

Motivating Television Viewers to Become Organ Donors

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Abstract

With a severe organ shortage in the United States, there is an urgent need to heighten public awareness about donation. The public relies heavily on mass media for information about organ donation, however, much information disseminated through this channel has only perpetuated commonly held misperceptions. Drawing on the Entertainment Education approach and social learning theory, this case study analyzes an intervention designed to educate television (TV) writers and producers about organ donor and transplant topics to improve the accuracy of TV storylines. Specifically, Hollywood, Health & Society's (HH&S's) work with the primetime drama *Numb3rs* (CBS) is investigated. As a result of HH&S's efforts, an episode of *Numb3rs* explicitly encouraged donation and modeled this behavior, and many viewers who were not previously organ donors decided to become donors. This case study critically analyzes aspects of the intervention, from arranging expert consultations with writers to evaluating changes in viewers' knowledge, attitudes and behavior toward organ donation. It also provides a successful example of a mutually beneficial relationship between public health professionals and television writers to increase accuracy of health content in television shows and concurrently strengthen the entertainment value of these shows. Lessons learned can inform other public health initiatives.

Motivating Television Viewers To Become Organ Donors

There is a severe organ shortage in the United States, with more than 90,000 people currently on organ transplant waiting lists.¹ While 77 transplants were performed on an average day in 2005, eighteen people died each day because no organs were available.¹ The need for organs could be greatly reduced if all people who are eligible would become donors.² Clearly, there is an urgent need for more people to register as organ donors and for effective communication strategies to heighten public awareness about the shortage of organs and donors.³

What keeps people from becoming organ donors? Different barriers exist, from religious and spiritual beliefs, to a lack of information about how to become a donor,⁴ to commonly held myths about organ donation. Numerous organizations and educational programs work to reduce these barriers, such as the United Network for Organ Sharing, Donate Life, OneLegacy, the Transplant Recipient Informational Organization and the Health

Resources and Services Administration Division of Transplantation.

One important way to influence the public about organ donation is through information and appeals in public service announcements (PSAs), Web sites, talk shows or TV drama storylines.^{5,6} However, studies suggest that there is a large amount of inaccurate information about organ donation in these media.^{7,8} There is also a concern that inaccurate portrayals of organ donation perpetuate myths about donation, thereby shaping public attitudes against donation.^{2,9,10} Since the public relies heavily on the media for information about organ donation,¹¹⁻¹³ the transplant community recognizes the need to address TV depictions of organ donation and transplantation topics. This case study will analyze an intervention designed to educate TV writers and producers about these topics and thereby improve the accuracy of transplant storylines on television.

Role of the Media

Mass media offer effective channels for communicating health related messages, which can increase knowledge and influence behavior of audience members.¹⁴ Broadcast media have the ability to disseminate information to large audiences efficiently, and television can be a particularly important channel.¹⁵ According to the 2000 Porter Novelli HealthStyles survey which collected data from regular viewers of primetime entertainment TV shows, 52% believed that health information portrayed in primetime shows was accurate, 26% reported that primetime shows were among their top three sources for health information, and 48% took some action after hearing about a health topic in a TV show.¹⁶ Additionally, at the 2006 American Public Health Association's annual meeting, a number of studies were presented which demonstrated the impact that health related storylines from popular television shows had on viewers.¹⁷⁻²⁰ While popular television dramas are fictional, research shows that people learn about health issues from such programs and are motivated to seek information on health issues featured in dramas.^{21,22} In 2006 alone, various TV shows have featured health information in storylines such as breast cancer signs in *Guiding Light* (CBS), diabetes symptoms in *Medium* (NBC), and the heart transplant waiting list in *Grey's Anatomy* (ABC).²³

Although the doctors, patients or investigators on these shows are just characters, their impact is quite real.

