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Make Sure Your Expert Speaks Our Language

By Timothy S. Tomasik and Jordan Lebovitz – February 28, 2013

Effective expert witnesses that consistently provide compelling opinion testimony that persuades juries all share a common trait. They understand the elements of the foundational questions that are required to introduce into evidence their testimony explaining their investigations and conclusions to a jury. By the same measure, qualified trial counsel must instruct retained expert witnesses as to the required elements for all demonstrative and visual evidence used at trial.

Demonstrative evidence not only enhances your position in the courtroom, but it also allows the members of the jury to visualize what the witness is testifying about. In jury trials today, it can be the lynchpin in securing that multi-million-dollar or not-liable verdict. It is this type of evidence that allows the juror to take an expert witness's often technical terminology and apply it to images, diagrams, and computer-generated animations.

Expert witnesses who are conversant with the basic legal principles that govern the admissibility of their testimony are more likely to persuade a jury at trial. Having a working understanding of the fundamental, legal, and evidentiary principles that govern the admissibility of expert testimony is critical to any expert's success.

Admissibility of Demonstrative Evidence
For the members of the jury to even see this demonstrative evidence, though, the court must deem it to be admissible as such. Demonstrative evidence has been admitted in American courts as early as the 1870s. See *Shook v. Pate*, 50 Ala. 91 (1873). Today, lawyers should be concerned about two main factors when attempting to introduce demonstrative evidence. The evidence must be *relevant*, and a *fair and accurate depiction* of the oral testimony. *Schuler v. Mid-Central Cardiology*, 313 Ill.App.3d 326 (2000); see also *U.S. v. Salerno*, 108 F.3d 730 (7th Cir. 1997).

Is It Relevant?
To pass the relevancy test, expert witnesses and their attorneys need only show that the demonstrative evidence would *help the jury understand* substantive evidence that is being offered. *See id.* Under the traditional test set out in the Federal Rules of Evidence, as well as adopted by many state legislatures and thus state courts, demonstrative evidence may not be considered relevant unless it makes any fact of consequence to the action more or less probable. *See* Fed. R. Evid. 401; IL. R. Evid. 401. However, the court's relevancy test should be an easy obstacle to overcome for expert witnesses. Demonstrative evidence that can explain how a stent is actually placed into the heart, how a train platform is constructed, or how the rudder on a commercial jet is manufactured would inherently be relevant to help the jury understand that substantive oral testimony.

An expert witness should be prepared to answer the following questions that establish whether the evidence is indeed relevant:

> Do you recognize this document/image/graph/etc.?
> Would use of this evidence *help you explain your testimony* to the jury?
> How would this help you explain your testimony to the jury?

If each question is answered in the affirmative, the relevancy hurdle should be overcome.

Is It a Fair and Accurate Depiction?
Even if the evidence is deemed relevant to a witness's testimony, the evidence must be a *fair and accurate depiction* of that scene of the accident, that injury to your client's arm, or that airplane rudder. This is the crucial stage for all demonstrative evidence. See *Schuler v. Mid-Central Cardiology*, 313 Ill.App.3d 326 (2000). The demonstrative evidence must accurately depict what the witness's oral testimony is. Each of the various types of typical demonstrative evidence requires separate evidentiary foundation to be laid to let the judge know it is a fair and accurate depiction.

Photographs. For photographs, which include stills and X-ray film, foundation is the same in both federal and state court. See Fed. R. Evid. 1001(2); *United States v. Van Wyhe*, 965 F.2d 528, 532 (7th Cir. 1992). The witness must testify that he or she believes the photograph *fairly and accurately* represents the site, person, and/or object depicted. *Id*. That witness need not be the individual who took the photograph; he or she only needs to be able to testify truthfully as to its depiction. Paul M. Sandler & James L. Archibald, *Model Witness Examinations* § 4a (3d. ed.2010); *See United States v. Abayomi*, 820 F.2d 902, 908 (7th Cir. 1987); *United States v. Wilson*, 719 F.2d 1491, 1495 (10th Cir. 1983).

Videos. For videos, the foundation is fairly similar to photographs. The witness should be prepared to answer questions about the creation of the video and if any editing was done, but that should not deter from its overall admissibility. *Donnellan v. First Student, Inc.*, 383 Ill.App.3d 1040 (2008); *United States v. Richardson*, 562 F.2d 476, 478–79 (7th Cir. 1977). Similarly, the videographer need not be an expert in his or her field to testify on videos. See *Supra* at § 4b; See also *United States v. Abayomi*, 820 F.2d 902, 908 (7th Cir. 1987). The witness should be ready to answer questions regarding how the video was taken, when it was taken, who took it (if not the witness himself or herself), and what type of lens/zoom the camera had.

