

Annenberg Colloquium with Hollywood, Health & Society



HOLLYWOOD, HEALTH & SOCIETY

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The Norman Lear Center

The Norman Lear Center is a multidisciplinary research and public policy center exploring implications of the convergence of entertainment, commerce, and society. From its base in the USC Annenberg School for Communication, the Lear Center builds bridges between eleven schools whose faculty study aspects of entertainment, media, and culture. Beyond campus, it bridges the gap between the entertainment industry and academia, and between them and the public. For more information, please visit www.learcenter.org.



Hollywood, Health & Society

Hollywood, Health & Society (HH&S) is a project at the USC Annenberg Norman Lear Center that provides entertainment industry professionals with accurate and timely information for health storylines. Funded by the Centers for Disease Control and Prevention (CDC), the National Institute of Health's (NIH) National Cancer Institute (NCI), the Agency for Healthcare Research and Quality (AHRQ), and the Health Resources Services Administration Division of Transplantation (HRSA), the project recognizes the profound impact that entertainment media have on individual knowledge and behavior. For more information, please visit www.usc.edu/hhs.



HOLLYWOOD, HEALTH & SOCIETY

Participants

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Annenberg Colloquium

Peter Monge: Hello, everybody. Welcome to our Annenberg Research Seminar. We're delighted to have folks from the Norman Lear Center here to give a presentation on Hollywood Health & Society. We're delighted to have Marty Kaplan, who is the director of the Lear Center, as well as Vicki Beck, who is program director of HH&S. The presentation will be made by three people: Vicki, Tom Valente, and Heather Hether. And I'll now turn it over to Vicki.

Vicki Beck: Thank you. It's really a pleasure to be here because we've been at Annenberg for five years. We're now into our sixth year, and we've been talking to lots of people about our research and the activities that we undertake at Hollywood, Health & Society. We're really thrilled to share it with the people who help us the most. During the talk, what I want to really highlight are the faculty and the student projects so that those of you in the room who are interested may get some ideas on how you could participate.

As I begin, let me recognize our staff.

Mandy Berkowitz is the head of outreach to TV shows and writers. Mandy's sitting over on the couch. She works with Iva Schroeder, who is new to our staff, also doing outreach to TV writers and producers.

Kathy Le is not here, but she assists. Kathy actually came out of the MPH program at Keck, then got a position with us. She backs up both Mandy and Iva. Grace Huang is here. She oversees all the research projects, meaning that she works with lots of faculty and students.

And we also get a lot of assistance from Scott McGibbon, who helps us with our database; Johanna Blakley, who helps us with our Web presence; and Clemente Ladrado, who I don't think is here, but he keeps track of our money. He's a very important guy.

I usually like to start out by giving just a bit of history so that everyone in the room is up to speed on where we came from and why we're doing the work that we do.

The first thing I want to talk about is that we are funded by a CDC cooperative agreement, which is from the Centers for Disease Control and Prevention in Atlanta. We have three other federal agencies that have joined that grant during the five-year period, including the National Cancer Institute, which funds us at about the same level. Then two other agencies – the Agency for Healthcare Research and Quality, and the HRSA Division of Transplantation – both fund us for special projects.

People frequently say, "Why are CDC and NCI and these federal agencies funding projects in Hollywood?" Well, the answer is that these agencies have the responsibility for communicating with the public, with consumers, for getting information out, and heading up lots of national campaigns.

Why are CDC
and NCI and these
federal agencies
funding projects in
Hollywood?

BECK



AIDS changed everything... a report was issued, and there were lots of recommendations that CDC should be talking to Hollywood, should support TV writers and producers, both proactive, as well as reactive, and that it should be on HIV/AIDS and other topics across the CDC spectrum.

BECK

They realized in the 1980s when HIV/AIDS struck and everyone was just amazed that there was this new disease. When asking “How are we going to deal with it?” they became aware that they needed to start talking to consumers. Historically, a lot of the federal health agencies talked to health departments, they talked to doctors, they talked to nurses. But in the 1980s, AIDS changed everything. So by the 1990s, there was an expert panel invited to come to the CDC and consider the government’s role with Hollywood, and there was quite a lengthy discussion. After two days, a report was issued, and there were lots of recommendations that CDC should be talking to Hollywood, should support TV writers and producers, both proactively, as well as reactively, and that it should be on HIV/AIDS and other topics across the CDC spectrum.