While media and communication scholars have driven much research in this area, there is a growing appreciation for the role media play in educating audiences about health. Increasingly, federal health agencies and university health experts are collaborating with writers and producers of television shows. In 1998 the Centers for Disease Control and Prevention (CDC), recognized the importance of television in disseminating health messages and established an Entertainment Education Initiative at the CDC's Office of Communication. The main assumption behind the Entertainment Education (EE) initiative was that '(T)he mass media in general, and television in particular, provide enormous amounts of information about health through storylines in entertainment programming. This information may be correct or incorrect, peripheral or central to characters' lives, planned or serendipitous.'²⁴ After a research agenda-setting conference with expert mass communication scholars in 2000, the CDC reached a consensus that EE had potential to be 'an important and potentially vital component of a successful public health strategy.'²⁵

Theoretical Support for Entertainment Education

Entertainment Education (EE) is ‘the process of purposely designing and implementing a media message to both entertain and educate, in order to increase audience members’ knowledge about an educational issue...and change overt behavior.’²⁶ While EE combines several communication theories, it is ‘a communication strategy to bring about behavioral and social change.’²⁷ Miguel Sabido, a pioneer in the EE field who is famous for producing a series of telenovelas in the 1970s, drew on Albert Bandura’s social learning theory.²⁷ The social learning theory serves as the theoretical basis for the EE approach. The theory emphasizes the importance of observing and modeling the attitudes and behaviors of others.²⁷ Bandura notes that most human behavior is learned observationally through modeling. First, an individual observes others and learns how a behavior is performed. Second, an individual will model and perform the behavior if they are motivated and have the ability to do so.

Similarity modeling occurs when viewers watch people similar to themselves confront similar life problems, and watch characters succeed and fail to achieve goals. Viewers

are emotionally involved and cognitively engaged in characters’ conversations about certain issues, as well as their behaviors. If viewers have parasocial interactions with the characters or believe they are similar to the characters, they are more likely to share similar emotional feelings that the characters experience, and mentally rehearse their interactions and actions.²⁸⁻³⁰ Empirical evidence from various studies indicate that EE can significantly influence knowledge, attitudes and health related practices.^{14,21,22,28,31-34}

The extent to which a viewer becomes absorbed in the story, also called narrative absorption, mediates the degree to which the narrative is persuasive.^{35,36} A theoretical model for the effects of persuasive content embedded in narratives has been proposed. Absorption in the story is dependent on the storyline appeal, quality of production, and unobtrusiveness of the educational message. These factors predict narrative absorption, which increases identification with characters and rehearsal, and predicts attitude and behavioral effects.³⁷

Entertainment Education Approaches in the United States

Unlike Entertainment Education interventions in many developing countries, no U.S.-produced television program has employed the full EE approach from start to finish. However, in recent years, health messages have been incorporated into television scripts of various U.S. television formats which have demonstrated characteristics of the EE formula.¹⁵ Rather than developing shows to educate audiences about a specific topic, health messages are identified to enhance drama as the need arises. There have been successful collaborations between Hollywood writers and public health professionals to include accurate health information in television shows. Various groups in the United States, including the Centers for Disease Control and Prevention, use principles of EE to address HIV/AIDS, cancer and many other priority health issues.

The rationale behind the Entertainment Education approach relies on both entertainment and emotion. EE interventions are successful because they are compelling dramas, not because of the educational content.³⁵ Furthermore, investigations of the emotional aspect of EE are key, since emotional

involvement can trigger changes in health behaviors.^{20,35} The emotional component of a narrative is fundamental in influencing audiences. For example, studies document that an emotionally-triggered behavioral response can occur when viewers are emotionally engaged in a dramatic storyline.^{22, 28} In one example, PSAs were aired during two dramatic plot points in an HIV/AIDS soap opera storyline. As a result, the CDC National STD and AIDS Hotline received the highest number of callers all year. The second highest number of calls was received on National HIV/AIDS Testing Day, which had much more media exposure than the soap opera storyline.²¹

For these reasons, primetime dramas are an ideal vehicle to disseminate health messages to a large audience. In addition, primetime television shows on major networks reach tens of millions of viewers, with *Numb3rs* and *Grey's Anatomy* reaching 13 million and as many as 24 million viewers respectively during the 2005-2006 TV season.³⁸ Given the reach of such shows, they provide an even greater opportunity to impact a large audience with important health messages.

