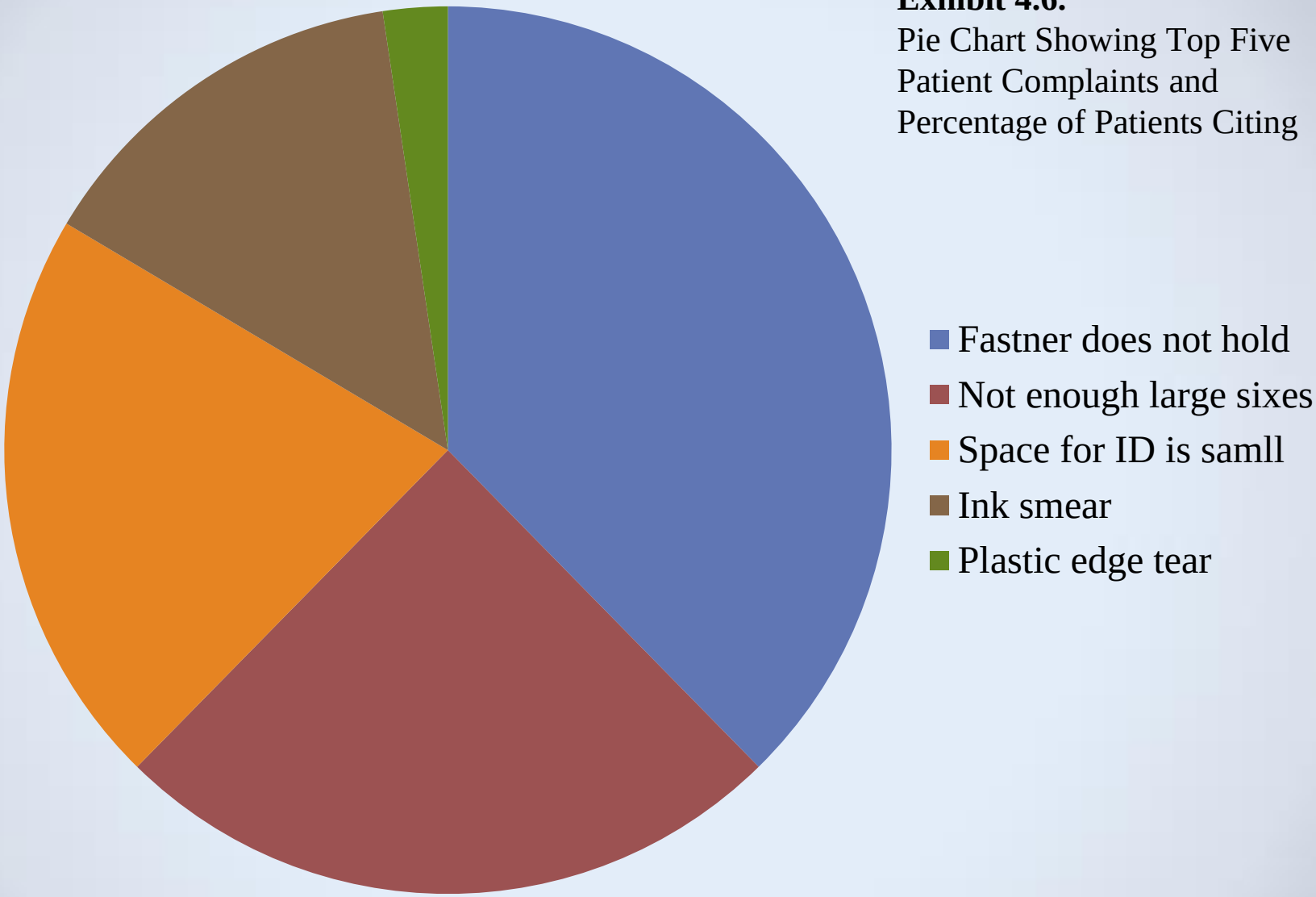


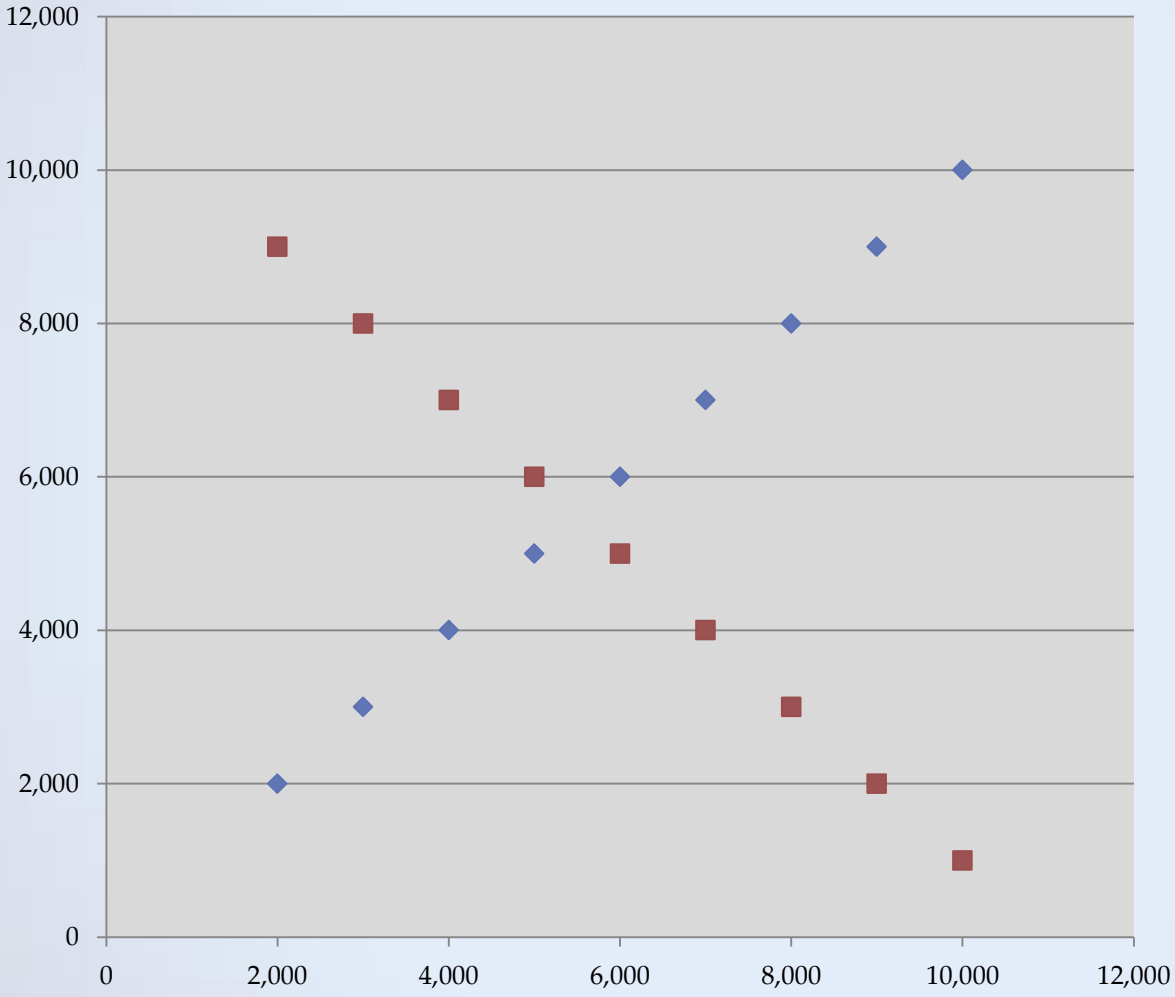
Exhibit 4.6.
Pie Chart Showing Top Five Patient Complaints and Percentage of Patients Citing

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Scatter diagrams, are graphs used to show how two variables may be related. The distribution of their intersecting points reveals relationship patterns. The strength of the correlation is a measure of how likely the two variables are related to each other.**



Scatter diagram Showing the relationship the Supply and Demand for Eye Lasik procedure as it relates to price

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Bar graphs are graphs used to show the relative size of different categories of a variable, with each category or value of the variable represented by a bar; also called a bar chart, audiences can easily compare groups of data and quickly assess their implications on performance.**