A pilot project was established about 1998, and by 2001, the CDC decided they would fund a cooperative agreement to make sure that this type of activity could reach a higher level and, fortunately, it was granted to the USC Norman Lear Center.

So what is it that we’re trying to achieve? We decided to focus on TV shows because you can really implement a lot of education. You can work with writers on a weekly basis because you know those writers have to get out storylines week after week after week, even day after day if they’re in daytime dramas. Entertainment-education also is a field of literature and study that has been established internationally, showing that audiences *do* pay attention to messages. Sometimes they talk to other people about them, and sometimes they even take action.

The social cognitive theory is the theory you most often hear about; it’s based on social modeling. That is, people tend to observe behaviors in others with whom they identify and they will model those behaviors if they have positive outcomes, and they will avoid those behaviors if they have negative outcomes. So that’s just sort of the big-picture framework for why we’re working with TV shows.

We knew there were a lot of shows already doing health storylines, but were they always accurate? We weren’t sure about that, so we wanted to make our experts available to TV writers and producers. We also wanted to encourage them to do timely public health topics so that many of the storylines appearing on television might support the national campaign. We wanted to encourage them when possible to use prevention messages because you could tell a very gory story about a terrible disease and a terrible outcome, but if you don’t discuss a prevention and how that could have made a difference, the audience doesn’t really get a chance to be educated.

How do we achieve these goals? We develop materials to educate writers. We also provide access to experts and we recognize their good work, so that it will create more good work.

I’m going to get to the research overview in just a second, but first I want to describe some of the outreach activities that we have undertaken.



The writers call us back because they know they can get an answer quickly, and they know we give them fabulous experts.

BECK

In the past five years, we have produced nine panel discussions at the Writers Guild of America, west. The Writers Guild has been a key partnership, developed by Marty as he comes from the world of entertainment, having been and still being a screen-writer himself. He forged a partnership that allowed us to invite the president of the Writers Guild to serve on our advisory board. The Writers Guild board actually voted on that, deciding every subsequent president of the Writers Guild would serve as the co-chair of our advisory board. The other co-chair is Neal Baer, who is an M.D. and also executive producer of *Law & Order: SVU* and formerly executive producer of *ER*.

We've gained many, many opportunities by working with the Writers Guild through the advisory board, holding panel discussions, and also holding the Sentinel for Health Awards at the WGAw.

We conduct a lot of expert briefings and consultations. In the beginning, we were conducting about 10 or 12 consultations a year, meaning that only maybe a dozen times a year writers would call us. Now, we conduct anywhere between 200 and 250 consultations a year, so we've really grown, and that's thanks to the efforts of our staff, who have done so much outreach to the entertainment industry and are very responsive to writers. The writers call us back because they know they can get an answer quickly, and they know we give them fabulous experts.

Consultations are when they call us. The briefings are when *we* call *them* and say, "We have a fabulous expert in town. He's head of the HIV/AIDS program or head of Infectious Diseases at CDC, and he would like to chat with you guys. If you're interested, he has some examples he can share." We do two to three dozen of those a year.

And this is a place where we're able to work with lots of partners, including those at USC. We've used lots of USC experts as well as experts at UCLA and naturally, people from our funding agencies – NCI, CDC, and others. We really couldn't do that work without the help of the partners that we are involved with. It's been a very productive partnership, and it has been extremely helpful to writers who are learning a lot and able to incorporate that information into their storylines.

Once a year, we recognize what we consider exemplary storylines, again, a key partnership activity that involves both students, faculty, and other experts who serve on judging panels to look at the storylines and help us score them. The students who work with us as interns help develop the promotion for the program and make phone calls to make sure those entries come in and then follow up with all the different steps that it takes for an awards program.

In the beginning, there was only one award: the Sentinel for Health Award for Daytime Drama. First established at CDC in 2001, that award was given under the Norman Lear Center Hollywood, Health & Society project. Now, we have five categories. Three of those categories are in primetime, one is daytime, and the fifth is for *telenovelas*.

So, how do we measure and report results? This is where we get extremely involved with USC students and faculty who are in this room and sitting at this table. You can see that we've had 26 students. We went back and looked up all this data to make sure that we could report it to you. Lots of students and many different faculty are involved in the project. Some are specifically undertaking audience studies. Some, such as the TV monitoring project that's led by Sheila Murphy, are using content analysis for health topics. The audience studies have been supported by Tom Valente, by Sheila, and by Michael Cody and faculty at other schools, as well. As a result, we have presented 37 talks and panels, and if you look at all the presenters on our panels, we've had 83 presentations in the past five years at national and international conferences. We've really gotten the word out there at the American Public Health Association's annual meeting, the Institute of Medicine panels, the International Entertainment-Education Conference, and we're frequently reporting on the effects that public health content has on audiences. Right now, we have 10 articles in chapters, four of which are in press; the others have already been published.