An example of videotaped demonstrative evidence is a day-in-the-life video. Illinois courts have recognized that day-in-the-life videos are demonstrative evidence and not substantive. See *Donnellan*, 383 Ill.App.3d at 1053; *Velarde v. Illinois Cent. R.R. Co.*, 354 Ill. App. 3d 523 (2004); *DeBiasio v. Illinois Cent. R.R.*, 52 F.3d 678 (7th Cir. 1995). In *Donnellan*, the plaintiff's wife was able to lay the proper foundation for a day-in-the-life video being offered at trial even though she was not present at the time each frame was filmed. *Id*. at 1053. For day-in-the-life videos, a witness should be prepared to offer testimony as to the accuracy of what is being depicted. Of course, the opposing party can still try to object to its admissibility under other evidentiary grounds. See Fed. R. Evid. 403; see IL. R. Evid. 403.

Diagrams/models/maps. Diagrams, models, and maps have nearly the same foundation requirements as videos and photographs. Generally, diagrams, models, and maps are admissible at the sole discretion of the trial-court judge if they *fairly and accurately* represent what they are purported to depict. *United States v. Hardin*, 710 f.2d 1231 (7th Cir. 1983); *Lake County Forest Preserve Dist. v. Vernon Hills Development Corp.*, 85 Ill. App. 3d 241 (1980). Tangible and anatomical models, such as a replica heart or a skeletal model, are also admissible at the discretion of the trial court. See *Flanagan v. Redondo*, 595 N.E.2d 1077 (Ill. App. 1992). The foundation for an anatomical model of a knee or an arm is typically the same as a photograph or a videotape in that it must only be a *fair and accurate* depiction of a knee or an arm. See *Id*. Notably, when the model depicts the anatomy in question, such as the plaintiff's knee or arm, then a stricter standard of review is required. See *Id*. Opposing counsel is much more likely to object to a depiction of the actual anatomy in question rather than a stock model.

This type of demonstrative evidence can be used to highlight a witness's location at the time of an accident, belief as to what his or her property line was, or to establish the basis for an expert witness's opinion. If the diagram is not to scale, the witness should be able to testify to a demonstrative if it *fairly and accurately* depicts the scene or image. However, if the diagram *is* to scale, then the witness must be prepared to answer the following types of questions:

> How did you prepare the diagram/model/map?
> What is the scale?
> Can you describe for the members of the jury what "to scale" means?
> Would showing the members of the jury this diagram *help in explaining* your investigations and opinions in this case?
> Is this model (helmet, wrench, bottle, etc…) is the *same or substantially similar condition* as the original?

An example of expert testimony using a to-scale diagram or model is scaffold or platform design. If admitted as an expert witness under either the weaker *Frye* (Illinois) standard or the heightened *Daubert* (federal) standards, these witnesses should be prepared to go into much more detail regarding the creation of their map/model if it is part of the basis of their opinion. See Fed. R. Evid. 702; IL. R. Evid. 702; *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923); *Daubert v. Merrell Dow Pharmaceuticals, Inc.,* 509 U.S.

579 (1993). An engineering expert who created a to-scale diagram of a train platform must be able to testify as to his or her background in creating platform models, the scale of this particular model, and that it *accurately* depicts the construction of a platform. It is essential to remember that the trial-court judge has discretion when admitting diagrams or models like described above as irrelevant, prejudicial, or simply not reliable. See Fed. R. Evid. 401, 403, 901.

Exceptions. As seen above, nearly all demonstrative evidence must be both *relevant* and a *fair and accurate* depiction of the event/scene/injury. However, in some rare instances, a photo or other demonstrative evidence may be shown to the jury if it is not a *fair and accurate* copy to emphasize what is *different*. See *People v. Flores*, 406 Ill. App. 3d 566 (2010); *United States v. Stearns*, 550 F.2d 1167 (9th Cir. 1977). For instance, if a photograph depicts a parking lot with no ice visible in a slip-and-fall case, a witness who testifies that there *was* ice present at the time of the incident may testify to non-accurate demonstrative evidence. *Id*. Further, if there is an object depicted in the demonstrative evidence that is *not* a correct representation, the witness must testify to that change and/or alteration to lay proper foundation. *See United States v. White*, 454 F.2d 435, 438 (7th Cir. 1971); *Lubanski v. Coleco Indus., Inc.*, 929 F.2d 42, 47 (1st Cir. 1991). If that changed condition depicted in the photograph or image materially changes the identity of the original image, it may not be admissible. *Id*.

