



February 21, 2015

Dear Chairman Folmer, Minority Chairman Williams, and Members of the State Government Committee,

In this testimony, I will provide my bio, an overview about how I became aware of the significant lack of educational material and formal training on medical marijuana available to healthcare professionals and how I subsequently became focused on educating physicians, other healthcare workers and the public on medical marijuana. This testimony will also include a description of the launch of the *Medical Marijuana - Medical, Legal, Social and Political Issues* section and the *Opioid Abuse Epidemic* section of TheAnswerPage.com

Bio:

Stephen B. Corn, MD is a board certified physician of Brigham and Women's Hospital and Children's Hospital, Boston, Massachusetts and Associate Professor at Harvard Medical School. His areas of specialization include anesthesiology, perioperative medicine and pain medicine. He is also an inventor and holds over 30 United States and international patents focused on patient safety and medical education. Many of the inventions are currently in use throughout the world. His expertise in medical devices has resulted in his being named the first and only "Director of Clinical Innovation" for both Boston Children's Hospital and Brigham & Women's Hospital, Harvard Medical School.

Dr. Corn is also the recipient of the 2002 Brigham and Women's Hospital, Harvard Medical School, Physician Organization's "Physician's Recognition Award." This award is given to recognize outstanding Brigham and Women's Hospital and Dana Farber Cancer Institute clinicians. He is one of the first two physicians to receive this award for "Excellence in Clinical Innovation" from these world-renowned institutions.

Dr. Corn is a three-time recipient (2002, 2004, 2011) of the "Partners in Excellence Award," Partners Health-Care System, Inc. Partners presents this highly esteemed award to individuals and teams who are nominated by their colleagues for their exemplary performance and 'above and beyond the call to duty contributions' to Partners and its member institutions.

In 2005, Dr. Corn was the recipient of the *Boston Business Journal's* "Champions in Health Care Award" for "Clinical Innovation."

In 2010, Dr. Corn was featured on CBS News Boston and San Francisco for his inventing and developing a non-contact means to measure breathing.

Dr. Corn has donated technology appraised at over \$6 million to Brigham & Women's Hospital, Harvard Medical School and Women & Infants' Hospital, Brown University.

How I became focused on medical marijuana education:

I had no focus on medical marijuana education until November 2012. Honestly, it had never crossed my mind. My wife (also a doctor) and I were discussing the upcoming introduction of medical marijuana in Massachusetts, and our 10-year-old son joined the conversation. We were not discussing anything that he would not learn from current events and the news. He asked us four rather insightful questions, that despite being "pain experts" we could not adequately answer!

Our son's 4 questions:

- What about carbon monoxide? That can't be good for you!
- Doesn't smoke produce cancer-causing chemicals?
- What if you write a prescription and then your patient has a car accident? Are you responsible?
- What about second-hand smoke, if there are children in the house?

I realized that if I, a well-read academic physician, very familiar with the anesthesia, pain and palliative care literature, could not answer these basic questions, physicians further removed from this literature, (such as primary care physicians) may be even less well equipped to address this topic with their patients.

My search for responses to my son's inquiries led me to realize that there were few (if any) unbiased quality resources to provide education on medical marijuana. Further, "marijuana" is not found in the Physicians' Desk Reference (PDR), which is the standard resource for doctors to read about medications. The FDA inserts that accompany prescription medications do not exist for medical marijuana. Importantly, medical schools, residency programs and fellowship training programs do not provide any formal training on medical marijuana or the endocannabinoid system, a physiologic system that is present in every human being. Additionally, I realized that there were no continuing medical education (CME) courses in this subject area.

After coming to this realization, I became concerned that only a very few physicians would be familiar with the literature on medical marijuana and patients would likely be confronted by two extremes of doctors:

- Doctors who knew little about medical marijuana and simply said "no" to their patients' requests.
- Doctors, who knew little about medical marijuana, but certified their patients for medical marijuana use. These doctors would not be in a position to provide needed teaching and guidance in the therapeutic use of medical marijuana. To further complicate matters for patients in this scenario, the patients would not be able to turn to local pharmacies to address questions pertaining to administration, drug interactions, side effects, etc., as pharmacist are also not provided medical marijuana education.

Our educational medical marijuana initiative:

Clearly, unbiased quality education was needed to address the therapeutic benefits, as well as the potential adverse effects of medical marijuana. In order to help fill this significant gap in medical education, in 2013 we launched "Medical Marijuana: Medical, Legal, Social, and Political Issues" on TheAnswerPage.com.

Briefly, TheAnswerPage.com is a medical education website that I co-founded and has been providing free medical educational content worldwide since 1998. Top universities link to TheAnswerPage.com and we get "thank yous" from healthcare providers around the world, including from those individuals who depend on our free quality educational content. TheAnswerPage is now read in over 120 countries, has granted well over 100,000 hours of *AMA PRA Category 1 CME Credits™* and offers an industry-unique interactive crossword puzzle for a fun and effective learning experience.