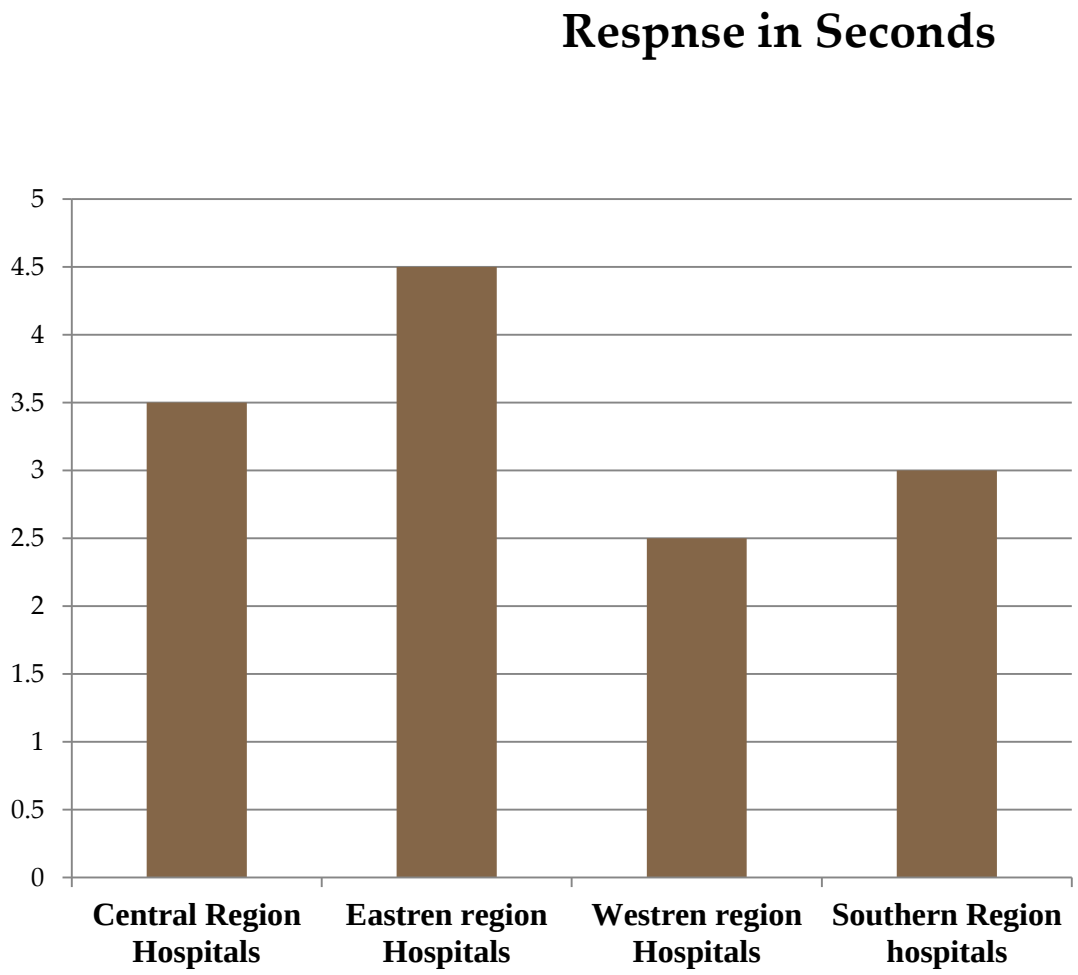


Exhibit 4.9.
Vertical Bar Graph Comparing Computer Response Times at Four Regions Hospitals During One Period

