Getting Medical Physicists in the News and the Public Consciousness

Ben Stein
Manager, Member Society Media Services
bstein@aip.org

AMERICAN INSTITUTE OF PHYSICS

2006 AAPM Annual Meeting, Orlando, FL
July 30, 2006

Topics

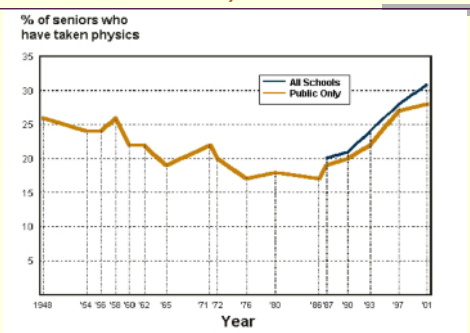
- AAPM Media Publicity Program
- DBIS TV Program
- AIP's 75th Anniversary—Some Possible Ideas for AAPM's 50th

Science Awareness and Appreciation…Why Care?

Issues impaired by lack of science literacy

- *U.S. competitiveness – S&T*
- *Teaching of sciences, engineering and math*
- *Enrollment in science, engineering, math programs*
- *Health care/medical advances*
- *Energy policies/innovations*
- *R&D Funding*

Physics Enrollment in U.S. High Schools, 1948-2001



Public Awareness & Appreciation of Science

- ***Why Care?***
- **Goals:** ✇ **Student Enrollment**
- ✇ **Public&Political Support for Science**

- **Belief:** ✇ **A&A = pre-condition ⇒ support**
- ✇ **A&A = pre-condition ⇒ authority**
- ✇ **A&A = pre-condition ⇒ enrollment**

- **Whose Job Is It?**

What do we know about the public's opinion of science?

Understand how the public gets their information

- ***TV is the leading source of S&T information for general public (44%)***
  2004 NSF Science and Engineering Indicators
- ***Only 8% watch in depth science TV programs (e.g., NOVA, PBS)***
  PEW Research Center 2004

Understanding Audiences

Is audience receptive to science news?

Relevant Research Need for STEM Education

NSF Science & Engineering Indicators 2004:

50% Interested S&T Developments

15% Consider themselves well informed

30% Consider themselves poorly informed

Role of Informal Education Programs

--Programs aimed at raising public awareness and appreciation are critical and complementary to formal education efforts

--Impact difficult to measure

--Comprehensive research data are not yet collected that show a direct correlation between public's A&A and

- *Support*
- *Student enrollment*
- *Authoritative role for science in society*

AMERICAN INSTITUTE OF PHYSICS

- Umbrella of 10 Member Societies including AAPM
- Mission is to advance physics & related fields
  - Publish journals, magazines
  - Provide programs, services, initiatives for community
  - Disseminate information to general public
  - Inform policy makers
- Work in partnership with 10 Member Societies

AMERICAN INSTITUTE OF PHYSICS

AIP Media and GR Goals

To promote awareness, appreciation, understanding, and support for:

- *The role that medical physicists play in society.*
- *The role that medical physicists play in shaping the future.*

AMERICAN INSTITUTE OF PHYSICS

AIP Media Objective

Disseminating information to the news media

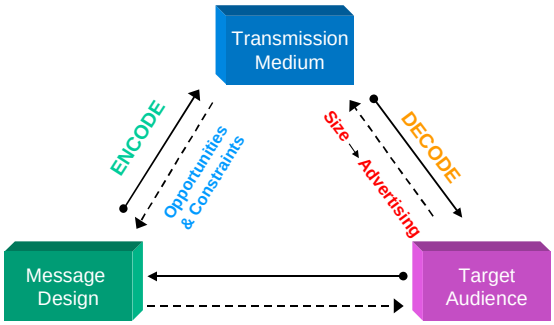
Understanding the various media outlets and audiences served