Hollywood, Health & Society

Recognizing that entertainment media affects viewers' knowledge, attitudes, beliefs and behaviors, the CDC funded an Entertainment Education initiative through a cooperative agreement grant at the University of Southern California Annenberg School for Communication's Norman Lear Center. The purpose of the grant was to develop, maintain and evaluate an entertainment education program for public health. The Hollywood, Health & Society project was established to provide TV writers with information experts and other resources to develop health storylines. Over the past five years, three other federal agencies joined the CDC's cooperative agreement: the National Cancer Institute, the Health Resources Services Administration Division of Transplantation, and the Agency for Healthcare Research and Quality.

HH&S provides TV writers with accurate and timely information for health storylines that can potentially educate the public through popular entertainment media channels. Information is communicated to writers and producers in a variety of ways, such as individual consultations on specific storylines, group briefings on high priority health topics, tip sheets developed for writers, news updates on health headlines, and panel discussions at the Writers Guild of America, West.

Through extensive relationship building with members of the entertainment industry



over the past decade, including the initial five years at CDC, HH&S has established itself as a source of credible information on a wide variety of health topics. HH&S works with partners at funding agencies, state and local government offices, and the country's leading universities

to identify experts and to connect these experts with writers who request assistance on storylines. In 2006, HH&S responded to over 200 inquiries for health related information from writers of primetime and daytime TV shows, as well as Spanish-language telenovelas. Writers and producers rely on HH&S staff for public health expertise, for access to experts who understand the dramatic needs of storytellers, and for prompt responses when deadlines are tight.

This case study focuses on the process whereby HH&S works with television writers to provide accurate information on a specific topic - organ donation and transplantation. As noted, studies show that audience members learn about health from television shows. The topic of organ donation and transplants has often been portrayed on TV through myths, which reinforce inaccuracy and misinformation about the topic. Viewing such inaccurate information may lead to unfounded fears about donation and may discourage audience members from becoming donors. Therefore, entertainment education may present an opportunity for intervention.

The Intervention

The mass media can serve as a tool for public health advocates in a number of ways, including advertising campaigns, such as paid television and radio spots,³⁹ and co-productions, such as EE approaches in soap operas in developing countries.⁵ The intervention discussed in this case study involves a project that serves as a free resource for TV script writers to provide accurate health information and key public health messages for their storylines. The goal is that audiences will learn about health issues, and ultimately, be motivated to act or change behaviors and sign up as organ donors.³¹

In 2006 there were several popular prime-time television dramas which included organ donation or organ transplant storylines, including *House* (FOX), *CSI: NY* (CBS), *Grey's Anatomy* (ABC) and *Numb3rs* (CBS). HH&S has worked with writers from all of these shows on a regular basis and provided assistance during the development of many of these storylines. In some cases the writers and producers approached HH&S staff for help when the storylines were early in development; in others they turned to HH&S considerably later in the writing process. The very nature of the organ donation subject matter is dramatic, and it is not hard to see why writers included these storylines in their shows. However, creating a dramatic and entertaining program and including accurate health information do not have to be conflicting goals.

This case study analyzes an organ donation transplant storyline that aired on the prime-time drama *Numb3rs*, a procedural crime