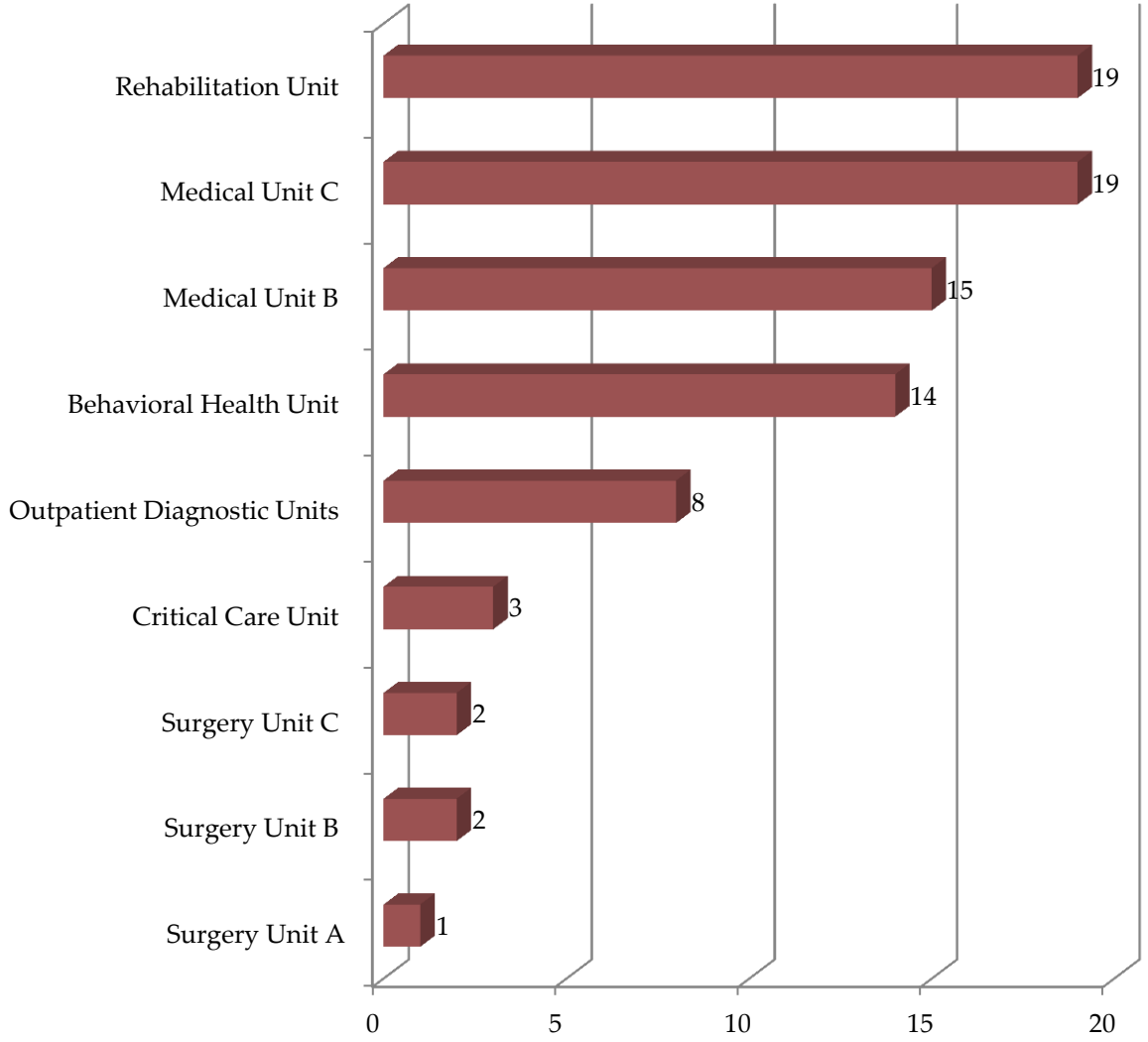


Exhibit 4.10. Horizontal Bar Graph Showing Number of Patient Falls in Each Hospital Unit, January–March

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Histograms, sometimes referred to as frequency distributions, are bar graphs used to show the center, dispersion, and shape of the distribution of a collection of performance data.**
- **Pareto charts, are special types of bar graphs that display the most frequent problem as the first bar, the next most frequent as the next bar, and so on; also called Pareto diagrams.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **The Pareto Principle, named after the nineteenth-century Italian economist Vilfredo Pareto, states that for many events, 80 percent of the results come from 20 percent of the inputs (Juran 1974). Joseph Juran, an originator of the science of quality, applied the Pareto Principle to quality management. Juran advised management to concentrate improvement efforts on the "vital few" sources of problems and not be distracted by those of lesser importance .**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

When considering the use of Pareto charts, keep the following in mind:

- **Use Pareto charts to separate the few major problems (the vital few) from the many possible problems (the trivial many). Pareto charts encourage use of data, not perception, to determine which problems are most important.**
- **Arrange performance categories or problems according to their frequency (how many), not their classification (what kind). The order should descend from left to right.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

When considering the use of Pareto charts, keep the following in mind:

- **The right vertical axis can be used to measure the percentage of total occurrences in each category, but in some situations, the main problems may be apparent without adding a cumulative percentage trend line.**