When Amarte Asi aired in August of 2005, there was a link on the show's homepage that went straight to the diabetes page at the CDC site. Forty percent of the hits that month came from the Telemundo page.

BECK

I wanted to give you an example from a daytime drama, from a primetime drama, and from a *telenovela*, just a sort of shallow oversight. Tom and Heather are going to give you much deeper insights into how we do this work.

This is an example of a show that has had student involvement with Karen Edwardson, who's been following the story. We've now consulted on three different parts of this storyline. The first was exposure to HIV through a needle prick by the physician that was caring for the patient. The second aspect questioned, how do partners protect themselves when one is HIV-positive and the other is HIV negative? Finally, the third area of consultation has been on perinatal transmission. If a woman becomes pregnant and decides to have a child and the mother is HIV-positive, how is that pregnancy managed, and how is the child protected? This is an ongoing storyline. The needle prick was during the summer. The sexual information has been ongoing. And then perinatal transmission is planned at some point for the future.

Another example where we do have some data is in *telenovelas*. Holly Wilkin was a Ph.D. student at the time and helped us with an evaluation of a breast cancer storyline. We had a diabetes storyline which was evaluated with help from a University of Georgia student, and a worker's safety storyline, aided by another University of Georgia student.

Just quickly, when *Amarte Asi* aired in August of 2005, there was a link on the show's home page that went straight to the diabetes page at the CDC site. Forty percent of the hits that month came from the Telemundo page.

Onto another student: Lauren Movius has been working with us on the evaluation of a transplant storyline. We presented this poster at the annual conference for APHA in Boston in November. We found that the show that had the greatest emphasis on how you donate, or how you sign up as a donor had the greatest impact on the audience. That was a *Numb3rs* storyline, which talked about donations after they got through an FBI investigation of a black-market organ situation in the United States. This doesn't really occur, but we forgave them and actually gave them the Sentinel for Health Award because they did such a wonderful job. That was after the transplant community evaluated and scored the storyline.



We've been working on the TV monitoring project, which is a content analysis of the most popular primetime TV shows as rated by Nielsen.

BECK

We also are providing links, and this is where I'm going to close. In the past five years we have provided 180 links to Web sites. This is something we started a couple of years ago so that when a health storyline airs, we want links on the show's home page so viewers can find really credible information. That's been a project that has involved several students, including Alexis Millinous and most recently, Kathy Le, who has been supporting her.

I'm sure we've left out many names, but this will give you an idea of the kinds of partnerships that we, the faculty and the students have been working with, and we certainly cannot do our work without your help. So, please come to us if it interests you, if you have an idea for a class project or a thesis project. We would love to talk to you. You can talk to any of us at the Norman Lear Center. Thank you very much.

Heather Hether: Gosh, it's so strange to be on this side of the lunch today. What I'm going to do is share some findings from two projects that Sheila Murphy and I have been working on with Hollywood, Health & Society. The first source is the content analysis that Vicki briefly mentioned, and the second study is an impact evaluation, looking at an obesity storyline that aired on *Law & Order: SVU*.

For the last several years, we've been working on the TV monitoring project, which is a content analysis of the most popular primetime TV shows as rated by Nielsen. We focused our sample only on English-speaking shows on the five network channels, broadcast networks, and we excluded reality TV and variety shows; only scripted programs were included.

Every spring from about January through May/June, we'd code the shows. We recruited graduate senior coders, predominantly masters students but occasionally some Ph.D. students. We would code the shows on a variety of dimensions. Of course, we're looking at the frequency of health-related content so the most important things to note were the health issues mentioned and also how extensive was the depiction. We would code everything from a brief mention of an illness or a condition to a visual cue so if there was a poster in an ER operating room about breast cancer, for example, we would code that as well.

We also had more extensive depictions, which included dialogues and minor and major storylines. For example, if there was a more extensive depiction, which we called the "health storyline," these would be subjected to a more in-depth analysis in which we would specifically look at what health information was included. As Vicki mentioned, was there prevention information or symptoms or treatment? What specifically was shown as the health condition?