TheAnswerPage's content is jointly sponsored with the Massachusetts Medical Society for providing *AMA PRA Category 1 CME Credits™* and was featured in the February 7, 2013 issue of the *New England Journal of Medicine*. Of note, the Massachusetts Medical Society has been linking directly to our medical marijuana content since early 2013.

- Medical Marijuana Basics
- The Pharmacology of Cannabis and Cannabinergic Medicines
- Medicinal Cannabis in the Treatment of Chronic Pain Syndromes
- Cannabis as a Substitute for Alcohol and Other Drugs
- The FDA Drug Approval Process
- Federal Marijuana Laws
- Medical Marijuana Laws and Agreements
- The Development and Evolution of the Cannabis Dispensary
- Cannabinoid Hyperemesis Syndrome

<http://www.massmed.org/Continuing-Education-and-Events/Online-CME/Medical-Marijuana-CME/#.Ug2fARbXxt8>

In addition to the medical marijuana content presently posted on TheAnswerPage.com, we are preparing for the expansion of our medical marijuana educational program with content written by our international team of medical marijuana experts. Some of that content includes:

- Introduction to the Endocannabinoid System
- Therapeutic Uses For Cannabis including:
 - Cancer
 - Positive status for Human Immunodeficiency Virus or Acquired Immune Deficiency Syndrome
 - Amyotrophic Lateral Sclerosis (ALS)
 - Huntington's Disease
 - Cachexia or wasting syndrome
 - Severe or chronic pain resulting in substantial limitation of function
 - Neuropathies
 - Multiple Sclerosis
 - Parkinson's Disease
 - Glaucoma
 - Epilepsy
 - Post-Traumatic Stress Disorder (PTSD)
 - Tourette Syndrome
 - Sleep disorders
 - Substance withdrawal

- Alzheimer's Disease and Dementia
- Inflammatory Bowel Disease (IBD)
- Palliative Care
- Contraindications-relative and absolute
- Dosing and modes of administration
- Drug Interactions
- Adverse reactions
- Identifying and addressing marijuana abuse and dependence
- Cannabinoid Medicines

In addition to providing doctors and other healthcare workers with quality unbiased education on medical marijuana, TheAnswerPage will soon be launching "A Medical Marijuana Education Program for Patients, Caregivers and Dispensary Staff Workers." This educational program is intended to ensure that patients get accurate and relevant clinical information, given the limited quantity of quality unbiased educational material that is available on the subject, especially with very little being directed to patients. As noted previously, there are no FDA product inserts and pharmacies do not provide support for those using medical marijuana alone or in combination with other medications. Further, in contrast to prescription and over-the-counter medications, there are no newspaper, magazine or television ads that serve to address indications, side effects and contraindications of medical marijuana.

The response to the medical marijuana educational material and to the other medical educational material on TheAnswerPage.com has been excellent and uniformly positive.

Though I have only been focusing on medical marijuana education for a relatively short period of time, I am now contacted for my input and collaboration on a daily basis.

The Americans for Safe Access has recognized my contributions to advancing medical marijuana education, and has recently honored me by naming me "Medical Professional of the Year" in Washington, D. C. at the 2014 Unity Conference.

http://www.youtube.com/watch?v=q4a_7fPBJJM&feature=em-share_video_user

The “**Stephen B. Corn, MD Massachusetts Alternative and Palliative Care Educational Research Fund**” has been endowed at Brigham & Women's Hospital, Partners Healthcare Corporation, Harvard Medical School for advancing education and research in this important area. The first activity of this new fund was the hosting of Dr. Raphael Mechoulam in his presentation entitled, “The Importance of Being a Cannabinoid.”

Dr. Mechoulam is internationally recognized and credited with the isolation, structure elucidation and total synthesis of THC, the main active principle of cannabis, and for the isolation and the identification of the endogenous cannabinoid anandamide. He has conducted six decades of seminal research.

Further, multiple state departments of public health have contacted TheAnswerPage for our educational expertise in medical marijuana education and we are now collaborating with several.

For example, TheAnswerPage was selected to be the sole educational partner to the **Florida Medical Association (FMA) and Florida Osteopathic Medical Association (FOMA)** in the creation of their state required “Florida Physicians Low-THC Cannabis Course.”

http://www.flmedical.org/Cannabis_Course.aspx

“The Florida Medical Association and Florida Osteopathic Medical Association wish to thank **The Answer Page, Inc. (TAP)** for serving as our educational partner in creating this low THC cannabis course for the physicians of Florida. TAP has pioneered quality innovative on-line education since 1998. TheAnswerPage provides quality education in such areas as Pain Medicine, Opioid Prescribing, Palliative Care, Medical Marijuana, Perioperative and Hospital Medicine, Anesthesiology, Medical Statistics and Risk Management.”

The Massachusetts Medical Society is also currently highlighting TheAnswerPage's course entitled, “The Opioid Abuse Epidemic” as their “Featured Online CME” program.