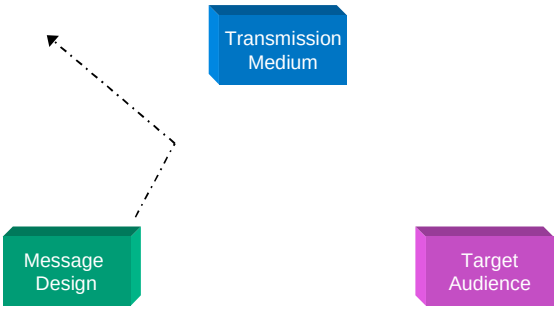
Designing and tailoring the science news message for the relevant outlet

Getting the Message Out Effectively

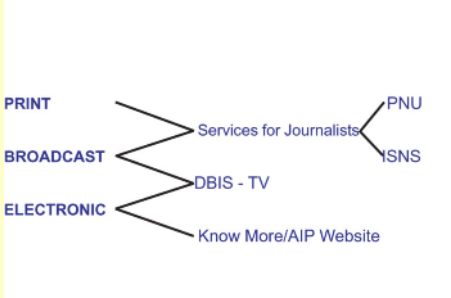
- *How To Reach Intended Audience?*
- *How to turn awareness and appreciation into authority/support for science in society?*

How to Communicate Message





Development of Strategic Media Programs



AAPM Meeting Publicity

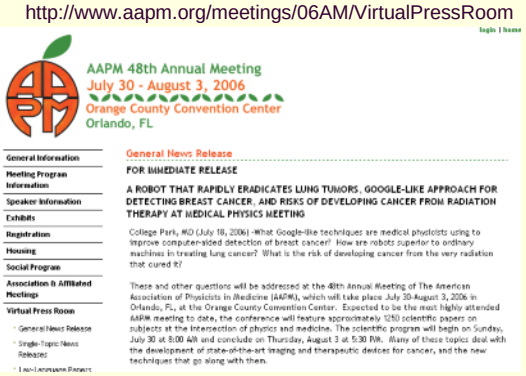
- Publicize AAPM scientific program to the news media with goal of generating news coverage
- Highlight 5-7 meeting talks with particularly newsworthy, accessible results
- Main target audiences: “print” media (newspapers, Internet), popular magazines and trade publications
- Distribute press materials to reporters via email and web

AAPM Story Selection

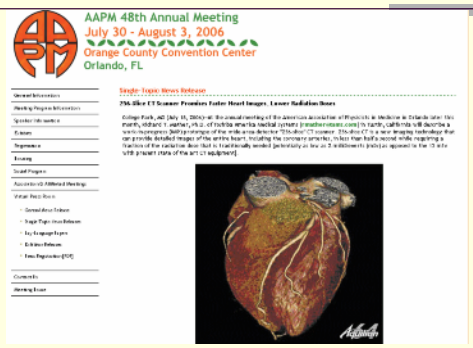
- AAPM program committee provided recommendations of several dozens of abstracts
- AIP science writers worked with AAPM media relations subcommittee chair to select abstracts, contact presenters
- Writers fact-checked individual press release items with respective presenters, sent release to program committee and AAPM leadership for final review

AAPM Meeting Virtual Pressroom

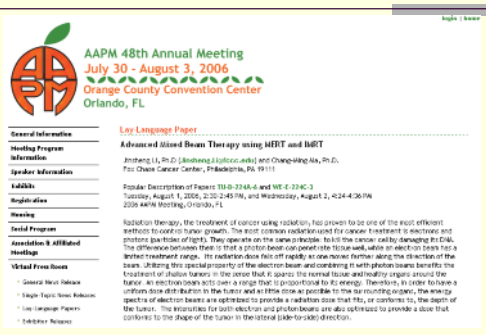
http://www.aapm.org/meetings/06AM/VirtualPressRoom