We would also, of course, code the age and gender and list the other characters in the story. Here are some analyses which we carried out, looking at the top 10 shows in 2005 and 2006, general audience. It should be noted that we code many more shows than this per year. We code about 25 shows every spring season because we look not only at the top 10 shows for general audiences but also the top 10 for Hispanic audiences and African-American audiences. We then make sure to stratify along genre, so we'd have the top five comedies and dramas for each audience.

27% of all the health storylines were homicides. Since we coded all the specifics, we happen to know whether they were stabbings, beatings or gunshots... Then unintentional injury, other violence, substance abuse, pregnancy and childbirth issues, cancer, heart disease, mental health, and toxic substance exposure at the bottom. You feel really healthy right after going through that list.

HETHER



We have a lot of different ways to cut the data and look at the contents to see what's going on. Here you can see the top 10 shows listed for 2005, but then in '06, we lost three of them. *The Simpsons*, *Medium* and *24* dropped out of the ratings. They were replaced by *Grey's Anatomy*, *My Name is Earl* and *Law & Order: SVU*.

The sample that I'm looking at here is 350 episodes across the two years. There were 281 episodes; 80% of the shows had health-related content. That comprised 898 health storylines, so that, again, is dialogue and minor and major storylines.

Okay, so here are the top 10 health issues. Not surprisingly, homicide's at the top. 27% of all the health storylines were homicides. Since we coded all the specifics, we happen to know whether they were stabbings, beatings or gunshots. A little morbid, but then we also have rare and unusual diseases. I think *House* is a perfect example of making that category popular. Then unintentional injury, other violence, substance abuse, pregnancy and childbirth issues, cancer, heart disease, mental health and toxic substance exposure at the bottom. You feel really healthy right after going through that list.

Okay, so let's look at the storylines that had health content.

First of all, we looked at an ethnic distribution of the most prominent character, the ill or injured. So for Caucasian, we can see in the U.S. population about 69% of the population is Caucasian, and of our characters, they were 79%. Of African-American, in the U.S. population, there's about 13%, and we saw 12% in our sample. But where we really see differences are in Hispanic and Asian-Americans characters and they're grossly underrepresented in our sample. Hispanic population in the U.S. is at least 13%, and here they're only 5% of our characters. Similarly, Asian-Americans represent about 4% in the U.S. population and only 2% of our characters.

So, actually, because Asian-American characters comprise so few of our major characters, the next analyses I want to look at compares the differences between the three major groups of characters – African-Americans, Caucasians and Hispanic.

You may be asking, first of all, why does the ethnicity of the characters matter? Research has shown that the TV is a primary source of health information for many Americans, and the heaviest consumers of TV tend to be African-Americans and Hispanics. They're also at a disproportionate risk for a variety of health conditions, like obesity and diabetes and cancer. Furthermore, research suggests that we tend to pay greater attention to and identify with and emulate those who we perceive as similar to us.

First of all, we looked at the prominence of the storylines by ethnicity of the character, and we saw that there were no significant differences. So it's not that the storylines with minority characters were being relegated to die. There is equal distribution more or less across the dialogue's minor and major storylines according to the ethnicity of the character. However, where we started to see differences is when we looked at the outcomes. You can see that African-American characters are faring significantly better than their Caucasian and Hispanic



The storyline provided a good opportunity to present information related to the consequences of obesity. For example, a line from the script stated, “4,100 people are diagnosed with diabetes every day, 55 go blind, 120 have kidney failure, and 230 get a limb amputated every single day.”

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counterparts. 49% of Hispanic characters in the health storylines are dying, so, not so good to be a Hispanic character. This may be because 70% of the storylines with African-American characters are taking place in medical settings, whereas it’s not quite the case with Caucasians and definitely not with Hispanic characters. Furthermore, we can see that in the storylines with Hispanic characters, they’re showing many fewer symptoms, fewer treatments and also less complication information. Also, when we looked at the overall degree of educational content, we saw that with the Hispanic characters, they’re including much less educational content. Almost half of the storylines that were evaluated by our coders had no educational content at all.

Finally, when we looked at the accurate health content, the storylines focused most on Hispanic characters were deemed to be less accurate in regard to health content, too.

Okay, so now I’m switching gears.