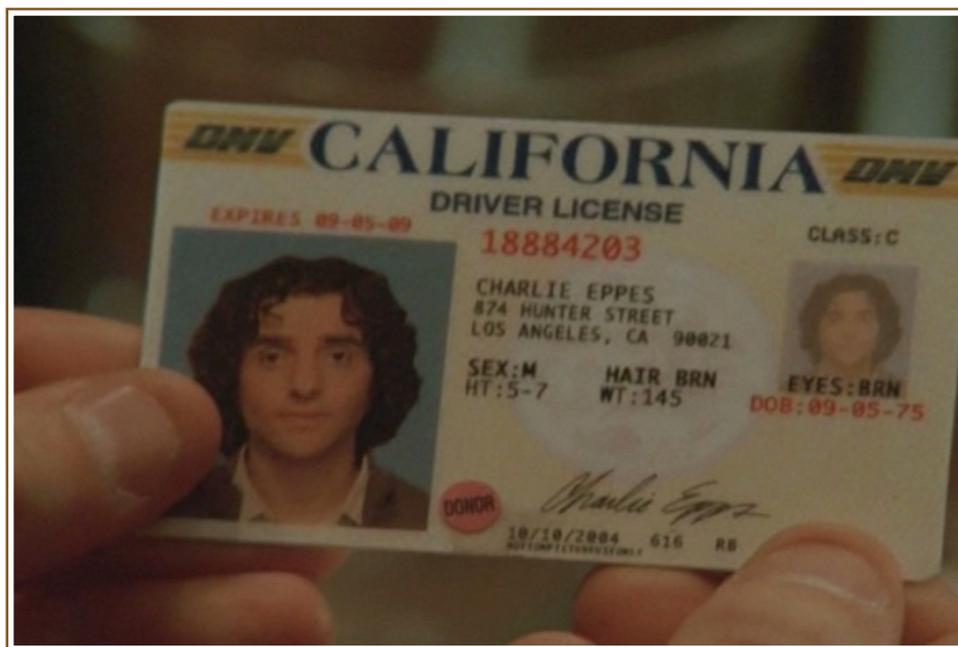
drama about an FBI agent and his brother, a mathematical genius, who solve crimes around Los Angeles. This case is used to illustrate, in detail, the process by which HH&S worked with writers to help them tell a more accurate story about the topic, and one that might motivate viewers to become organ donors. This storyline from *Numb3rs* is of particular interest because it illustrates how providing writers with accurate information and maintaining an open dialogue can inspire them to tell a more positive story about a widely misunderstood topic.

As part of his extensive research for this storyline, J. David Harden, a writer for *Numb3rs* read a story in the *Christian Science Monitor* about the black market trade of human organs in the developing world. This article inspired a concept for an episode about the black market in Los Angeles. Harden contacted HH&S to learn more specific information about the organ donation process for further storyline development. In this case, a relationship had been previously established with the show *Numb3rs* through previous briefings and consultations on other topics. In response to Harden, HH&S sent electronic Web resources on organ donation and transplants and then facilitated a telephone consultation between the writer and James Burdick, director of the HRSA Division of Transplantation, a transplant surgeon who has extensive knowledge about organ donation trends in the United States.

During the course of the consultation, Harden asked specific questions about “transplant

tourists,” what happens to them in real life, and black markets for organs. The expert explained to the writer that no black market exists in the United States, and suggested that the episode instead emphasize the high demand for organ donations, since vulnerable populations in the US may be susceptible to myths and inaccurate portrayals associated with organ transplants in television media. The expert also explained important key messages about the topic, such as the overwhelming number of deaths in the country due to the shortage of organs, how the donor-recipient matching system works, and the system in which organs are tracked. In addition to providing statistical facts about the issue, the expert conveyed the gravity of the problem by providing case examples about patients in the U.S. who were affected by this issue. As writers think naturally in narrative frameworks, case examples were a meaningful way to communicate how accurate health communication could be inserted dramatically into story lines.