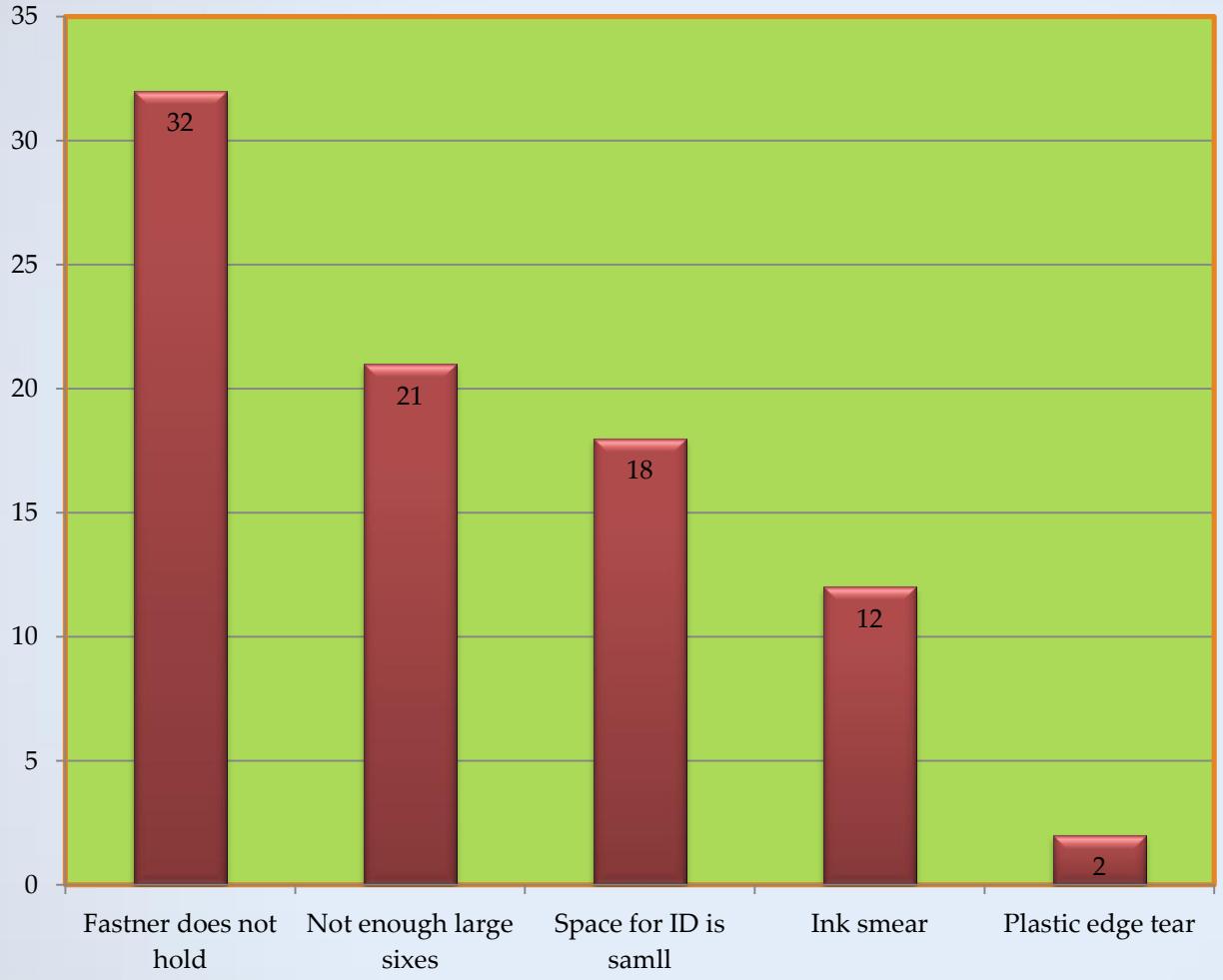


Exhibit 4.12.
Pareto Chart Showing ID Band Problems

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Radar charts, are graphs used to display the differences between actual and expected performance for several measures; also called spider charts or spider diagrams because of their shape.**
- **Radar charts are used to plot five to ten performance measures for an interval of time, along with performance expectations.**

