Tables and figures: Adding vitality to your article

Editor’s note: This is the 10th in a series of articles on writing for publication. The first article was published in the March 2006 issue of the Journal.

Nurse writers have the opportunity to communicate information that can make a difference in a colleague’s professional or personal life or even save a patient’s life. To best achieve these goals, you should consider not only the text of the manuscript but also supplemental materials such as tables and figures, commonly called “graphics,” that will enhance the article.

Graphics can add to the effectiveness of all types of manuscripts. They can serve several purposes, including to:

- summarize important information,
- clarify complex information,
- provide an important option for readers who are visual learners, and
- provide a visual “break” for the reader who would otherwise be faced with only pages of solid text.

In addition, readers expect graphics, given that we live in a world where visual effects are commonplace—from colorful charts that show financial trends to animated sequences that demonstrate how hurricanes pack a powerful punch. You need to understand the proper use of graphics so your readers can obtain the greatest benefit from them. This article focuses on tables and simple graphs.

GROUND RULES

Ask yourself what graphics would best contribute to the article. What are the main points you want to emphasize? Graphics are like surgical retractors: they support the main efforts but should not overshadow them. For example, if you want to emphasize how a new policy reduced the number of surgical site infections at your hospital, you might use a graph to visually show the downward trend in the number of infections over time. Be sure to keep graphics simple and clear. Think about the one primary point you wish the reader to take away from the graphic.

Keep graphics and text in balance. Typically, no more than one-third of your manuscript should appear in the form of graphics. Do not repeat information from the graphic in the text of your article. The point is to supplement the main text—not to duplicate it.

Design your graphics so readers can understand them without first referring to the text. In some cases, however, you may want to expand on, explain, or emphasize selected information in the text. For instance, you could use a table to show the wide variation in outcomes between two types of hand scrub techniques as shown by the bacteriologic test results.

Call out the graphic within the text. For example:

- The studies supporting the use of warming blankets are summarized in Table 1.
- Many studies support the routine use of warming blankets (Table 1).

Be sure to number tables and figures consecutively: Table 1, Table 2, and so on; Figure 1, Figure 2, and so on.

TABLES

Choose a table when you need to present detailed information and show simple relationships between selected items. Tables are ideal to use when exact values are important, such as raw data and statistical analyses. You can easily create tables in software programs such as Microsoft Word.
Two common types of tables are text and tabular tables. A text table contains information that summarizes key points and reduces the number of words in the main article. For example, Table 1 summarizes advantages and disadvantages of using different types of grafts for aortic root replacement.

Table 2 provides an example of a tabular format. English-speaking people usually read from left to right, then from top to bottom, so place primary comparisons horizontally (eg, before-and-after test results, comparisons between study groups). Note that in this table, the primary comparison data between the control and treatment groups for each characteristic are
Table 3

Reason for Use of Flash Sterilization

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument from previous procedure needed and not available</td>
<td>94</td>
<td>77.7</td>
</tr>
<tr>
<td>Dropped single item</td>
<td>10</td>
<td>8.3</td>
</tr>
<tr>
<td>Torn wrapper</td>
<td>4</td>
<td>3.3</td>
</tr>
<tr>
<td>Indicator failure as noted by a reject on the chemical indicator strip</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>Other</td>
<td>12</td>
<td>9.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>121</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

In Y Leonard et al, “Evaluating use of flash sterilization in the OR with regard to postoperative infection,” (Table 2) AORN Journal 83 (March 2006) 675. Reprinted with permission from AORN, Inc, Denver.

Figure 1 • Sample line graph showing a hypothetical comparison between treatment and no treatment. The vertical axis represents the dependent variable and the horizontal access represents the independent variable.

Table sections. Key parts of a table are the title, headings, body or data fields, and footnotes (Table 3). Titles should be short, descriptive phrases as opposed to complete sentences. For example: “Comparison of Purposes of Tables and Figures.” Put the title at the top of the table. For a table that lists study data, the sample size should be included in the table when applicable (eg, N = 126).

Tables may have column or row headings or both. All heading titles should be concise. Column headings should be in bold type. Row headings, also referred to as the “stub” section of the table, are listed in a column on the left-hand side of the table and should also contain units of measure as needed. For example, body mass index would be listed as kg/m².

The body of the table consists of the data fields or text. In a tabular table, each data point should be in a separate cell, and each cell should have a data point, even if it is “0” or n/a (ie, not applicable or not available). Align the data entries, and use the fewest decimal places necessary to reflect the precision of the data collected. Independent variables are placed in the row headings section, with dependent variables in the data fields. Provide the statistical values for any correlations made.

Footnotes may give a citation for the source of a table, or they may be used to explain exceptions or provide additional information. A common table footnote is definition of the P value used to determine significance in a study (eg, *P < .01).
**Graphs**

Graphs are ideal for showing trends and patterns and when the exact values are not of primary importance. They provide an efficient way to show support for a conclusion made in the text. More important, they have a visual impact that cannot be achieved with a table. For example, if you want to show how an intervention rapidly and effectively reduced surgical site infections, a graph will show this with more “punch” than numbers in a table.

Unlike table titles, figures titles should be placed under the figure. Graphs often can be created using PowerPoint or Microsoft Excel. Common types of graphs are line, pie, and bar graphs.

Line graphs show how the relationship between quantitative variables changes over time (Figure 1). The dependent variable is on the vertical axis and the independent variable is on the horizontal axis.1

Pie graphs show relationships between the components of a whole. Percentages often are rounded in pie graphs, so pie graphs are not typically used when exact numbers are crucial. Colors or shading are used to differentiate the “pieces of the pie” (Figure 2).

Bar graphs are used to compare amounts, frequencies, or magnitude of data.1 Such graphs can be either vertical (Figure 3) or horizontal in orientation. Note how the figure caption clearly explains the purpose of the figure. As

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Figure 2 • Sources of continuing education for nurses. (Note: data are fictional).

Test elements answered or performed correctly

In S P Patten, “Educating nurses about correct application of cricoid pressure,” (Figure 3) AORN Journal 84 (September 2006) 457. Reprinted with permission from AORN, Inc, Denver.

Figure 3 • This graph shows the overall results of the participants’ scores on the pretest and posttest. Bars indicate the number of participants who correctly answered the questions or performed the techniques.
with a pie chart, the bars should be different colors or distinct shades to show different groups.

**Submissions and Permissions**

Whatever type of graphics you use, be sure to follow the author guidelines related to submission. If you want to use a graphic that has previously been published in another source, you need to obtain permission from the copyright owner and send a copy of the approval to the journal that will publish your article. Some journals may limit the number of graphics you can submit, so be sure to check for this in the author guidelines. Most journals, however, accept and even encourage graphics. Some journals, such as the *AORN Journal*, may even have a graphics department to help you develop the right illustrations for your article. Editors make the final decision on the use of graphics based on input from the peer reviewers, importance of the content, effectiveness of presentation, and publication space constraints. Now that you know the basics of graphics, read next month’s article to learn about additional types of illustrations you may find useful.

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**Notes**


**Correction**