Single-Topic News Releases



Lay-Language Papers

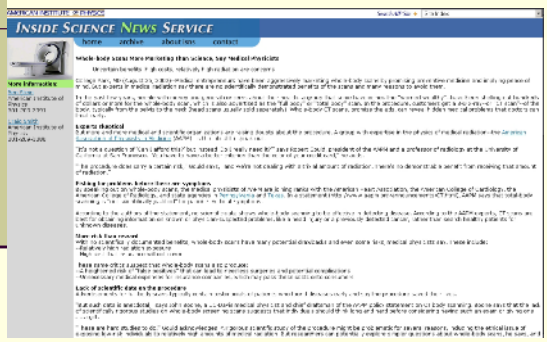


Internet News Wires

Sample AAPM Meeting News Coverage

Sample AAPM Meeting Media Coverage

Publicizing AAPM Policy Statements



Coverage of AAPM Statement

Los Angeles Times

Capsules; Physicists Warn Against CT Scans for the Healthy

Sep 16, 2002, pg. B2

DIANNE PARTLE LANGE

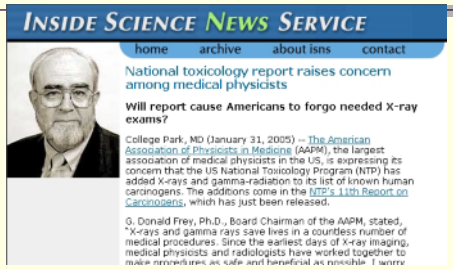
Formerly healthy people, having a CT scan as a sort of high-tech checkup not only puts you at risk of a false alarm about your health, it unnecessarily increases your exposure to radiation. For these reasons, the American Assn. of Physicists in Medicine is cautioning healthy consumers about whole-body scans.

Other medical associations, such as the American College of Cardiology and the American College of Radiology, have issued warnings, but the AAPM, a group with special expertise in the physics of medical radiation, emphasizes the danger of radiation exposure. According to the group's statement, posted on its Web site, www.aapm.org, the typical whole-body CT scan delivers hundreds of times the radiation of a chest X-ray.

"The risk of that causing a radiation-induced cancer is unknown," says Robert Gould, president of the association and a professor of radiology at UC San Francisco. "The question is, is that risk—however small—worth the benefit?"

CT scans for people without symptoms "has not currently been found to be scientifically justifiable or clinically efficacious," the association said, also citing concerns about cost and the detection of minor problems that lead to unnecessary medical examinations and expenses.

Another AAPM Statement



INSIDE SCIENCE NEWS SERVICE

home archive about isns contact

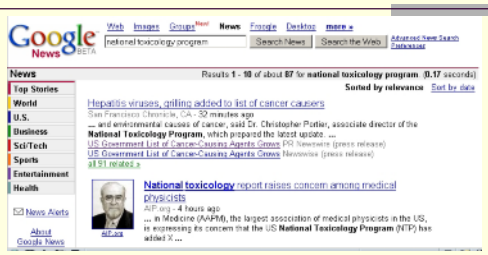
National toxicology report raises concern among medical physicists

Will report cause Americans to forgo needed X-ray exams?

College Park, MD (January 31, 2005) -- The American Association of Physicists in Medicine (AAPM), the largest association of medical physicists in the US, is expressing its concern that the US National Toxicology Program (NTP) has added X-rays and gamma-radiation to its list of known human carcinogens. The additions come in the NTP's 11th Report on Carcinogens, which has just been released.

G. Donald Frey, Ph.D., Board Chairman of the AAPM, stated, "X-rays and gamma rays save lives in a countless number of medical procedures. Since the earliest days of X-ray imaging, medical physicists and radiologists have worked together to make procedures as safe and beneficial as possible. I worry

AAPM Release on Google News



Google News BETA

Web Images Groups New! News Froogle Desktop more »

national toxicology program | Search News | Search the Web | Advanced News Search Preferences

News — Results 1 - 10 of about 87 for **national toxicology program**. (0.17 seconds)

Sorted by relevance Sort by date

Top Stories
World
U.S.
Business
Sci/Tech
Sports
Entertainment
Health

News Alerts

About Google News

Hepatitis viruses, grilling added to list of cancer causers

San Francisco Chronicle, CA - 52 minutes ago

... and environmental causes of cancer, said Dr. Christopher Portier, associate director of the **National Toxicology Program**, which prepared the latest update. ...

