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## On the Table : Form and Function

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## On the Table\* Form and Function

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**Key words:** audiovisual aids; information dissemination; medical writing; planning techniques; tables

The key to success is a solid balance of form and function to deliver the envisioned idea and to generate the ideal user experience.

Nick Finck, Publisher

Tables are often the most eye-catching components of journal articles. To test this premise, open any medical journal. To optimize visual impact, carefully choose and prepare tables to emphasize important points.<sup>1,2</sup> The effort benefits both readers and writers. This review offers practical tips for preparing tables, from preliminary working versions to submission-ready versions (most tips also apply to posters and slides), and references guidelines in journals' instructions to authors,<sup>3–5</sup> review articles,<sup>2,6</sup> and book chapters.<sup>1,7–9</sup>

First, consider whether tables are appropriate.<sup>7,9</sup> Of the three methods for conveying information in manuscripts, graphs are used least frequently because they convey only quantitative information; choose them when trends and patterns are important.<sup>1,8</sup> Text and tables convey information that is qualitative, quantitative, or both. Choose text when relationships are simple and involve few variables, except in posters and slides where tables (and graphs) are preferable. Choose tables when relationships are more complex and exact values are important. Good tables present information more effi-

ciently than text.<sup>1,2,8,9</sup> To test efficiency, visualize the amount of text required to convey the same information and choose accordingly.

Use tables judiciously. They cost more to print than text, and extra tables cause layout problems because they cannot be placed near relevant text. Therefore, publishers often limit the combined number of tables and figures to five or six per manuscript.<sup>4,9</sup>

### THE WORKING TABLE

Create working tables to facilitate note taking.<sup>6,9</sup> Working tables reveal relationships that merit observational statements in the text and indicate the best method for conveying information. The first draft of an original research article usually includes many working tables displaying raw data; some will be converted to text and others will be converted to graphs or combined into fewer tables.<sup>9</sup> Place like elements within one column.<sup>7,8</sup> For example, in a working demographic table for a clinical study, make a column for each characteristic and a row for each patient. Spreadsheet software can then calculate descriptive statistics for data within a column (*eg*, mean age  $\pm$  SD).

The first draft of a review article should include a detailed working table summarizing potentially relevant studies.<sup>6,9</sup> In the fictitious example of a review on miracillin (Table 1), the writer made a row for each study and separate columns for each methodological element and finding. This organizational approach reveals study selection criteria and identifies studies worthy of inclusion in the review. After evaluating the working table, the writer focused on double-blind studies of patients with Anthonisen type I or II exacerbations and omitted less rigorously designed studies. The writer simplified the working table by moving common descriptors from the data field to the title (*eg*, double-blind, randomized, multicenter studies). The writer further simplified the table by summarizing the adverse events in the

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**Table 1—Working Table Summarizing Studies of Miracillin in Adults With Acute Exacerbations of Chronic Bronchitis\***

References†	Study Design	Setting	Anthonisen Type	Patients, Evaluable, No./Enrolled, No.	Drug, Dosage (Duration)	Measure, Miracillin vs Control Drug		
						Primary Efficacy	Other Efficacy	Adverse Events
Jones, 2004	R, DB, MC	Outpatient	I or II	100/120	Miracillin, 10 mg qd (10 d)	Clinical success, 93% vs 83%; p = 0.04	All-cause mortality, 1% vs 1%; p > 0.05	Any, 14% vs 16%; p > 0.05; withdrawn, 2% vs 5%; p > 0.05; diarrhea, 2% vs 6%; p > 0.05
				101/119	Amoxicillin, 500 mg q8h (10 d)			
Smith, 2001	R, open	Outpatient or hospital	I, II, or III	50/60	Miracillin, 5 mg q12h (10 d)	Clinical cure, 50% vs 48%; p > 0.05	Clinical cure or improvement, 95% vs 82%; p < 0.05	Any, 13% vs 20%; p > 0.05; withdrawn, 2% vs 5%; p > 0.05; diarrhea, 4% vs 6%; p > 0.05
				51/61	Ampicillin, 250 mg q6h (10 d)			
Wilson, 2006	R, DB, MC	Outpatient	I or II	250/260	Miracillin, 10 mg qd (10 d)	Clinical success, 96% vs 95%; p > 0.05	Microbiological success, 100% vs 91%; p < 0.05	Any, 14% vs 14%; p > 0.05; withdrawn, 2% vs 2%; p > 0.05; diarrhea, 5% vs 5%; p > 0.05
				249/259	Azithromycin, 500 mg q24h (3 d)			

\*DB = double blind; MC = multicenter; R = randomized; success = cure or improvement.

†Fictitious, not actual, studies, to demonstrate the use of a working table.

text (or could have created a separate table). The final version (Table 2) is more easily interpreted and facilitates comparison of different studies, especially when many are summarized. An analogous approach can be used to organize notes for the “Discussion” section of an original research article; this table is usually omitted from the final draft.