Evaluating Performance

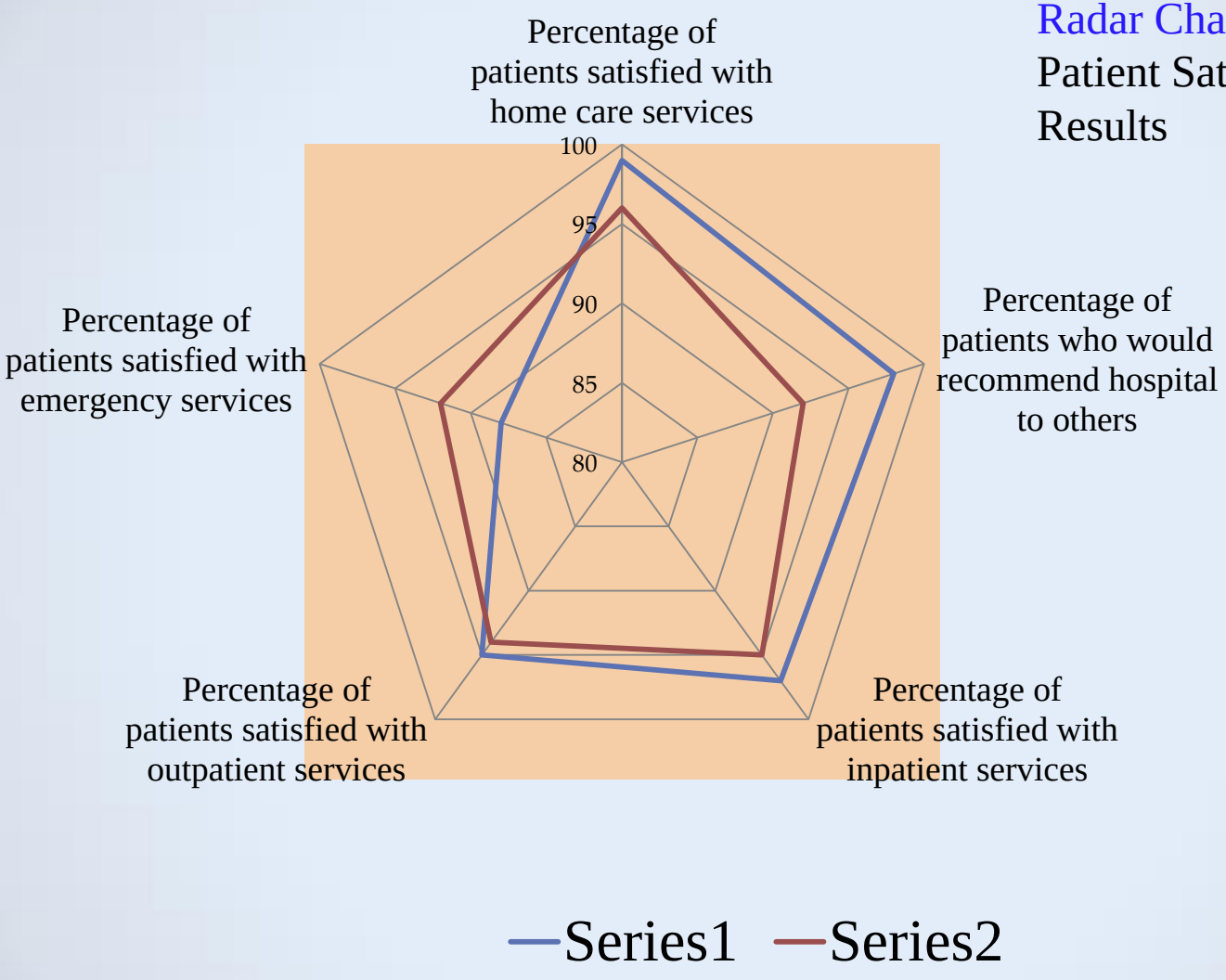
Displaying measurement data

Snapshot Report Formats

When considering the use of radar charts, keep the following in mind:

- **Radar charts show areas of relative strength and weakness and depict overall performance.**
- **In a radar chart, a point close to the center on any axis indicates a low value. A point near the edge is a high value.**
- **When interpreting a radar chart, check each axis as well as the overall shape to determine overall performance.**

Exhibit 4.13.
Radar Chart Showing Patient Satisfaction Survey Results



Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Trend Report Formats

- **Quality is a dynamic attribute, so the ability to recognize changes in performance trends is important.**
- **Performance trends, patterns of gradual change in performance; the average or general tendency of performance data to move in a certain direction over time.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Trend Report Formats

- **Some of the same report formats used to present snapshots of performance data can also be used to display performance trends; tabular reports are one such format.**
- **System-level measures, sometimes referred to as a dashboard, this type of report shows a group of performance measures; results for each period; and the performance expectation, or target, for each measure..**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Trend Report Formats

- **Line graphs, sometimes called run charts, can be used to show changes in a performance measurement over time.**
- **One line graph can be used to report several performance measurement results.**
- **To display data effectively, line graphs should include no more than four measures.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Trend Report Formats

- **Bar graphs can be used to report a snapshot of performance and also display performance data for different periods.**
- **This chart is called a clustered bar graph because it shows the relationship between three clusters of variables (Exhibit 4.14).**
- **Line graphs and bar graphs are the two most common ways to display performance data over time.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

- **Simplicity is the key to reporting performance measurement data, whether for a single period or for many periods. An uncluttered tabular report or graph usually conveys information more effectively than an overly data-laden one does.**

Evaluating Performance

Displaying measurement data

Snapshot Report Formats

Several basic principles should be observed when displaying performance results:

- **Make sure the data are accurate and no relevant data are omitted.**
- **Minimize the number of measures reported in one table or graph.**
- **Ensure that the report is self-explanatory.**
- **Use clear and concise labels for the report title, period being measured, data legends, and other explanatory information.**
- **Use legends or keys to explain data that may be confusing or subject to misinterpretation.**
- **Define abbreviations and symbols.**

Evaluating Performance

Displaying measurement data

LEARNING POINT Data Displays

Performance measurement data can be presented in many different ways. Tabular reports and bar graphs can be used to report data for a single period or for several periods. Pie charts, scatter diagrams, histograms, Pareto charts, and radar charts are typically used to report performance data from a snapshot of time. Bar and line graphs are most commonly used to display performance data over time.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **Performance measures should be tied to a predefined goal or expectation. Interpretation of measurement results is meaningful only when they are associated with goals.**
- **Measurement without defined performance expectations does not contribute to quality improvement.**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **Healthcare organizations must define their destination in terms of performance expectations. Well-defined targets have the following characteristics, known as SMART:**
  - **Specific**
  - **Measurable**
  - **Achievable**
  - **Realistic**
  - **Time-bound**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

Performance expectations should be established for every measure. These expectations are based in part on internal quality priorities, which are often influenced by the needs of stakeholders (e.g., patients, purchasers).

