

## Lights! Camera! Action! The Making of TIOBC and “Lab Wars III”

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May 29, 2008—the day it all began. I had been conducting a systematic search of campus buildings over the past year to verify the presence of BSL-2 laboratories. On this particular day I was on the second floor of the Food Science and Nutrition building. I found a closed door with all the requisite signs for a BSL-2 lab (one supposedly working with food-borne pathogens as indicated by the hazard sign) with a room number that was not on my list of currently approved BSL-2 labs. Upon entry, I found three students hard at work: heating their lunches in the microwave, eating cookies at their work stations, drinking cans of soda, and wearing shorts and flip flops. The shock of this incident left an indelible mark.

Fast forward to July when I received an e-mail from Mike Durham of LSU asking if MSU would like to contribute some items for display at the CSHEMA (Campus Safety, Health and Environmental Management Association) conference in St. Louis advertising the 2009 conference in New Orleans. Sure, I could send some pictures, ball caps, and t-shirts. So began a search of the MSU web site where I ran across videos that were used during nationally televised football games or as public relations spots. Wanting to string a few of these together into one DVD, I asked around for a company in the area that could create a DVD. VideoMagicOne, a full-service video production company specializing in corporate training and safety films, was more than happy to help. I met with owner and CEO, Andy Bryant, and to paraphrase Humphrey Bogart in *Casablanca*, said, “Andy, I think this is the beginning of a beautiful friendship.”

### Recognizing the Need

In the process of evaluating MSU’s biosafety program, a key issue was the successful transfer of information to the users. The Office of Regulatory Compliance (ORC) had struggled with credibility and effectiveness over the years as we were understaffed, underfunded, and needed more support from our senior lead-

ership. That, however, changed with the hiring of a new Vice President for Research who made a commitment early on to Regulatory Compliance. Our staff numbers increased, a separate biosafety budget was generated, and an embryonic environmental health and occupational safety initiative was implemented. As a result of these changes, ORC had many meetings exploring various avenues of information dissemination: revamping the web site, developing internal listserves, offering a daylong summer workshop for PIs (principle investigators) covering all aspects of compliance (a free, catered BBQ lunch certainly increased participation), submitting articles to various newsletters, attending new faculty and graduate student orientations, etc.

Being a movie and YouTube junkie, I had the idea of making a short informational movie to play at ORC functions, based on the format of the promotional videos submitted for the CSHEMA conference. And so was born *The Importance of Being Compliant* (available at [www.youtube.com](http://www.youtube.com) and affectionately known as TIOBC). The 3-minute movie received such a great reception at MSU functions and was so much fun to make that I felt a short movie format might be a good way to reinforce safety material that may otherwise be less than exciting although important.

So what topic would lend itself to a movie format? Flashback to May 29. The basic tenets of working in a microbiology or biomedical lab are the standard microbiological practices (SMPs) upon which subsequent containment practices are based. This became the subject of the new movie.

### The Production

The production of both movies was based on project management principles: initiation, planning and design, execution, monitoring, and closing. The need for training and a novel way to broadcast information were the initiating factors. Our modern pop culture is so visually oriented to music videos, gaming programs, and action movies that I felt a short, graphic, to-the-point movie would capture short attention spans and reinforce critical concepts.

The crucial step was how to present the material, and this is where VideoMagicOne was so invaluable. Andy Bryant, the CEO, explained the differences between the usual video productions of a “how to” and a marketing-type production that uses a “hook” to capture the audience’s attention. Excellent examples of this include GEICO’s cavemen and lizard and Budweiser’s Clydesdale horses. Our strategy was to produce something very

similar to an infomercial—an entertaining way to persuade people to do things they might really not want to do. The hook for ORC's movie would be the professor/graduate student characters played by the same actors throughout the film series.

### Planning and Design

For "Lab Wars III," whose working title was "10 Things Not to Do in the Lab" (more about that later), I sat down with the standard microbiological practices from the CDC/NIH BMBL, read them over, and thought how one could incorporate these 11 practices into a story with a beginning, middle, and end. It was obvious that the first scene had to be the two "scientists" working in the lab and doing everything wrong. I started writing a script for that scene that had enough dialog and action to capture as many of the SMPs as possible. Each scene had its own script that included the required actors, stage directions, props, costumes, and make-up. Scene 2 (the hospital scene) was written to demonstrate the health ramifications that can occur if SMPs are not followed. This was probably the funniest scene to shoot because of the costuming, make-up, prop design, and actor direction (how to appear to vomit, writhing in agony, etc.). Imagine wandering the aisles of Wal-Mart and wondering if vanilla or tapioca pudding would make better vomit or turning into the chips aisle, seeing row upon row of salsa jars and not thinking "Yum, nachos" but rather "Wow, what great bloody diarrhea."