US Government List of Cancer-Causing Agents Grows PR Newswire (press release)

US Government List of Cancer-Causing Agents Grows Newswire (press release)

all 91 related »

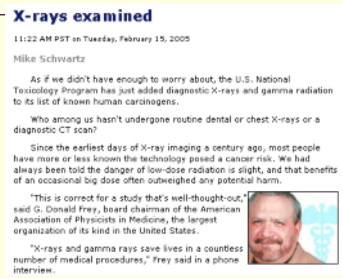
aip.org

National toxicology report raises concern among medical physicists

AIP.org - 4 hours ago

... in Medicine (AAPM), the largest association of medical physicists in the US, is expressing its concern that the US **National Toxicology Program** (NTP) has added X ...

Press Coverage of AAPM Statement



PE.com The Press-Enterprise

X-rays examined

11:22 AM PST on Tuesday, February 15, 2005

Mike Schwartz

As if we didn't have enough to worry about, the U.S. National Toxicology Program has just added diagnostic X-rays and gamma radiation to its list of known human carcinogens.

Who among us hasn't undergone routine dental or chest X-rays or a diagnostic CT scan?

Since the earliest days of X-ray imaging a century ago, most people have more or less known the technology posed a cancer risk. We had always been told the danger of low-dose radiation is slight, and that benefits of an occasional big dose often outweighed any potential harm.

"This is correct for a study that's well-thought-out," said G. Donald Frey, board chairman of the American Association of Physicists in Medicine, the largest organization of its kind in the United States.

"X-rays and gamma rays save lives in a countless number of medical procedures," Frey said in a phone interview.

Media Programs

Belief

Awareness and Appreciation

+

Programs and Initiatives

=

Society with Appropriate Role/Authority of Science in Decision Making Process

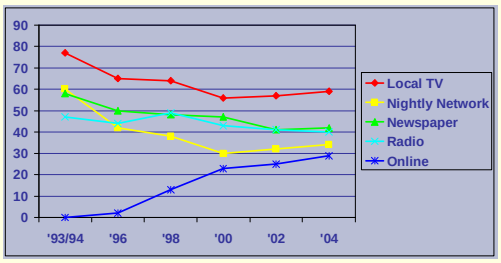
DISCOVERIES + BREAKTHROUGHS INSIDE SCIENCE

Credible & Compelling Sci/Tech Content
for Local TV Broadcasters

- Twelve ~90-second reports every month.
- Scientifically reviewed by AIP staff, independent experts, partner organizations
- Educational webpage for every story
- Production and marketing done in collaboration with Ivanhoe Broadcast Network, a major syndicator of S&T news

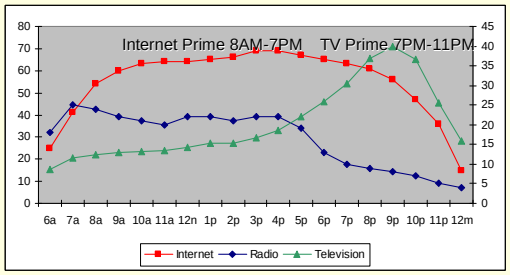
Understanding how the public gets information

Used specific news source "yesterday"



(Source: Pew Research Center, 2004)

Web is Complementary to TV



(Source: TV: Nielsen Media Research (2+), Radio: Arbitron (12+), Internet: Nielsen//NetRatings (2+))