This is a case study looking at an impact evaluation of a diabetes storyline on *Law & Order: SVU*. In May of last year, NBC aired a storyline about Rudy, who was an extremely overweight African-American young man who was actually beaten up by his peers because he was so overweight. In retaliation, Rudy ended up killing the people who beat him up. The storyline detailed his trial, and provided a good opportunity to present information related to the consequences of obesity. For example, a line from the script stated, “4,100 people are diagnosed with diabetes every day, 55 go blind, 120 have kidney failure, and 230 get a limb amputated every single day.” In fact, during the story, Rudy is actually rushed to the hospital with kidney failure, and at one point, even has to have his foot amputated. During the subsequent murder trial, though, the lawyer tried to say that such things as race, class, and geography guaranteed Rudy would become obese and would get diabetes. The question then is what effect did this storyline have on viewers and did it have more of an effect on African-American viewers? To examine this, we ran a pre-test, post-test panel survey with 433 *SVU* viewers one week before the storyline aired and one week after.

First of all, we looked at increase in obesity knowledge. All ethnic groups showed an increase in the knowledge that obesity can lead to blindness and amputation; however, with the African-American viewers, they increased in all five of the knowledge aims.

When we looked at responsibility attributed to poverty for childhood obesity, again, you can see that all viewers showed an increase from pre-test to post-test, but the increase was only significant for African-American viewers. When we looked at expected behavior change over the next month, only African-American viewers showed a significant increase in the intent to exercise, diet, and eat fruits and veggies after they saw the episode, whereas no such difference existed for

Caucasian viewers or Hispanic viewers.

What are the implications arising out of this study? African-Americans and Hispanics are both more likely to rely on TV for health information and also more likely to be at disproportionate risk for a variety of health conditions. What we saw from the TV monitoring project was that the minority characters, particularly Hispanics, tend to be underrepresented in popular primetime programs; they're less likely to be shown in healthcare settings, having symptoms or getting treatment; they're more likely to be involved in storylines with inaccurate information or no educational content; and finally, they're more likely to have a negative health outcome, i.e., to die.

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What we saw from the *SVU* pre-test/post-test is that it appears that similarity in fictional characters does appear to influence viewers' attitudes, knowledge, and behavioral intent. So, actually, what we're working on now as a follow-up to the *Law & Order* storyline is a similar storyline that aired on *Medium*, in which a Hispanic character had diabetes. And with that analysis, we were able to get some more direct measures of the viewers' feelings of similarity toward the characters, and we're going to really look at how that might mediate the effect of a storyline. Thank you.

Tom Valente: Nice job, Heather. This is another study in our ongoing efforts to evaluate the impacts of storylines on primetime television. In this case, the key difference is we're going to look at two different shows with a storyline that occurs in succession. So it's a collaborative project. You're familiar with Hollywood, Health & Society at this point, and we were conducting outreach to *ER* and *Grey's Anatomy*. There were briefings conducted with Hollywood writers and producers. We shared information with them about genetic links to disease incidents and, in particular, with breast cancer. We then had an expert consultation in which people who were familiar with and had worked in this area provided outreach to writers and producers. And, of course, we have an NCI and CDC tip sheet. Vicki's group has developed a number of tip sheets that are sent to writers and producers to give them this kind of information.

Okay, an example: we had two different episodes on *ER* with a breast cancer storyline. They aired on October 6 and October 20 of 2005. There was a Jewish woman who had tested positive for the BRCA mutation and, specifically in the storyline, the characters mentioned that if there is a family history of breast cancer, you should get a mammogram. If you have the BRCA mutation, you're at an 85% risk for getting breast cancer, and in the storyline, there is a prophylactic mastectomy that is proposed and done in order to help keep her from getting breast cancer.

The woman patient was distraught about this. It's not something she wants to do. In the storyline, what was interesting is that Abby, the nurse, who's a very popular character on the show, gets a mammogram as part of her behavior change process over the two different episodes. What's nice is we got the actual behavior change that we wanted portrayed within the show.

With the *Grey's Anatomy* example, there was only one episode. Breast cancer was an integral part of the storyline. We calculated that, overall, it covered about 13 minutes of the episode. There was a woman who came in wanting prophylactic surgery. She had lost her mother to breast cancer. They also communicated that because of this, there's an 85% increase in risk.

In this episode there was much more emphasis on the difficult decision-making process accompanying this choice.