Admissibility of Computer-Generated Images and Animations
Computer-generated images and animations are among the fastest growing pieces of demonstrative evidence in the modern courtroom. This type of interactive demonstrative evidence can help place the jury in a witness's shoes—a very effective winning trial technique. Picture having two pieces of demonstrative evidence; one is a photograph of the scene after the accident, and another is an almost realistic computer-generated animation of the scene before, during, and after the accident. It is easy to see which one a smart attorney would use. However, because this evidence is so powerful and sometimes too (un)realistic, Illinois courts are sometimes hesitant about its admissibility.

Animations versus simulations. The main distinction you must make for computer-generated demonstratives is between animations and simulations. However, both are typically only used by experts in a particular field, and thus their testimony is governed by the rules of evidence. See Fed. R. Evid. 702; IL. R. Evid. 702. Animations typically are created by an expert in the field to re-create an accident or scene using his or her expert knowledge and opinion on the subject. See *supra* at § 4c; *Clark v. Cantrell*, 529 SE2d 528 (SC 2000). This type of demonstrative evidence can be used to re-create a car accident from multiple view points, a visual depiction of triple-bypass surgery, or an almost life-like rendition of train-platform construction.

Simulations, however, typically take reliable scientific data and use computer programs to recreate experiments or events. *See Id*. This type of computer-generated evidence is usually offered as substantive evidence because of the scientific variables behind its creation and application. *See Id*. However, because this type of evidence requires validation of physical and scientific data, it is more strategic to focus on computer-generated animations that a juror will more likely be able to see.

***Daubert* factors and expert admissibility.**A lay person will usually not be allowed to testify as to computer-generated animations following the tests set out under both the Illinois and federal evidentiary rules. *See* IL. R. Evid. 702; Fed. R. Evid. 702. The plain language of the federal rule states that if "scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise." Fed. R. Evid. 702. Computer-generated animations that depict a grain-bin explosion, a medical procedure gone awry, or the construction of a high-rise scaffold all fall under this umbrella of expert testimony.

The most highly followed test for general-expert admissibility lies in *Daubert v. Merrell Dow Pharmaceuticals*. 509 U.S. 579 (1993). This test set forth a variety of factors for general admissibility of expert testimony including: 1) whether the technique can be and has been tested, 2) whether the technique or theory has been subject to peer review, 3) the known or potential rate of error, and 4) the general acceptance of a technique in the relevant community. *See Id*. If the expert's testimony meets these factors, either side can introduce expert testimony regarding its opinions and conclusions as to "what happened." Bear in mind this is still within the sound discretion of the trial judge to allow this testimony. However, this is

where animations can really have a powerful effect on a juror because it takes that expert's usually scientific and potentially boring opinion and turns it into reality. For some jurors, it can have the "what if it was me" or "how is that possible" effect—clearly the desired effect of using such evidence.

Importantly, although *Daubert* is the standard set forth in a majority of jurisdictions, Illinois is one of the rare states that still follows a lower level of admissibility standards, set out in *Frye v. U.S.* 293 F. 1013 (D.C. Cir. 1923); see also *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 199 Ill. 2d 63 (2002). This test really only looks to see if the expert testimony is generally accepted in the relevant scientific field. *Id*. *See also People v. McKown*, 236 Ill.2d 278 (2010). For trial attorneys in Illinois, this standard of general expert admissibility is extremely helpful for those who want to introduce novel scientific demonstrative evidence—such as computer-generated animations.

Regardless of the test that the trial court uses, though, there are a variety of different hurdles that must be overcome before animation evidence is introduced at trial. Both the *Daubert* and *Frye* standards set out the requirements for the admissibility of expert testimony, but it does not mean the trial judge cannot properly exclude visual depictions of that testimony.

Test for computer-generated animation admissibility. Although the Supreme Court test set out in *Daubert*, as discussed above,generally controls expert admissibility, to introduce computer-generated demonstrative evidence with that expert requires a further layer of review. One leading opinion on the admissibility of computer-generated animations is the South Carolina Supreme Court's decision in *Clark v. Cantrell*. 529 SE2d 528 (SC 2000). The *Clark* court set out four factors for admissibility: 1) it is *authentic*; 2) it is *relevant*; 3) it is a *fair and accurate* representation of the evidence to which it relates; and, 4) the probative value substantially outweighs the danger of unfair *prejudice*, confusing the issues, or misleading the jury. *See Id*.