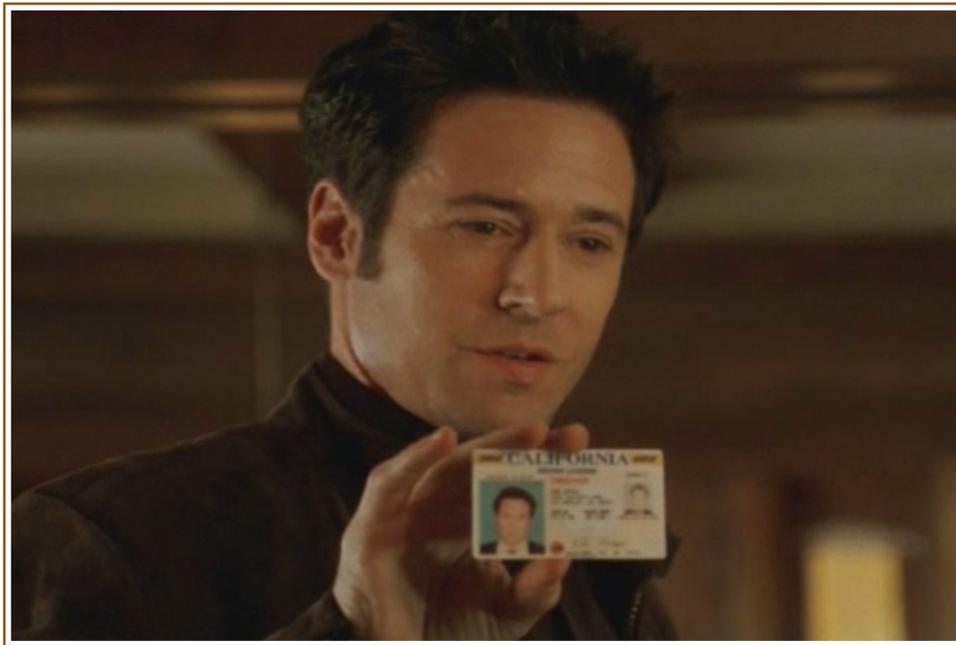
The resulting storyline, “Harvest”, aired on January 27, 2006 and was one of the most popular episodes of the season, drawing 13.36 million viewers.³⁸ As the writer originally planned, the storyline focused on a black market for organ donations set in the U.S. In the episode, through an underground, illegal connection, girls from India are flown to the U.S. and forced to become organ donors for wealthy Americans. Their organs are procured in a hotel basement, where the agents find that one girl had been murdered and all of her organs taken. Despite the inaccurate premise, this episode also provided considerable accurate information about the number of people on the transplant waiting list and the computer system for organ matching. In addition, the storyline concludes with an extensive discussion about the importance of organ donation around the detectives’ family dinner table. Through a warm and comedic scene, four of the characters who are already donors themselves convince a fifth character that he too should sign up to become an organ donor.



A screen shot from the *Numb3rs* episode “Harvest.”

This final scene, although included in the actual storyline rather than a stand-alone piece, was essentially a PSA for organ donation. In the scene, the main character showed off the organ donation sticker on his driver's license, and talked about the importance of signing up to become an organ donor. (See screenshots of the episode.) The others talked about the impact it would have

if everyone signed up to be a donor. This segment was the direct result of the writer's conversations with experts about organ donation and the need for more donors in the U.S. From an Entertainment Education point of view, the characters were modeling the desired behavior of how to become an organ donor.



A screen shot from the *Numb3rs* episode "Harvest."

Evaluation

The process of consulting with TV writers to improve the accuracy of organ donation and transplant storylines has been documented, but what effect did this have on the show and on viewers? To evaluate the impact on knowledge, attitudes and beliefs among viewers who saw the episode, Hollywood, Health & Society partnered with researchers at the University of Southern California and Purdue University to conduct viewer surveys.¹⁸

Six primetime storylines for four shows were investigated (*House* storyline 1 and 2, *Grey's Anatomy* storyline 1 and 2, *CSI: NY* and *Numb3rs*.)^{*} Online surveys were posted on

the four shows' Web sites, online chat rooms and fan sites. (See screen-shot of the web-based survey.) A sample of 4,473 individuals completed the survey. Data from the survey was used to analyze how viewers evaluated storylines and what steps, if any, they took after viewing the episode. The survey instrument was designed to measure perceived accuracy of the show, how emotionally involved viewers became in the episode, knowledge of how to become a donor, and intentions to take donation-related actions.