DISCOVERIES+ BREAKTHROUGHS INSIDE SCIENCE

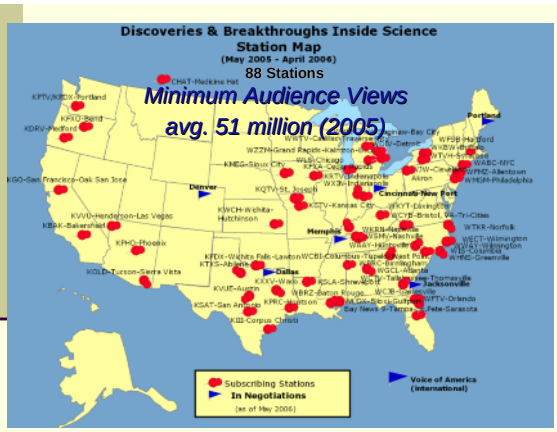
Goals

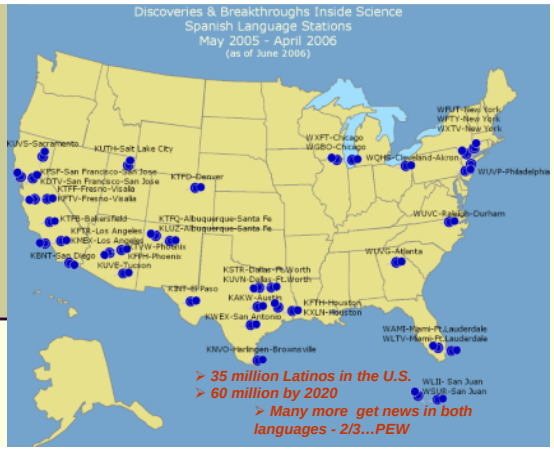
- ***Promote awareness and appreciation among local TV news viewers of the role science plays in society***
- ***Promote the image of science professionals, showing that they share the same concerns as the rest of the general public***
- ***Feature scientists from diverse backgrounds***
- ***Provide an educational science web component***

Milestones to Achieve

Each Year

- **Increase subscribing stations**
- **Increase funds from partners & sales**
- **Increase STEM partners**





Subscribing Stations (May 2005 – April 2006)

- Approximately 90 agreements have been signed by subscribing stations between May 2005 and April 2006; 9 of top 20 markets; 18 of top 50
- Currently, we are in negotiations with 5 local stations.
- Potential distribution through Tribune and Hearst
- Other potential subscribers include:
  - Voice of America (International)
  - VOXANT (Internet)
  - Roo Media (Internet)

2006 Partners- 18 organizations

2004 (8) 2005 (15) 2006 (18)

- ***Acoustical Society of America***
- ***American Association of Physics Teachers***
- ***American Association of Physicists in Medicine***
- ***American Geophysical Union***
- ***American Institute of Physics***
- ***American Mathematical Society***
- ***American Meteorological Society***
- ***AVS Science and Technology Society***
- ***American Society of Civil Engineers***
- ***American Society for Microbiology***
- ***American Water Works Association***
- ***Human Factors and Ergonomics Society***
- ***Incorporated Research Institutions for Seismology***
- ***Institute of Electrical and Electronic Engineers – USA***
- ***Materials Research Society***
- ***Mathematical Association of America***
- ***Space Telescope Science Institute***
- ***Universities Research Association***

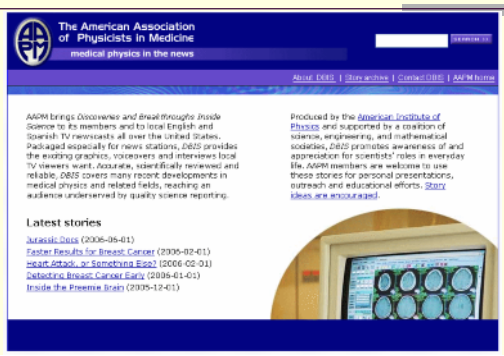
DISCOVERIES+ BREAKTHROUGHS INSIDE SCIENCE

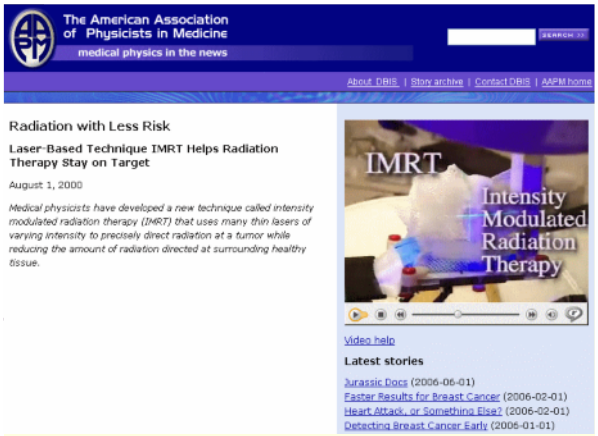
AAPM's Expanded Partnership

- **Become fully incorporated with DBIS team in the story development process.**
- **Access to DBIS videos through seamless AAPM website- an online presence that provides outreach and awareness of the stories covering medical physics topics.**
- **Use of *"science behind the news"* pages that explain related scientific phenomena behind the DBIS stories in greater detail.**