Each scene was visualized numerous times for unity and flow and also to identify props that ranged from very small (a needle) to very large (a biological safety cabinet). Scene 3 showed even more consequences but on a broader, more institutional scale and identified the etiologic agent and reasons for the exposures. Scene 4 was the resolution which segued into the point of the movie—the standard microbiological practices. The two main characters were played by amateur actors, both non-scientists, who are heavily involved in local community theatre. Both Lyle Tate and Gabe Smith have acted, sung, danced, and directed many a production at the Starkville Community Theatre.

### Execution

Some of the difficulties and challenges associated with the actual filming included technical and non-technical issues. Finding sets and scheduling their use were problematic at times. The lab had to be the right size as well as clean enough to do the things that were planned. Fortunately, a small, renovated, as yet unused lab in the Life Sciences and Biotechnology Institute was found to be perfect. The trauma room in the Student Health Center had to be reserved after business hours to reduce the chance of an actual emergency admission. (The medical director seemed to think that a student crisis would take precedence over filming—humph!) Per-

mission to do the movie had to be obtained not only from the Director of Regulatory Compliance, but also from all the departments where sets were located. Supporting actors had to be found and convinced to participate. Sets were prepared in advance and inevitably some prop was missing at the beginning of each shoot. Actor and shoot schedules had to be finalized. But trying to schedule 30 minutes with the Vice President for Research so that he could participate was probably the most difficult thing in the entire production. Special thanks to the Office of Research and Vice President Dr. Kirk Schulz. The production crew descended upon that office and wreaked havoc during filming. Scene 3 was done in 30 minutes with very few retakes because of the VP's schedule. Parts of Scene 4 were re-shot several weeks later because I kept changing the script and action. All in all the entire fall semester was needed to plan, write, prepare, film, and edit.

### Technical Aspects

Prior to filming each scene, the cameraman performed a light test for the camera to produce a "white balance." This procedure blanks the camera to white, which will then automatically adjust other colors to that baseline. Three-point lighting was established for each scene. This included backlight, frontal light, and hair light (light coming from above). Special lighting was used for the hospital scene to create a glow around the pasty complexion of the graduate student.

A Panasonic HVX200 camcorder was used in 480i 24p film mode, which basically means the film speed mimics the number of frames per minute used in films, and the size is appropriate for widescreen display. This allows for a more cinematic look.

Multiple takes of each scene were shot from different camera angles. This creates a sense of perspective: placing the camera inside the refrigerator to show the grad student reaching for his lunch or using an upward close-up shot of the professor dropping a needle into the wastebasket. As a general rule, plan 1 hour of filming for 1 minute of finished film. Allocate 2 hours for set preparation and clean-up. For "Lab Wars III" approximately 10 hours of raw video footage was needed to produce a 12-minute movie. Due to scheduling issues, the scenes were not shot in order.

Sound effects were added depending upon the scene and the activity. The sound of the bottle falling onto the floor and the microwave beeps were added at the very end.

In total, 20-30 hours were needed to edit scenes, add music, adjust film color, and create/mute sound. An Apple computer with Final Cut Pro editing software and Adobe Photoshop for work with certain still shots and the transformation of the MSU mascot "Bully" into "Bully Vader" were used.

**Price Tag**

It cost approximately \$100 to \$150 per minute of finished movie depending upon the length and complexity of each scene.

**Artistic or Dramatic License**

As a scientist, I have always pooh-poohed movies or TV shows with a scientific slant that seemingly do the improbable or impossible; for example, the movie *Outbreak*, where Dustin Hoffman’s character finds one monkey that will generate all the antisera to save the world in about 2 days, or the new TV show *Fringe* that centers around a scientist with a lab in the basement of a building at Harvard where he keeps an experimental cow (no IACUC [Institutional Animal Care and use Committee] there) and conducts research on humans (both living and dead) with no IRB (Institutional Review Board) approval or appropriate PPE (personal protective equipment). Dramatic license distorts or ignores fact and asks viewers to suspend their disbelief in order to glamorize a scenario or improve cinematic cohesiveness. After producing “Lab Wars III,” I have better insight as to why that is done. Would the CDC or NIH actually visit MSU if something like this happened? Probably not, but it certainly makes for more drama. Would the PI/professor have been allowed to return to work or even been kept on by the University? Who knows, but in order to resolve the story, the PI had to return in the last scene to introduce the SMPs.

**The Star Wars Theme**

And finally, why *Star Wars*? I did not start out with the *Star Wars* theme in mind. I was looking for a title that would lend itself to the standard microbiological practices such as the movie *10 Things I Hate About You*. I had considered the Lab Wars take-off, but it wasn’t until I noticed several movie shorts on YouTube using the iconic *Star Wars* graphics that I considered it. An Internet search led to a computer program that allowed the insertion of text into the *Star Wars* format. A check of the George Lucas web site indicated that its use was allowed for educational purposes. And the rest, as they say, is history. “Lab Wars Episode III: Revenge of the Bacterium” is available at [www.vimeo.com](http://www.vimeo.com).

May the force be with you.



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