Due to the concern of perpetuated myths about organ donation through the media, the

Numb3rs -- 2006 Exit this survey >>

Organ Donations/Transplants

You are more than 50% done with the survey. In this part we will ask you questions about organ donations/transplants.

Please rate your agreement with the following statements about organ donation, where 1 = strongly disagree and 5 = strongly agree.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. Doctors work just as hard to save a patient who is an organ donor as one who is not.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. There is a black market for selling organs in the United States.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. I am concerned that patients may be identified as an organ donor before they are declared dead.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. People can recover after being declared brain dead.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Donor families and recipient families are introduced to each other as a part of the donation process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please rate your agreement with the following statements about organ transplants, where 1 = strongly disagree and 5 = strongly agree.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
a. An organ is matched to a recipient through a national computerized system.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Doctors have personal pull in deciding which patient gets the organ.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. A hospital's transplant committee determines priority of patients on the waiting list at that hospital.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Older people (over 60 years of age) don't need to donate organs because their organs are not used.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The rich and/or famous can pay their way for higher priority on a transplant waiting list or "pull strings" to get a transplant faster.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

A screen shot of a web-based survey used to analyze viewers' responses to six television storylines.

^{*} *CSI:NY*: "Live or Let Die", *Numb3rs*: "Harvest", *House* storyline 1: "Sex Kills", *House* storyline 2: "Sleeping Dogs Lie", *Grey's Anatomy* storyline 1: "Enough is Enough (No More Tears)", *Grey's Anatomy* storyline 2: "Band-Aid Covers the Bullet Hole", "Under Pressure" and "17 Seconds" (three-part season finale)

survey also asked about respondents' beliefs regarding a series of myths, including 'There is a black market for selling organs in the United States,' 'Doctors have pull in deciding which patient gets the organ,' 'The rich and/or famous can pay their way for higher priority on a transplant waiting list or "pull strings" to get a transplant faster', among other popular organ donation related myths. Survey results found a relationship between knowledge and attitude outcomes by episode content. The episode of *Numb3rs* was the only storyline about a black market for organs which benefited rich patients in need of a transplant. On a scale from 1 to 5, where 1 was "strongly disagree" and 5 was "strongly agree," viewers of *Numb3rs* were the most likely to agree with the survey statement that there is a black market for organs ($M = 4.26$), compared to viewers of *CSI: NY* ($M = 3.93$, $p < .001$), *House* ($M = 3.87$, $p < .001$), and *Grey's Anatomy* ($M = 3.65$, $p < .001$). Viewers of *Numb3rs* were also more likely to agree with the statement that the rich and/or famous can pay for a higher priority on the transplant waiting list ($M = 3.31$) compared to viewers of *CSI: NY* ($M = 3.10$, $p = .063$), *House* ($M = 3.11$, $p = .023$), and *Grey's Anatomy* ($M = 2.91$, $p < .001$). This had been another theme depicted in the *Numb3rs* episode. The survey found similar results for other shows, where viewers of a particular storyline were more likely to agree with a statement about the plot than viewers of other storylines. For example, viewers who saw the episode of *House* in which the main character, Dr. House, "finds" an extended-criteria heart for his own patient among other dying hospital patients, were least likely to agree with the statement that organs are matched via a computer system compared to viewers of the other shows, and were most likely

to agree that doctors have pull in getting a patient an organ.

In addition to questions about knowledge and attitudes, the survey measured the effects of episodes on donation related behaviors and found that the willingness of non-donors to become potential donors varied according to the content of viewed episodes. Findings indicated that viewers who saw an episode in which the main characters discuss the importance of organ donation were more likely to express willingness to become potential donors, versus viewers of episodes that did not include these dialogues. The *Numb3rs* episode was the only show which explicitly encouraged donation and modeled signing up to be an organ donor. Non-donor viewers of *Numb3rs* were most likely to become a potential donor (10.3%), $\chi^2(5) = 49.40$, $p < .001$, compared to viewers of *CSI: NY* (9.8%), *House* storyline 1 (8.1%), *House* storyline 2 (3.8%) and *Grey's Anatomy* (3.8%). Based on survey results, viewers of *Numb3rs* were also most likely to agree that the storyline 'made [them] think about the importance of organ donation' and 'empowered others to sign up as donors'.