So, as in the other study we get a mailing list of primetime viewers and send them an e-mail link asking them to participate in this survey. We have three waves of data collected for this study: 1) before the *ER* episodes, 2) after the *ER* episodes, but before *Grey's Anatomy*, and then 3) a final wave after the *Grey's Anatomy* episode. We therefore have pre- and post-test measurements over the course of these portrayals. And to increase our response rate, we provide a lottery incentive. For people who complete the survey, they have a chance of winning a \$100 or \$50 cash prize depending upon the particular study.

We also did this as a classroom project. I teach program evaluation at the Keck School of Medicine in the department of Preventive Medicine, and we had the class help out with this research project. They developed a survey, came up with all the items, and helped administer it. Grace was in the class.

About 1,800 people answered the survey at each of the three different waves. These were very low response rates, but we don't know if they're an actual response rate or not because these mailing lists may not have been cleaned lately. Anyway, it's a low response rate at one particular measure; about 1,800 people at each of the three measures. 819 people responded to the survey all three times, and so we have a panel sample of 800 people that we can look at over time. We can also do comparisons between the panel and independent samples.

For control variables, we try to measure all the things we think might be related to changes in attitudes, knowledge, and practices about breast cancer: basic demographic characteristics, as well as TV viewership and any experience with breast cancer or having a family member that has had breast cancer, and so on.

Heather has done three different analyses: exposure to one or both *ER* episodes, exposure to the *Grey's* storyline, or a cumulative index of exposure to all three storylines. An added value with this study is being able to make a comparison between different shows.

If you look here, these are reports of the odds ratios, the association between being exposed to the *ER* storylines, having said that you watched these shows, and in this case, an outcome, being aware of the BRCA gene as creating a risk for breast cancer and that family history creates an increased risk for breast cancer. For the BRCA gene variable, for example, there is a much greater increase in being aware of the BRCA gene if you watched *ER* or *Grey's Anatomy* or both than if you watched none of the episodes.

For awareness of the family history risk, only seeing *Grey's Anatomy* or only seeing *ER* – of course, in the *Grey's* episode, there was much less attention to that particular risk factor – turns out not to be associated with the outcome we're interested in.

If you looked at all three episodes, you had a tremendously large increase in the likelihood that you had done something, for example, schedule a breast exam. That's a terrifically powerful result. It was a really strong association. You don't see that magnitude of effect in a lot of studies.

VALENTE



Then comes a measurement of attitudes. Again, if you saw *ER*, you were likely to increase your awareness about getting a mastectomy; if you saw both shows, the same is true, but not if you only watched *Grey's Anatomy*.

Whether or not you should get tested for the BRCA gene, the combined analysis turned out to be significantly associated with that and not either of these shows individually. We also looked at behaviors: Did you do anything as a result of watching either the *ER* episodes or *Grey's Anatomy*? If you only saw *Grey's*, you had a very large increase in the likelihood that you did something as a result of watching the show, more so than watching two *ER* episodes. Then, if you looked at all three episodes, the two on *ER* and the one on *Grey's Anatomy*, you had a tremendously large increase in the likelihood that you had done something, for example, schedule a breast exam. That's a terrifically powerful result. It was a really strong association. You don't see that magnitude of effect in a lot of studies. [*re: a graph in the presentation*] What is this, Heather?

Heather Hether: Change in knowledge from baseline to wave two. That's comparing the exposed to the non-exposed. Even though they all increase in knowledge, you can see the difference at the end: there's a 7% increase in knowledge over the non-exposed, so basically, there's some effect that resulted just from the shows.

Tom Valente: Right. So if you keep taking this questionnaire, you're going to improve your knowledge because you go out and look for other sources of information.

Heather Hether: Right.

Tom Valente: But, of the people who keep taking it and watch the shows, they have a 7% overall increase in knowledge, which is a fairly significant number in terms of its magnitude. Incidentally, it's also about the size that we see in evaluation of other mass media programs, so it's consistent with other research.

Then there are changes in attitudes between baseline and follow-up. If you look at the difference between *ER* viewers and non-viewers, it's statistically significant. *ER* non-viewers – these are people who watch primetime television – don't change as much in terms of their attitudes or behaviors. If you look at people who are *ER* viewers, their behavior changes increase quite considerably. The non-viewers don't have increases in behavior. This supports the other analysis that we've done.

Both of these programs were modestly effective. Exposure to both storylines created even more of a change in knowledge, attitudes and practices, and that's significant because in a way what it tells you is you want to try to sprinkle your storylines across different shows and possibly different episodes rather than putting all of your eggs in one basket, as in just putting the storyline on one show. Here, if we sprinkle it across different shows, we're going to get an even greater impact on our audience.

