## FIGURES IN ACCEPTED MANUSCRIPTS

Please follow the technical guidelines outlined below for figures in accepted manuscripts. A glossary of terms is provided at the end of this section.

## FIGURE TYPES

• Statistical graphs, charts, and simple diagrams
• Photographic images (color photos, radiographs, ultrasound images, CT scans, MRI scans, electron micrographs, and photomicrographs)
• Illustrations
• Videos

Statistical graphs, charts, and diagrams will be re-created by *JAMA* staff, and labels and indicators will be applied to photographic images according to *JAMA* standards and style. Illustrations will be created by the medical illustration staff in collaboration with the author(s).

## STATISTICAL GRAPHS, CHARTS, AND SIMPLE DIAGRAMS

Files created by vector programs are best for accurately plotting and maintaining data points. Although we are unable to use file formats native to statistical software applications to prepare figures for publication, many statistical software applications allow users to save or export files in vector digital formats (listed below) that we can use directly to re-create statistical graphs. Graphs, charts, and diagrams may be imported or copy/pasted into applications such as Word or PowerPoint for labeling and formatting, but must be accompanied by vector files created by the statistical software application.

• Preferred File Formats (vector files): AI, EMF, EPS, PDF, WMF, XLS.
Native files created by the software application can be exported or saved as one of the above file formats. Caution: Do not cut and paste figure files into different applications to achieve an acceptable file format.
• Graphs and charts saved as image (raster) files such as JPG, TIF, or GIF and imported or copied/pasted into Word or PowerPoint are not acceptable except when accompanied by a vector file in a preferred file format.
• If you are unable to create a digital file, submit a high-resolution print (600 dpi), which will be copied using advanced digital techniques.

## PHOTOGRAPHIC IMAGES

Images created initially in digital format (as with a digital camera) must meet the minimum specifications listed below at the time of creation. Digital files created from prints or slides (images that were originally nondigital) may be acceptable if prepared according to the specifications below. Electronically increasing the resolution of a low-resolution image after creation (digital camera capture or scanning) will result in a poor-quality image. Labels may be added to images *only* on a separate layer from the image in programs such as Photoshop. Photographic images may also be imported or copied/pasted into applications such as Word, PowerPoint, or Illustrator for the addition of labels and formatting and submitted in addition to the unlabeled image file.

Adequate resolution of an appropriately sized image is essential to producing an excellent image in print. Each component of a composite image must meet the minimum technical specifications individually. Digital photographs are most frequently unsuitable for print publication because of inadequate resolution.

• Image Size: Minimum image width: 5 inches (depth is not important).
• Color Mode.
Original RGB color mode for color photographs and photomicrographs. Digital cameras capture images in RGB. Do not change any color settings once the file is on the computer. Do not submit in sRGB or webRGB color modes since this will adversely affect the color of your image.
Grayscale mode for black and white photographs such as radiographs, ultrasound images, CT scans, MRI scans, and electron micrographs.
• Resolution: Minimum resolution: approximately 350 ppi. For reference, the resolution of most Web images is 72 ppi.
• File Formats.
Preferred File Formats (raster files): EPS, JPG (highest quality, least compression), PSD, TIF (no compression enabled).
Unacceptable File Formats (not of reproducible quality): BMP, GIF, PCT, PNG.
Images imported or copied/pasted into word-processing programs such as Word or into presentation software such as PowerPoint are not acceptable, except when accompanied by a raster file in a preferred file format.
• Digital enhancements of photographic images of any type must be clearly identified in the legend as electronically enhanced or manipulated.
• For color accuracy, especially when correct color is critical (such as in photomicrographs), provide the image printed on photographic stock. This will be used as the reference for correct color.

Scanning Instructions: For conventional media (35-mm slides or photographic prints), follow the above specifications. Do not adjust the images manually; all calibration will be performed in-house according to our printer specifications. Alternatively, submit original media (35-mm slides, photographic prints, or glass slides) for in-house scanning.