Regardless of the type of manuscript, text and tables should complement, not duplicate, one another.<sup>2,3,7,8</sup> In the miracillin example, the paragraph on efficacy findings might begin with a summary statement and then provide details not shown in the table, as follows:

Miracillin was associated with clinical response rates of at least 93% in adults with Anthonisen type I or II acute

exacerbations of chronic bronchitis (Table 2). The response rate was higher for miracillin than for amoxicillin (p = 0.04) and similar for miracillin and azithromycin. Secondary end points were all-cause mortality rate, which was identical for miracillin and amoxicillin (1% vs 1%, respectively), and microbiological success rate, which was higher for miracillin than for azithromycin (100% vs 91%, respectively; p < 0.05). The safety profile of miracillin was similar to those of amoxicillin and azithromycin as measured by the rates of any adverse events, patient withdrawal due to adverse events, and diarrhea.

The miracillin example also demonstrates an appropriate cross reference to a table. Do not waste words by writing, “Table 2 summarizes the clinical studies of miracillin.”

**Table 2—Final Revision of Working Table Summarizing Double-Blind, Randomized, Multicenter Studies of Therapy With Miracillin, 5 mg Daily for 10 Days, in Outpatients With Acute Exacerbations of Chronic Bronchitis**

References*	Control Drug, Dosage (Duration)	Adults With Clinical Success, No./Evaluable Patients, No. (%)		p Value
		Miracillin	Control	
Jones, 2004	Amoxicillin, 500 mg q8h (10 d)	93/100 (93)	84/101 (83)	0.04
Wilson, 2006	Azithromycin, 500 mg q24h (3 d)	240/250 (96)	237/249 (95)	> 0.05

\*Fictitious, not actual, studies, to demonstrate the use of a working table.

Each table should make a clear point.<sup>1,8</sup> Omit unnecessary data that might overwhelm or distract readers.<sup>1</sup> Some journals, including *CHEST*,<sup>3</sup> limit the number of columns to 10; tables containing text should have fewer.<sup>1</sup> Avoid long tables. If a table will not fit onto one typeset page, split it into two tables, or place an abbreviated table in the article and publish the detailed table on the Web site of the journal.<sup>1,9</sup> Complex tables with subheads spanning multiple columns should be used sparingly because they are difficult for publishers to set and for readers to interpret during slide presentations or in crowded poster sessions.

Organize information within tables logically and sequentially.<sup>1,8,9</sup> For example, in a table summarizing original research articles, organize the citations alphabetically by author or chronologically by year of publication. Add a heading over each column and include the units of measure there instead of in each cell.<sup>1,8,9</sup> Standardize data to the same units of measure. Place data to be compared in adjacent cells.<sup>1,5</sup> Orient the table to portrait, not landscape, layout.<sup>8</sup>

Good tables can be interpreted without reading the text.<sup>1,7,8</sup> Define abbreviations in footnotes or legends, including “NA” (not available, not applicable, or not analyzed).<sup>1,9</sup> If the same lengthy abbreviations apply to multiple tables, add the following footnote: “Study abbreviations are explained in the first footnote to Table 1.”<sup>1</sup> Footnotes can also explain discrepancies (eg, “Percentages may not total 100 because of rounding”) and details too lengthy for the title, column header, or row header.<sup>1,5</sup>

Every table should have a title, which should be brief, specific, and descriptive.<sup>1,3,7,9</sup> Good titles convey the topic succinctly without summarizing or interpreting the results; are written as phrases, not sentences; and are best written after the table and relevant text have been completed. Number tables by order of citation unless there is only one.<sup>1</sup>

#### FINALIZING THE TABLE

Review the instructions for authors of the target journal<sup>3-5</sup> for practical tips, such as whether to place each table on a separate page at the end of the manuscript (between the references and figure legends) or in separate files.<sup>7</sup> *CHEST* recommends checking past issues for guidance on footnotes,<sup>3</sup> including the preferred hierarchy, superscripted letters vs symbols (eg, \*, †, ‡, §, ||, ¶, and #), and other useful details.

Use the table editor of word-processing software to finalize tables.<sup>5</sup> Place each element in a separate

**Table 3—Checklist for Creating Good Tables**

Every table should do the following:

- Convey important information more efficiently than text and complement (without duplicating) the text;
- Make a clear point and be as simple as possible;
- Be organized logically;
- Be self-explanatory and include definitions for all abbreviations;
- Have a short, specific, descriptive title;
- Adhere to the instructions for authors of the journal;
- Be created with the table editor of word-processing software; and
- Be edited for accuracy, understandability, and consistency.

cell, except for paired combinations such as numerator/denominator (percentage in parentheses) and statistic  $\pm$  measure of variability. Avoid using spaces, tabs, and hard returns within cells.<sup>5</sup> Gridlines can be helpful in working tables, but final tables in manuscripts, posters, and slides should have only three horizontal lines, one each below the title, the column heads, and the data field.<sup>8</sup>

Use a checklist (Table 3) to ensure optimal visual impact. Edit tables carefully for accuracy, understandability, and consistency. Ensure that tabular data and terminology are consistent with the entire manuscript including text, abstract, other tables, and graphs.

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