What's significant from a public health perspective, of course, is that there are millions and millions of viewers of these TV shows. *ER* routinely has about 14 million viewers; *Grey's Anatomy*, 20 million viewers. They're very popular shows, so millions of people are being exposed to this information, and we see a significant percentage of them changing their behaviors.



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VALENTE

We used an online survey. We had both panel and independent samples. Methodologically, it's a strong study, easy to defend. One of the limitations, of course, is that these respondents are very high viewers of television. They watch an average of 20 hours of TV a week. The national averages are around 10 to 12, so they're nearly twice as high. You would expect that these are people (a) willing to sign up and (b) get surveyed about primetime television. They're willing to take time to answer surveys, where a lot of us won't. So, there are some limitations in terms of the generalized ability of the findings, but nonetheless, this is also an audience not otherwise unlike the rest of the population.

We have other studies that are in the pipeline. As Vicki mentioned, we've got lots of articles and chapters that have come out in publications or are in press. We're hoping for 10 or 15 minutes for questions and answers. Yes?

Unidentified Audience Member #1: This is maybe for Heather, so –

Tom Valente: They're all going to be for Heather because she's done all the work.

Unidentified Audience Member #1: I assume for the breast cancer storyline you control for gender?

Heather Hether: Yes.

Tom Valente: Yes.

Unidentified Audience Member #1: Was there interaction where the women who watched these shows were more inclined to have knowledge changes than the men?

Heather Hether: I didn't do that, no.

Tom Valente: We had a big debate about that in the class, if you recall, because men are at risk for breast cancer, as well. There's, of course, the social support issue necessary for men to help women do that scheduling.

Heather Hether: We actually have a little data from a couple of other studies, which indicate there was greater increase among men; from one of the *telenovela* studies and also from another one.

Vicki Beck: Right. That was probably because we realized the effect that many women already knew, whereas men didn't.

Unidentified Audience Member #2: What about behavior modification – can certain health storylines have a less dramatic effect?

Tom Valente: We've been working on that. We've got an analysis from the Health Styles data across a whole bunch of different storylines, and so far, we've seen the change across all the storylines. What matters more is its portrayal and how much

time it gets; how empathetic the portrayal is, rather than the particular health issue. I don't know that we've come across anything yet.

Vicki Beck: I think in the transplant study, we're finding some interesting things about what had an impact and what didn't, and as I recall – Lauren, correct me if I'm wrong – *Grey's* had less of an impact.

Lauren Movius: In which measure? Trying to get people to donate?

Vicki Beck: I think so. The *Numb3rs* had a greater impact. You have one that's a soap opera storyline, where you're more interested in the love affair between Izzy and somebody than you are about donating organs. That's why you're watching, to see what's going to happen next. Whereas in donating organs, Rob Morrow goes to the DMV and comes back and says, "Look at my little pink dot on my driver's license." I think we are learning something about this type of storyline.

Unidentified Audience Member #2: I guess my question was, are there topics? I'm thinking behavior modification as part of an application or versus a changing diet, whether the modification requires more–

Tom Valente: Well, for example, if you've got to schedule a mammogram, that takes more work than just saying that you're eating more broccoli tomorrow. Obviously, you'd expect that to be a harder behavior to change, right?

Unidentified Audience Member #3: Similar to that, I was curious about these issues as representative of how you'd solve health problems or address other problems in general. For example, in this one, we saw them sort of celebrate the surgery. I'm not saying for breast cancer preventative surgery is a good idea, but there's a lot of studies that are coming out now in terms of American healthcare versus U.K. healthcare and how they have the same mortality rates but we do a lot more surgery. I was curious if there was a way to capture people's attitudes, okay, not on the BRCA-1 but, if you have this other problem, are you more inclined to think that surgery is a good option because it has been portrayed a certain way? So how does it affect your attitudes about health solutions beyond the specifics of the issue that is being explained?

Heather Hether: Okay, are you talking about prevention versus treatment, that kind of intervention?

Unidentified Audience Member #3: Yeah, say the treatment that is presented for women with BRCA-1. I presume that if you have an 85% chance of getting that, preventative surgery is probably the best option.

Heather Hether: Right.