Standards are performance expectations established by individuals or groups.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

Except for healthcare services that must comply with absolute standards (such as standards found in government regulations), performance targets may be established on the basis of:

(1) opinion,

(2) criteria, or

(3) performance comparison.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

Opinion, Performance targets may be derived from the opinion of those affected by the measure. A determination is made regarding the acceptable or desired level of performance, which then becomes the goal.

This determination is often based on people's subjective belief regarding good performance.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

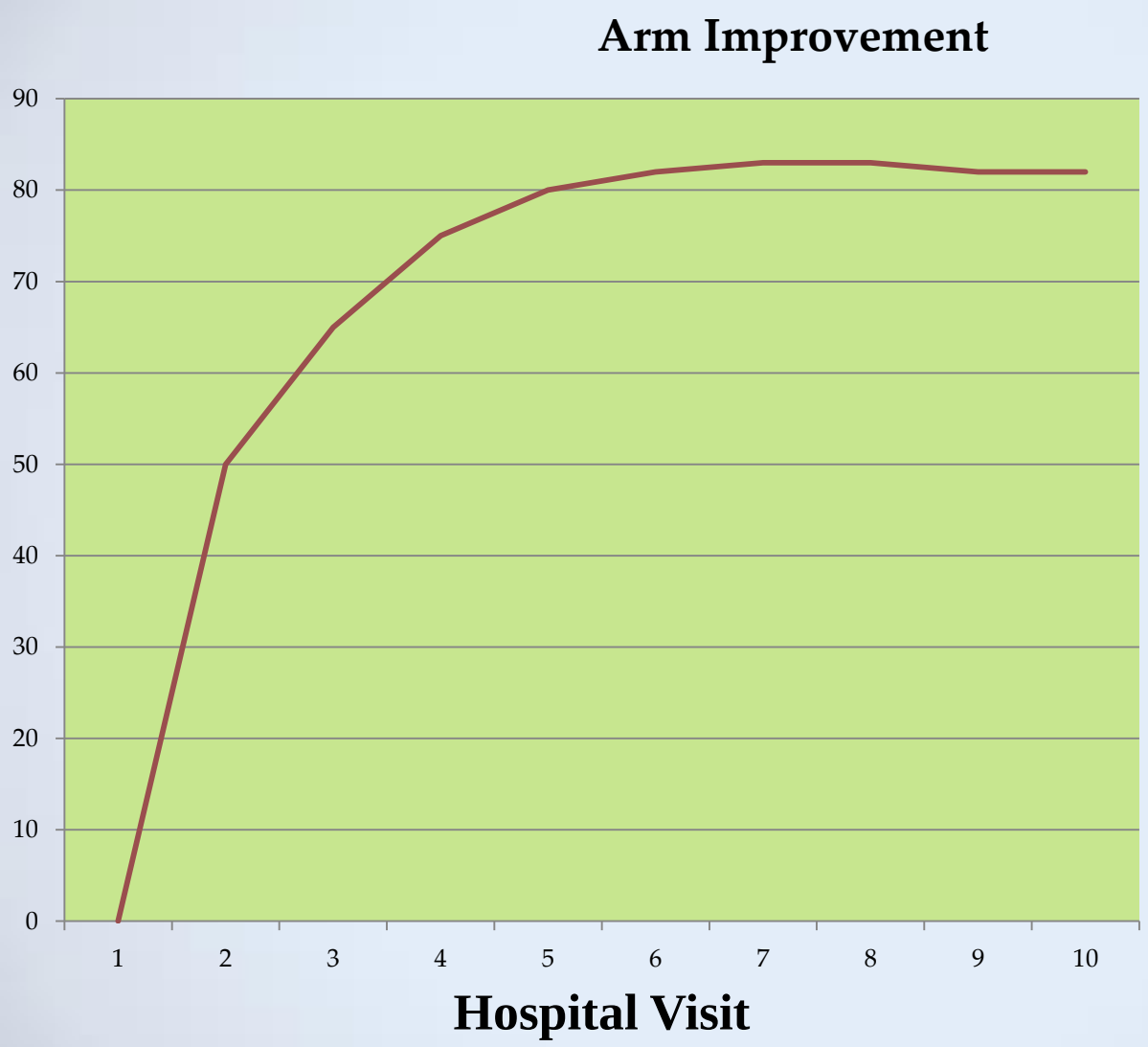
People often question why performance targets are based on opinion rather than set at 0 or 100 percent. Is less-than-perfect performance acceptable? Arguments supporting the ideal of perfection are difficult to contest, but the law of diminishing returns must be taken into consideration when setting performance goals.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