The survey also measured viewer's emotional involvement in storylines and found that it was significantly related to outcomes. For example, those who urged someone to become a donor after watching the storyline rated significantly higher emotional involvement ($M = 4.32$) than those who did not ($M = 3.66$, $t(4471) = 7.88$, $p < .001$). Results indicate that episodes have more influence on attitudes and behaviors if viewers are more emotionally involved. This finding is important in light of the fact that while various centers provide statistics and important

information about organ donation, these messages may not reach as many people nor be as effective if they do not emotionally engage individuals. For example, the research director for *Grey's Anatomy* notes that while the storyline in which the character Izzie Stevens tried to bump up her patient's name on the organ donation waiting list was exaggerated, the emotional component was key.

'If we want as many people to donate organs, we create a character that's sympathetic and tell the story in a very dramatic way, somewhat hyperbolic way. Whereas the organ procurement centers give statistics and they deal in factual evidence, our first agenda is always entertainment because we're an hour drama on ABC.'⁴⁰

Limitations

This was a survey project of self-selected viewers and survey respondents. Thus, it was a convenience sample rather than a representative sample, and results can not be generalized to a larger population. A panel design of a nationally representative sample to be surveyed before and after the episode air dates, or an experimental design of randomly assigned participants for each of the different programs, would be necessary to more robustly demonstrate the link between exposure and outcomes observed. Ideally, a project would triangulate results by using a survey, an experimental lab study of viewers and non-viewers, as well as a focus group to validate what audiences take away from the narrative, and what (if any) other meanings are assigned to the narrative.^{22,41}

Other sources of information about organ donation, including news reports, radio and other television programs, community events

or media campaigns could have circulated around the same time as the *Numb3rs* storyline to influence respondents' attitudes and knowledge. A natural next step to this study would be to control for these environmental factors, as well as demographic characteristics (race/ethnicity, gender, education, income) and personal experience with organ donation or transplants. Viewers of the different shows may very well have different characteristics that would predispose them to certain response options. Content analysis of the six episodes could also be performed by reliability-trained coders to systematically compare the strength and type of messages across the storylines to inform the analysis findings. Furthermore one might tabulate the audience viewership of each of these episodes, to estimate the absolute change in knowledge, attitudes and behavioral intentions at the population level.

Lessons Learned

Evaluating the outcomes of collaboration between Hollywood, Health & Society and writers is very important to gain an accurate picture of the impact vis-à-vis the program's objectives. For example, without evaluating the efforts via the survey, it would be easy to criticize the resulting *Numb3rs* storyline's portrayal of a black market, despite evidence that it does not exist in the U.S. One could assume, therefore, that viewers of *Numb3rs*

would be unlikely to become organ donors due to the TV storyline that focused on this myth.

However, survey results found that viewers can be simultaneously influenced by positive and negative content. While viewers of *Numb3rs* were the most likely to believe that a black market for organs existed in the U.S. and that rich people can get priority for an organ over others, they also had higher levels of perceived importance to become a donor, and were more likely to become a donor and urge others to donate. This can be attrib-

uted to the fact that *Numb3rs* was the only episode that included social modeling behaviors to sign up as a donor. The inclusion of this was due, in part, to expert consultations with the writer who was encouraged to include information about the need to donate organs. The writer also recognized the power of television when pro-social messages are used. Indeed, the *Numb3rs* writer, J. David Harden,

said: 'I'm not naïve – we all understand TV has a big impact. Just consider the size of the audience for our show: Eleven million people and upwards watching Friday nights. You definitely live with a sense that there's some responsibility incumbent upon you in the face of that audience.'⁴⁰ Future efforts for public health professionals may be to focus on the most popular shows with the broadest reach.



