

Kathy Stern: Graphic Arts Director for the *New England Journal of Medicine*

Elizabeth Bales

Kathy Stern, the Graphic Arts Director at the *New England Journal of Medicine* (NEJM), is familiar with the adage “A picture is worth a thousand words.” Over her 29-year career with NEJM, Kathy has drawn and overseen countless images telling myriad stories and has thus contributed millions of “words” to the information shared with NEJM readers. Images range from in-house illustrations drawn by medical illustrators, to line art graphs, photographs submitted by physician-authors, still images captured from videos created in-house, interactive online elements, and more. In this interview, Kathy discusses how she started in the production department back in the days of paste-up layout and now oversees a department of more than 20 employees working with state-of-the-art digital tools.

Science Editor: How did you get started with your career at the *New England Journal of Medicine* (NEJM)?

Kathy Stern: I started out working in a production facility that wasn’t even part of the editorial office. We communicated with a production coordinator in Boston (where the NEJM editorial offices are located) who worked directly with the editors. NEJM was one of several products that the production facility of the Massachusetts Medical Society served, but it was, by far, the biggest product.

It was a massive amount of detail work. Everything was done with manual layout with precision cutting knives, acetate, and wax. We would create 14 different proofs that went out to 14 different people. Our main focus was the level of detail; everything had to be exactly right. If you found an italic period, you fixed it; you’d redo the entire page because of an italic period.

We moved things half a point if the editorial office said to. Every preposition, every punctuation mark, every half point had to be the way the editors said. Back then, we didn’t query the editors directly. We queried a coordinator,

who filtered the queries to the manuscript editors, who then filtered the queries to the deputy editors. We spent a lot of time doing multiple quality assurance passes. In addition, we didn’t have in-house graphics; we published illustrations that had been supplied by authors (Figure 1, available online)¹ rather than drawing them ourselves.

SE: Now, you’re in charge of all the graphic arts at NEJM. You’ve come from doing the tiny little details and the italic periods to working on a much larger scale. What has this shift been like?

Stern: Essentially, we still do worry about the italic periods and the tiny details. I first moved to the editorial office kind of as a fluke. Before I came to NEJM, I had worked as an illustrator and graphic designer for 12 years in architecture and ad agencies and decided that really wasn’t the field that I wanted to be in (especially ad agencies!).

In fact, I had decided to go to medical school and was taking night classes in the Harvard Extension School pre-med program. I noticed a job advertisement for being a proofreader at NEJM, which I thought would be a great way to make money to support my attempt to go to medical school.

I was working at NEJM because I was interested in medicine—not because I was interested in italic periods—but one day, someone needed a birthday card for one of the editors, and they asked the people at “comp,” as they used to call us (for “compositors”), to make the card. I was an illustrator, so I drew it, and the people in the editorial office really liked it. It was a picture of a pink Cadillac driving away into the distance, kind of retro.

The next thing I knew, the editor-in-chief called me, saying, “I have a job for you.” He wanted me to illustrate a B-cell for an article about HIV, which was a huge issue in the early 1990s. I did the illustration with a very rudimentary version of Adobe Illustrator. It was a circle with a gradient and a square; the receptors were basically all squares and circles. Even doing gradient shading was a big deal. With this tool, I couldn’t see what I was drawing; I had to move things around, click a button, and wait to see it render. It was a laborious process to create a simple drawing. But the editors liked it, and they asked me to do another one. Finally, I drew quite an elaborate version of a DNA molecule (Figure 2).²