law of diminishing returns, as any activity is extended, it eventually becomes increasingly difficult to pursue the activity further. For example expanding a given production eventually becomes ever more difficult and eventually will entail increasing opportunity costs.



The Law of Diminishing Returns

Evaluating Performance

Compare Results with Expectations

Setting Expectations

Criteria, Performance targets should not be established on the sole basis of opinions if relevant, professionally defined criteria are available. Professionally defined criteria are found in the standards, rules, and principles that have been developed by authoritative groups, such as clinical practice guidelines, consensus statements, and position papers.

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **Physician and staff compliance with the criteria is usually considered voluntary, but organizations are encouraged to consider them when establishing expected levels of performance.**
- **Organizations may have justifiable reasons for deviating from professionally defined criteria. In these situations, performance goals are set at less than 100 percent.**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **For instance, annual retinal (eye) examinations and kidney disease screenings are recommended for patients with diabetes, but the tests may not be appropriate for some patients because of their age or coexisting conditions. Even when testing is appropriate, some patients may choose not to follow the recommendation. Thus, the performance target for completion of these tests could be set at less than 100 percent to account for such factors.**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **performance comparison, Other organizations' performance is the third influence on quality targets. The use of comparative information to set performance goals is a relatively new phenomenon in healthcare.**
- **Before the mid-1980s, hospitals and other providers judged the quality of their performance primarily on the basis of internal historical trends. Organizations reviewed their current performance measurement data and compared the results with their past performance**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

- **performance comparison, This internal attention has been replaced by a broad, externally focused type of comparison made possible by increasingly abundant, publicly available data on other organizations' achievements. Providers can use this external data to establish internal performance expectations.**
- **online sources of comparative performance data commonly used by healthcare organizations to set performance expectations.**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

performance comparison, Another source of comparison data is published research. Reports on studies often provide information about performance rates. Keep in mind, however, that data from literature sources should not be blindly adopted as performance targets.

- **In the 1860s, Florence Nightingale pioneered the systematic collection, analysis, and dissemination of comparative hospital outcomes data to understand and improve performance.**

Evaluating Performance

Compare Results with Expectations

Setting Expectations

performance comparison,

Benchmarking, The term benchmarking is typically used to describe performance comparison activity (e.g., "We are benchmarking against other hospitals"), but it involves more than simple comparison with other organizations. Benchmarking uses the level of performance achieved by an exemplary or world-class organization as the standard for comparison

Evaluating Performance

LEARNING POINT Performance Goals

Performance goals are quantifiable estimates or results expected for a given period. Performance goals are set at 100 percent for aspects of healthcare that have absolute standards. In the absence of absolute standards, performance targets are based on one or more of the following factors:

(1) opinion,

(2) criteria, or

(3) performance comparison.

Evaluating Performance

Statistical Process Control

In addition to comparing performance with predefined goals, healthcare organizations increasingly use statistical process control (SPC) to assess performance. This technique, which has traditionally been applied in industries other than healthcare, allows the user to highlight variations in performance that should be investigated. Performance variation can sometimes be a bigger problem than can consistently average performance.

Evaluating Performance

Statistical process control (SPC) Application of statistical methods to identify and control performance.

SPC concepts and methods are primarily based on the importance of reducing process variation to consistently achieve desired results over time. Using SPC methods, performance data are graphically displayed and analyzed to determine whether performance is in a state of statistical control.

Evaluating Performance

Statistical process control (SPC)

Normal distribution

A spread of information (such as performance data) in which the most frequently occurring value is in the middle of the range and other probabilities tail off symmetrically in both directions; sometimes called the bell-shaped curve.

Standard deviation

A measure of the dispersion of a collection of values.

Evaluating Performance

Statistical process control (SPC)

Performance Variation

a process can contain two types of variation: one resulting from random causes and one resulting from assignable causes.

- **Common cause variation is inherent—always present—in every process. The effect of this type of variation on performance is usually minimal and results from the regular rhythm of the process.**
- **Special Cause Variation to describe variation resulting from assignable causes**