Each of these factors points to the court's requirement that the animation be reliable and not prejudice the jury. See *Van Houten-Maynard v. ANR Pipeline Co*., 1995 WL 317056 (N.D. Ill. 1995). Illinois state courts, however, have traditionally recognized these factors, but still give a wider range of admissibility than the *Clark* court would purport. See *Rub v. Consolidated Rail Corp*., 331 Ill. App. 3d 692 (2002); *Lowe v. Norfolk and Western Railway Co.*, 124 Ill. App. 3d 80 (1984); *Webb v. Angell*, 155 Ill. App. 3d 848 (1987).

The main focus for the admission of computer-generated animation is that it is a *fair and accurate* portrayal and that it would not overly prejudice the jury. Illinois courts are weary about letting in animations that are not shown to be an accurate representation of the events/scene at issue. In *Rub*, an Illinois appellate court upheld a trial judge's decision to bar a computer animation of a railroad crossing for its lack of reliability. *Id*. That court looked to not only the animation itself, but to the expert witness who prepared that animation in determining that there were no measurements taken, no quantification of error rates, and that the animation was based on the expert's subjective recollection that the animation looked the way it should. *Id*. These methods of generating this animation were not sufficiently reliable to be admitted into an Illinois court and therefore all experts must be prepared to testify as to the following types of questions:

> Can you describe your background in creating these types of animations?
> How many computer-generated animations have you created in your career?
> Do you take measurements at the scene/hospital/location?
> How do you take those measurements?
> What method do you use to properly apply these measurements to the animation?
> Would showing the members of the jury this animation *help in explaining* your investigations and opinions in this case?

Thus, it is essential that the expert witness be both knowledgeable and precise in his or her calculations because trial courts will always look to these first to determine if it is a fair and accurate depiction of the events.

However, even if the measurements are perfect, the witness is experienced, and the animation is *authentic*, a trial court judge still has the discretion to bar its admissibility based on its *prejudicial effect*. The last defense for both parties to have a computer-generated animation barred is because it is misleading, confusing, or will detract the jury from the real issue. *See* Fed. R.

Evid. 403, 702; IL. R. Evid. 403;702. Although the South Carolina Supreme Court has offered a stricter standard for admissibility because of undue prejudice, by saying that the probative value must substantially outweigh the prejudicial effect, Illinois courts, both state and federal, have not yet adopted this standard. *See Supra*; *see also Rub*, 331 Ill. App. 3d 692 (2002); *Lowe*, 124 Ill. App. 3d 80 (1984); *Webb*,155 Ill. App. 3d 848 (1987). Instead, to determine if the computer-generated evidence overly prejudices the jury, Illinois courts look to the traditional balancing test that includes unfair prejudice, confusion of the issues, or misleading the jury. *See* Fed. R. Evid. 403; IL. R. Evid. 403.

When looking closely at the rule, however, the dangers of prejudice really look to the other factors of admissibility: *relevance*, *accuracy*, and *authenticity*. Picture a computer-generated animation that depicts an electrical fire in the plaintiff's home. The plaintiff's expert engineer prepared the animation to scale as she has done for many other similar cases. The animation shows a fire starting in the basement of the plaintiff's home and then spreading quickly to engulf the entire house, trapping the plaintiff. The defense can dispute a variety of different variables here: the time it took the fire to spread (*fair and accurate* depiction), the location of the plaintiff when the fire started (*authenticity*), or the visual depiction of fire engulfing the plaintiff (*prejudice*).

The dangers of unfair prejudice and confusion are the focal point for all computer-generated animations like this because it simply may look too realistic—the proponents' goal. Both plaintiffs and defense attorneys should be weary of these specifications, and then prepare their witnesses to answer very specific questions about both the creation of the animation and how realistic it actually is.

Conclusion
The evidentiary principles that govern the admissibility of expert opinions and the use of demonstrative evidence at trial are fundamental. It is mandatory for seasoned trial counsel to spend adequate time educating retained experts of these principles to ensure the effectiveness of their testimony at trial. A failure to do so can result in otherwise admissible and compelling testimony from being introduced into evidence, leading to a potentially adverse result at trial. Experts who can confidently testify to the foundation requirements of photographs, models, diagrams, artifacts, and videos greatly enhance the probability of a favorable verdict. Equally true, a failure to grasp these fundamental concepts can result in disaster at the time of deposition or trial. When an expert is firm in his or her testimony in support of the use of all demonstrative exhibits, he or she is in control of the critical evidence and visual aids that ultimately support his or her testimony.

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