AAPM-DBIS Website

http://www.aip.org/dbis/AAPM





DBIS: How It is Different from Other TV News Programs

- DBIS is designed for local TV, the medium in which most US residents get their news.
- DBIS is peer-reviewed, with outside scientific experts in specific fields evaluating every potential story idea.
- A 4-year grant NSF grant includes comprehensive evaluations of the program, including tracking by Nielsen Ratings, which started in January 2004.
- DBIS is produced by AIP and partner-driven. AAPM is encouraged to have an active role in suggesting story ideas, suggesting experts, and reviewing scripts with medical physics content.

NSF Support

DISCOVERIES+ BREAKTHROUGHS INSIDE SCIENCE

2003-AIP Awarded 4 year NSF Grant

- *Full evaluation plan that examines effectiveness of the program*
- *Educational Website*
- *Spanish language component*

Full Evaluation Plan

How effective is DBIS?

1. Nielsen Tracking
   - Help editorial decisions
   - Ensuring focus on all areas of science
2. Focus Groups in Year 1 and Year 3
   - Success of science message among audience
   - Success of science/TV criteria mix
3. Experimental Design

   Does viewing DBIS increase awareness & appreciation of science?
   - 900 local TV news watchers:
   - 3 groups watch varying number of DBIS reports
   - Comparative analysis of effectiveness

AMERICAN INSTITUTE OF PHYSICS

Nielsen Case Study: Two AAPM Stories

- Two AAPM videos (better tumor targeting, preventing radiation burns) combined for an estimated 8.3 million views, according to Nielsen data
- Lehrer Newshour: 2.7 million viewers per evening
- USA Today daily circulation: 2.5 million

Link between STEM Content and Public's Awareness, Appreciation and Support for STEM?

National Science Foundation
WHERE DISCOVERIES BEGIN

NSF sponsored study of:

- *the effectiveness of STEM content*
- *delivered to the large number of TV news audiences*
- *through the DBIS TV program*

Three years of studies, three years of insights

- Year one: formative research
  - Focus groups in various U.S. cities
  - Showed DBIS programs to high-school-educated groups, college-educated groups, and mixtures
- Published in May '05 *Technical Communication*

DISCOVERIES+ BREAKTHROUGHS IN THE SCIENCE

Year 1 Focus Groups

Focus Groups- Some Observations

Those with less formal education- more enthusiastic about the science info /willing to seek more

Graphics and visuals (esp. human interactions) effective in helping people to remember stories

Greater relevance to everyday lives sparked greater interest

Scientific words: repeated

Year Two: Experimental Study

- Experiment (n = 667) in east coast market (Buffalo, NY)
- Random sample & random assignment to exposure
  - Control (no DBIS stories in week's news)
  - Partial treatment (3 days of DBIS stories)
  - Full treatment (week of DBIS stories)
- Afterwards, phone interview measured memory of stories, adjustments in beliefs
- Forthcoming article in *Communication Monographs*

Some Results

- Do people remember DBIS stories after seeing them?
- **YES** (strong correlation between experimental condition and memory)
- Does exposure to DBIS boost key beliefs about STEM?
- **YES** (ability to understand science and math & science does not harm)
- Does exposure to DBIS increase peer conversations about science?
- **YES** (partially by boosting confidence in understanding)
- Does exposure to DBIS encourage support for scientific institutions?
- **YES** (in part by facilitating conversation)

Implications?

- DBIS exposure remembered and inspires talk (over and above other factors)
- People can boost conversational competence through DBIS exposure
- *Local television news an ally for science communication professionals*

What have we learned?