## ILLUSTRATIONS

All illustrations for *JAMA* articles are created by the *JAMA* medical illustration staff in collaboration with authors. Provide conceptual sketches in any common file format, text descriptions, literature references, and a working title and legend for development of the illustration.

## VIDEO

Provide the video file(s) in a format listed below and a still image representative of the video content to use on the associated navigational Web page. Author assistance will be requested during preparation (editing, optimization) of the final video. A raw version of video content without labels and transition sequences may be requested.

• Preferred File Formats: MOV (QuickTime), MPEG. No or minimal compression.
• Video Dimension: 800 pixels wide and/or 600 pixels deep (minimum). Larger dimension is preferable.
• File Size: 200 MB (maximum).

## CONTACT INFORMATION

For additional questions, please contact Ronna Henry at (312) 464-4719 (ronna.henry@jama-archives.org). Submit high-resolution printouts, photographic proofs for color calibration, and original media for in-house scanning to Ronna Henry, MD, *JAMA*, 515 N State St, Chicago, IL 60654.

## GLOSSARY

**AI:** Native file format of Illustrator (Adobe).

**BMP:** Windows bitmap, the file format built into Windows and native to Microsoft Paint; supports 1-24 bit depth and index color.

**Compression:** Minimizing the size in bytes of a graphics file without degrading the quality of the image to an unaccceptable level. See also lossy, non-lossy, and LZW compression.

**dpi/ppi:** dpi stands for dots per inch; it refers to a measurement of output device resolution; ppi stands for pixels per inch; it refers to units of measurement for digital images. The terms dpi and ppi are often used interchangeably.

**EMF:** Enhanced MetaFile, the 32-bit file format created by Microsoft Windows.

**EPS:** Encapsulated postscript, the file format created by Adobe with vector (line art data only; therefore, it can be scaled with no loss of quality) and raster (bitmap data that cannot be scaled or edited) options; EPS files normally include a low-resolution screen preview.

**GIF:** Graphics Interchange Format, a lossy compression algorithm; supports 1-8 bit depth, 256 index color only; suitable primarily for Web images.

**Grayscale:** A continuous-tone image comprising black, white, and gray data only.

**JPG (or JPEG):** Joint Photographics Expert Group, a lossy compression algorithm that allows you to adjust the amount of loss, trading between compression and quality.

**Lossy:** Image compression that functions by removing minor tonal and/or color variations, causing visible loss of detail at high compression ratios.

**Non-lossy:** Image compression without loss of quality.

**LZW compression:** Lempel-Ziv-Welch (not a file format): Non-lossy compression algorithm that allows for compression of image data without loss of quality.

**MOV:** QuickTime video file format.

**MPEG:** Moving Pictures Expert Group, a digital video file format.

**PCT (or PICT):** Mac graphics file format most commonly used for bitmap images.

**PDF:** Portable Document Format, the file format of Adobe's Acrobat specification.

**PNG:** Portable (Public) Network Graphic file format.

**PSD:** Photoshop (Adobe) file format.

**Raster:** A digitized image that is mapped into a grid of pixels; therefore, the image is resolution-dependent; the color of each pixel is defined by a specific number of bits.

**RGB:** An additive color model based on red (R), green (G), and blue (B) light; RGB is used by computers, televisions, and film recorders to display colors; mixing equal amounts of red, green, and blue light will produce white light.

**sRGB:** A color profile with a very limited amount of color values, primarily designed for vivid images displayed over the Internet. Not suitable for print reproduction.

**TIFF (or TIF):** Tagged Image File Format, a common and portable file format for saving bitmap scans; does not compress data but offers LZW compression option; useful for moving files between Macintosh and PC platforms.

**Vector:** Resolution-independent graphic image that can be defined by mathematical equations and scaled with no loss of quality.

**webRGB:** A color profile with a very limited amount of color values, primarily designed for vivid images displayed over the Internet. Not suitable for print reproduction.

**WMF:** Windows MetaFile, a file format created by Microsoft Windows.

**XLS:** Microsoft Excel file format.