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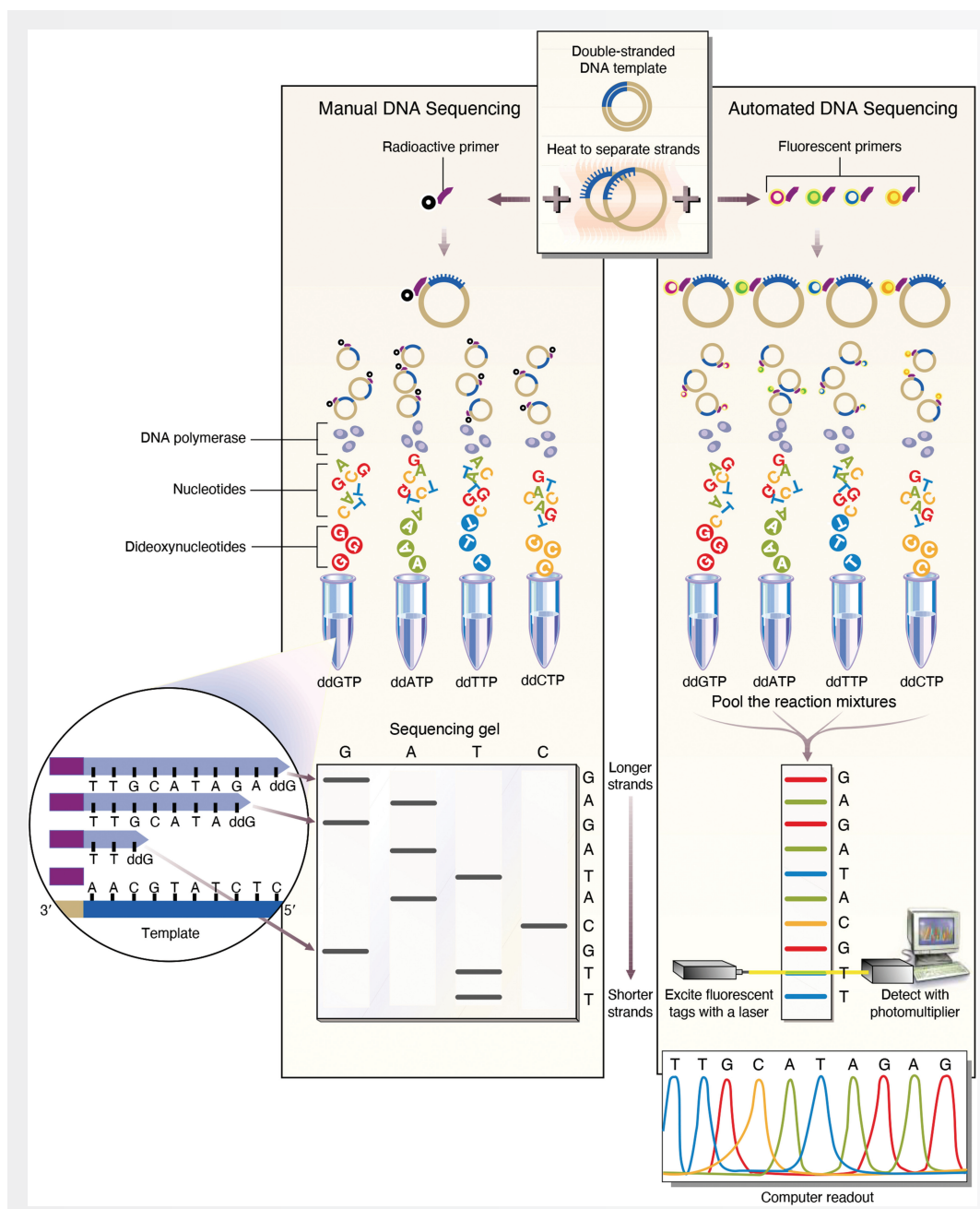


Figure 2. Early medical illustration drawn in-house (1995). This early in-house-created illustration showing how DNA is sequenced appeared in an NEJM Molecular Medicine article by Rosenthal.

Those drawings look rudimentary now—you could probably get a computer to make one if you pressed a button. Back then, it took days and days and days to draw this molecule. Fortunately, the editor-in-chief loved that molecule, and I was asked to join the editorial office. My medical background at that time consisted of those pre-med courses—nothing like the usual medical illustrator training.

There were no other graphic artists or illustrators in the editorial office. I had a tiny office, like a broom closet, with a desk and a computer. I spent a lot of time in the Harvard Medical School Countway Library (the building that houses NEJM), down in the stacks looking at anatomical references and other journals. It was important to be in the library and working directly with the editors. Every time there was a medical illustration, which was rare, the editors conferred

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with me. They would set up a special meeting and describe what the illustration was about, and I'd give them paper drafts. It was such a different process from today. With the digital tools that are available now, we can create quite sophisticated illustrations (Figure 3, available online).³

SE: How many people do you currently oversee in your department?