- There is TV audience for information scientific societies can deliver
- DBIS project: Memorable stories that inspire confidence and discussion
- Effects modest in short-term; *need long-term commitment to projects*

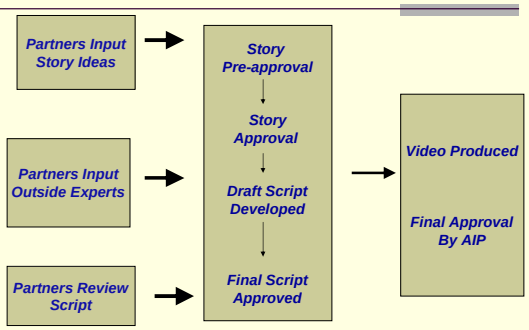
Story Leads
May 05- April 06

- University press releases
- AIP/Partner contacts
- Journals or news magazines
- Professional science meetings
- Science news websites

Story Review

- AIP Editor
- Main Researcher
- Outside Expert
- STEM Participants

DBIS: Partner Inputs



Story Selection Criteria-Scientific

- Should be new research resulting in a solution or that explains a scientific or technical mystery.
- Must be able to illustrate the concept.
- Must have the ability for an outside expert to evaluate the research.
- Medical stories generally should be in at least phase II of human clinical trials.

Story Selection Criteria - TV

- ***Must be visually stimulating.***
- ***Should be of interest to most parts of U.S.- not regionally limited.***
- ***Research should provide direct benefits to the general public within the next couple of years.***
- ***Researchers should be located in the U.S. for logistical/budget reasons***
- ***Must not have received extensive TV coverage.***

Lessons learned from news directors' monthly feedback

- *"Real people" make the story. Find relevant people being impacted by these breakthroughs and how it has changed their lives.*
  News Director, Phoenix
- *Keep the writing more conversational.*
  News Director, Tampa
- *The topics and content were extremely strong…you need more "people-izing" but overall … well done!"*
  News Director, Ft. Wayne

How you can help

- Suggest story ideas for the program—contact me or AAPM Media Relations Subcommittee chairman Jeff Limmer at jeffl@aspirus.org
- Serve as an outside expert for a particular story idea we are considering, or suggest an appropriate expert
- Help Jeff review one of our scripts if you are an expert in a topic we're featuring

SUMMARY- DBIS Program

- ***DBIS designed for local TV- medium in which most US residents get their news***
- ***Provides a vehicle that reaches the public less likely to have alternative sources of STEM news or information***
- ***Peer-reviewed with outside experts in specific fields***
- ***Produced by AIP and partner-driven- partners encouraged to engage at all levels…***
- ***A 4-year NSF grant: evaluation of the program, including a major evaluation study to determine the relationship between STEM content and viewers' awareness and appreciation of STEM***

AIP 75th Anniversary-2006

Anniversary Website: http://www.aip.org/anniversary

AIP 75th Anniversary: Recipe for Success

- Strong Leadership Involvement (both staff and members)
  - Issue clear mandate, stay fully informed
  - Set up steering committee, create subcommittees as needed
  - Assign staff, committee members to specific tasks
  - Have frequent meetings (every month in early stages, every two weeks in later stages)
- Determine Scope of Anniversary Events
  - Make realistic budget, obtain adequate resources
    - Stay flexible, consider different options
- Set Goals for Anniversary
  - Increase membership?
  - Heighten recognition of medical physics in medical community?
  - Raise Awareness of medical physics by students?

Possible Anniversary Events

- Convocation
  - Weaves together historical themes, future goals of AAPM, future directions for medical physics
- Website
- Book
- Video Presentation
  - Can also serve as historical record of AAPM, its officials

Other thoughts

- Branding
  - Attach AAPM 50th logo to everything during anniversary year: website, brochures, journal, meeting
- End result: 50-year anniversary can validate the effectiveness of AAPM as an organization, medical physics as a profession, etc.

AIP Historical Video Themes

- Physics
- Impact of physics on society
- Impact of AIP on physics community
- Future of AIP and physics

- For the video, we highly recommend Dick Kindig, Kindig Omnimedia, www.omnimedia1.com
  - Very flexible and scalable
  - Most reasonable bid
  - Great to work with
  - "Got it"

Acknowledgements

- Alicia Torres, Director, Media & Government Relations
- Brian Southwell, Professor, University of Minnesota School of Journalism and Mass Communication
- Eva Adams, AIP
- Karin Heineman, AIP
- Allyson Woods, AIP