Unidentified Audience Member #3: But that's on a very specific gene. Move that over, okay, you don't have that gene, but you have a family history, and the doctor suggests preventative surgery. Do you make that same conclusion? Or say you have an unrelated cancer issue, and the doctor wants to do surgery. How does that translate beyond the very specific?



Tom Valente: That's an amazingly complicated problem and one that we deal with in public health all the time. You take colon cancer, for example. There's lots of different options. Different countries have different cultural expectations about how that gets treated and managed and so on. In this country, there's certainly a medical model: "Quick to the blade" is something that happens quite frequently.

Changing the dial on that is a big challenge. And if you look back at the Institute of Medicine reports and some of the work actually that Pfizer's done lately on public health, there's a debate in this country about that, and moving the dial back from, "You can treat everything," to "Let's start talking about other ways to do prevention, healthier lifestyles, and so on." It is a really hard thing to do in a country like the United States that's built on the scientific model and a technological model that says, "There's a technology and a pill for everything." We've grown up with that as being the way this place works. But people are working on it. They really are. Yes?

Unidentified Audience Member #4: In selecting the health issues, how did you determine which ones to put most of your resources behind? And what are you doing for 2007?

Heather Hether: We work very closely with the funding agencies to identify the issues that they're addressing at a national level. One of the things that we do is we ask the program people to help us with a tip sheet. That would be the first step because they've got a campaign going. Get a tip sheet. You need outreach for that.

If we read about something or hear about something that we think is getting a lot of attention, we may go to the funding agencies and say, "We think you ought to develop a tip sheet on this problem because writers are starting to ask us about it. We're seeing stories in the newspaper, on the news," so that's how topics come about.

And second question was what we're doing with 2007. Mandy, maybe you can help us with that. What topics are at the top of our list for briefing?

Mandy Berkowitz: Bird flu.

Heather Hether: Bird flu. And I don't think we've had many questions about it this year.

Mandy Berkowitz: No, we haven't.

Heather Hether: In the past, we may have, but I think this year not yet.

Tom Valente: Let me underscore something, that our model is not one where we're pushing out health storylines to the writers and producers. They come to us for information, and we provide accurate information to them. This is not an outreach campaign. Rather, we're resourced for the writers and producers in the entertainment industry to be accurate in their portrayals, and that's key.

Vicki Beck: But, we are doing both because we do take experts to meet with writers when they're in town. We give them a chance to hear from the experts, and it's not about one topic or two topics; it's about a whole menu of topics.

It is a really hard thing to do in a country like the United States that's built on the scientific model and a technological model that says, "There's a technology and a pill for everything."

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Tom Valente: There's one subtext to this research as it affects the entertainment industry that might be worth noting. People who work in the entertainment industry, writers and producers of TV shows, view what they're doing is creating entertainment. They're not out to educate the public. And we don't intend to change their mind about that. But by creating databases like this, by showing them the impact that their shows have on audiences, we try to explain to them the power they have so that when they wield it, maybe they'll choose to do it responsibly rather than cavalierly. Yes?

Unidentified Audience Member #5: What happens if there's false information out there. Are you doing any damage control or anything like that?

Heather Hether: We really leave that up to other people. If I get an e-mail from someone that says, "Oh, they did a terrible thing on that show. Why didn't they do this, this, and this?" I might forward it, if I know the writer/producer, and say, "I don't know if you want to respond to this or not, but we received this." But to add to that, if we know that someone did a great job on an important public health topic, we'll make sure we think about that the next time we have an expert in town so we can take that expert in and get them excited about the story. We have done that, especially with the transplant copy, because we actually went to the transplant people and said, "You know, we hear the criticism, we know there's a lot going on, and we think that it would really be beneficial if there was more outreach on transplant topics." That's how they started funding that.

Vicki Beck: We were already talking to them. They were helping us sometimes, but we got to the government agency that oversaw transplants because we would prefer to be funded by government agencies because it's more of a neutral kind of funding source as opposed to advocacy. There are many advocacy groups that have money but once they go in and do their topic, you know, they don't really have a whole lot else to do. Sometimes it's more advantageous to have a broad menu.

Unidentified Audience Member #6: What about cable programming?

Heather Hether: We've considered it. I think the one area where we probably could do a little bit more is in children's programming, some of those networks that are on cable. But when we looked at the numbers for some of the popular primetime shows on cable, they just didn't come close to the network.

Peter Monge: Do we have one more question? No? Ok, Vicki and Tom and Heather, thank you very much.