Sentinel for Health Awards recognize television storylines that best inform and educate viewers about health issues. *Numb3rs* received a first place award in the primetime drama category for the episode "Harvest."

Hollywood, Health & Society is seeing an increasing sense of responsibility from writers and producers, who are giving more priority to including accurate health information and turning to HH&S more and more as a resource. During the first year of the program in 2001, a dozen or so inquiries were received; this number has increased to more than 200 in 2006.

In order to encourage this increasing awareness on the part of writers, HH&S reinforces accurate storylines through the Sentinel for Health Awards, which

recognizes television storylines that best inform and educate viewers about health issues. Eight of the thirteen finalist storylines recognized in 2006 turned to HH&S for assistance during storyline development, suggesting that the consultation process is effective in educating audiences. *Numb3rs* received first place in the primetime drama category for the episode "Harvest."

Another key lesson which can be applied to other public health programs is the relationship that Hollywood, Health & Society has developed with the entertainment industry. In order for Entertainment Education and public health partnerships with writers to be effective, there must be a trusting and positive relationship between the organization and industry members. After all, the primary goal of Hollywood writers is to create entertaining storylines that will draw an audience because ultimately, the writer's responsibility is to the drama and the show.⁴² While entertainment professionals are becoming increasingly aware of the potential for their shows to educate the public about important health (or other societal) issues,

their primary job remains to be attracting audiences, not educating the public. HH&S understands the tension between telling a dramatic story and simultaneously including accurate health information, and it carefully navigates this need for balance. HH&S is a free resource for writers and not an advocacy group with an agenda to promote specific topic areas. Furthermore, as part of the Annenberg Norman Lear Center, HH&S keenly understands the structure of the entertainment industry. They see their role as relationship building by respecting writers' needs to engage in the creative process and providing accurate information for storylines in the form of case examples.

Researchers from the John Hopkins Bloomberg School of Public Health, who reviewed many entertainment programs, identified a series of challenges to using EE to convey health messages.⁴³ One such challenge is when there is too much education and not enough entertainment. This speaks to the importance of emotional involvement in the storyline, one of the questions in the evaluation survey posted on the Web. The researchers note that lecturing about health issues in an EE drama may sound artificial to the audience, and therefore be ineffective. On the other hand, another challenge to using the EE approach is when there is too much entertainment and not enough education. Indeed, this tension between a public

health group's desire to include strong health messages and a producer's interest in commercial and creative appeal is one of the most important challenges for EE.⁴³ One of the key lessons learned from the researchers and their examination of two decades of EE strategies, supports that EE should resonate emotionally with the audience in order to be effective. The importance of emotional involvement supports the need for Entertainment Education approaches that build effective collaborations with public health professionals and television writers. This lesson about the value of emotional involvement can be carried over to other public health campaigns and interventions.

Conclusion

This case study provides further evidence of the power of drama to motivate television viewers to change health behavior. While there is much inaccurate information on entertainment television shows about organ donation, this case study highlights a timely intervention where HH&S worked with the *Numb3rs* writers to provide accurate information. This collaboration resulted in a storyline, which highlighted the need for organ donations, and which modeled how one can sign up to be an organ donor. When this type of information and modeling is included in TV storylines, viewers may be more motivated to take action.

Based on various television programs using elements of the Entertainment Education

approach, key lessons and characteristics for successful programs have emerged. One of these is a balance between education and entertainment. For information to influence individual's knowledge, attitudes and behavior, it must be emotionally engaging. Therefore, health information included in primetime dramas with emotional features, and with the broadest reach, can be an ideal channel for dissemination. This both strengthens the educational and entertainment value of these shows and satisfies the goals of producers and writers. A mutually beneficial relationship can exist between public health advocates and television writers. The case study of Hollywood, Health & Society's efforts with the *Numb3rs*' writer provides a successful example of such a relationship.

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