Stern: We have 15 full-time employees, plus about 6 part-time employees, mostly working on videos. The changes have been dramatic. Not only did we become totally involved in the editorial process, but as the need for illustrations grew, we were the only production team involved in the developmental aspect of creating content. In the past, we always did it before the article was accepted. Once the article was accepted, my job became like a production job.

The website started being developed around the same time that we started having regular medical illustrations, so the illustrators became involved in the technical part of making images for print, which was a different process from preparing images for the Web. The department grew on both ends. I hired medical illustrators as soon as I could, as well as people on the technical side for production.

I understood print production really well but not Web production. Once we started learning how to handle Web production, it exploded from there, because once we got online, we started getting involved in multimedia. Multimedia meant the involvement of even more people in both development and production.

If we were still just doing print medical illustrations, we would absolutely still employ several accomplished medical illustrators who understand medicine. I hired these people because I was a graphic designer, an illustrator, but not a person with a strong medical background. When I started doing medical illustrations, I realized that it was a lot more fun and a lot easier than going to medical school <laugh>. I continued taking night classes in topics like molecular biology, but I wasn't worried about getting into medical school.

SE: What types of graphics and multimedia are you managing, handling, and developing?

Stern: The graphic arts department handles two kinds of graphics: in-house illustrations are developed in conjunction with authors and the deputy editors, and the other graphics type involves redoing submitted material, typically black and white line art. Line art is also in color now, so "line art" is a kind of a misnomer, but that's what we call it. There was a completely different technical process for line art than for color illustrations.

When we had paper layout that went to the printer, the printer would send back elaborate proofs, and we would have what seemed like 5000 review stages. But when we got to desktop publishing, the whole process changed. It

became easier to integrate color illustration. In the old days, we had to know exactly which pages included color images. We weighed all the information in advance and pasted up the pages in an elaborate way. The printer made four-color plates, and it was expensive and time-consuming. These days, you can make a four-color plate by pressing a button, so we put color on practically everything.

NEJM gets new editors-in-chief fairly seldom. When we do, in my experience, having been here nearly 30 years, each new editor has ideas for updating the journal. When I started, the editor wanted to spearhead a print redesign, but it was also the beginning of the website. As the Graphic Arts Director, I would sit in on meetings, and designers would come in and say, "Let's have more color pages, let's have more drawings, let's create something that's more visually appealing than the old, very simple way of medical and academic journals." Well, academic journals aren't really *Vogue* magazine! We were working within the constraints of inexpensive web presses, but the designers wanted to create something more appealing. That's one reason we started using more color.

The other reason is that we started recreating author-submitted graphics to match our specifications. We never touch the data, but we change typefaces and make the font a size that looks good in print, so the graphics become more consistent. Starting in the 1990s, authors began sending in videos and screenshots of the medical imaging they saw on their computer.

There was more discussion of how we could show other kinds of medical imagery. We had to start creating graphics that could be viewed online. The Web is much more visual than print. We needed lots of previews, little thumbnails for every element. This process changed how graphic NEJM was.

As the Web grew in popularity and medical technology became more digitized, it became important to represent technologies such as ultrasonography online. We started doing rudimentary video editing to show author-submitted medical images online.

For Videos in Clinical Medicine,⁴ we work with groups of authors who create videos specifically for us. So, we had to learn video technology and captioning technology.

Several years ago, the editor-in-chief introduced the idea of publishing video summaries of research articles. These "Quick Take" videos⁵ became quite popular and involved a lot of video-creation technology.

Some multimedia elements are hard to use on cellphones. But it's pretty much a story of technology in medicine, in publishing, and in social media—and in life. So much is conditioned by what people are using and by what clinicians are using. Since our audience is primarily clinicians, we stick to what they use. At this point, everyone uses cell phones and handheld devices.

For the full interview, visit this article at <https://www.csescienceeditor.org/article/kathy-stern-graphic-artsdirector-for-the-new-england-journal-of-medicine/>