<http://www.massmed.org/Continuing-Education-and-Events/Online-CME/Online-CME-Courses/#.Ud1o-Rbe5t8>

Some concluding comments:

I believe that it is important to note that I am not certifying patients and I am not financially involved with the dispensary system. My focus is on providing high quality unbiased medical education for the medical community and the community at large.

TheAnswerPage's approach to the subject of medical marijuana is the same as it is for all of its content...to provide the highest quality balanced education that is based on the best resources, and addresses the risks, benefits and therapeutic options.

It is my belief that our educational efforts have been consistently met with incredible support and interest by those on both sides of the issue because of the recognition of the need for quality unbiased education on the topic of medical marijuana. TheAnswerPage is most encouraged that the majority of our encounters are with individuals seeking knowledge to make informed decisions. I, along with TheAnswerPage, will continue to collaborate with state medical societies, departments of public health, academic colleagues (both near and far), among others, in an ongoing effort to help narrow this educational gap related to medical marijuana education.

Respectfully submitted,

Stephen B. Corn, M.D.

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The views and opinions expressed in this testimony are those of the author and do not necessarily reflect the opinion of any entity mentioned or referenced in this document.



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Awards, Honors & Grants

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BWH is recognized as leader in both patient care and research, with expertise in virtually every specialty of medicine and surgery, and research spanning from basic, to clinical and translational. The BWH medical preeminence dates back to 1832, and today that rich history in clinical care is coupled with its national leadership in quality improvement and patient safety initiatives and its dedication to educating and training the next generation of health care professionals. Through investigation and discovery conducted at its Biomedical Research Institute (BRI), BWH is an international leader in research on human diseases, involving more than 1,000 physician-investigators and renowned biomedical scientists and faculty supported by more than \$640 M in funding.

For the past 20 years, BWH has earned a place on the U.S. News & World Report's Honor Roll of America's Best Hospitals. The physicians, researchers and staff at BWH are recognized for excellence across specialties, while as an institution, the hospital also receives numerous accolades as care provider, employer, and more.

Awards & Honors - Apr 21, 2014

Corn Named Medical Professional of the Year Stephen B. Corn



Stephen B. Corn, MD, director of Clinical Innovation at BWH, and member of BWH's Department of Anesthesiology, Perioperative and Pain Medicine, was recently named "Medical Professional of the Year" by the Americans for Safe Access (ASA). He received this award at a banquet on April 5th in Washington, D.C., and also delivered a lecture entitled "Medical Marijuana: Establishing an Educational Resource" while in Washington, D.C.

Corn is a physician, researcher, inventor and faculty member at BWH. His invented technologies are used throughout the world, and TheAnswerPage.com, the free educational website that he co-founded, is utilized in more than 120 countries. Corn has been named a "Champion in Health Care" and has received individual "Partners in Excellence" awards for clinical innovation, teamwork, operational efficiency and leadership. He has been a distinguished guest on XM Radio and was featured on CBS News Boston and San Francisco. He has also donated technology appraised at over \$6 million to BWH, Harvard Medical School, Women & Infant's Hospital and Brown University.

YAHOO! FINANCE

Medical Marijuana Education for Doctors is New Focus on TheAnswerPage.com

 Press Release: TheAnswerPage.com - Tue, Apr 9, 2013 9:35 AM EDT

BOSTON, April 9, 2013 /PRNewswire/ – Medical marijuana is legal in 18 states and now will be studied worldwide by physicians and other healthcare professionals on the medical education website, TheAnswerPage.com.

"Medical marijuana may be controversial, but it is an important area of study in healthcare," says Stephen B. Corn, MD, Editor-in-Chief and co-founder of TheAnswerPage. Corn is a clinician, professor and an award-winning, prolific inventor. "Doctors and healthcare professionals must understand the medical, legal, social and political issues to best respond to their patients' questions and attend to their needs."

Medical professionals visit TheAnswerPage.com daily to learn the latest medical information and earn continuing medical education (CME) credit. Educational areas on the site include opioid prescribing, pain medicine, palliative care, risk management, anesthesiology, perioperative and hospital medicine, clinical statistics, and medical marijuana.

The Massachusetts Medical Society accredits all educational content on the site.

The website's medical marijuana "lecture series" begins with a primer week about the plant, the five most studied cannabinoids and an explanation of the endocannabinoid system. In later weeks, medical and legal issues are addressed, including state and federal marijuana laws. Information is provided on the FDA drug approval process, including information on pre-clinical trials, phase I, II and III trials, new drug applications and the drug marketing process. New sections cover the treatment of chronic pain syndromes.

"Most medical schools are lagging in teaching the scientific facts about the medicinal use of cannabis," said Sunil K. Aggarwal, MD, PhD, cannabis expert and resident physician at N.Y.U. Medical Center. "It's great that doctors can now get excellent and rapid CME training on medical marijuana at The Answer Page."

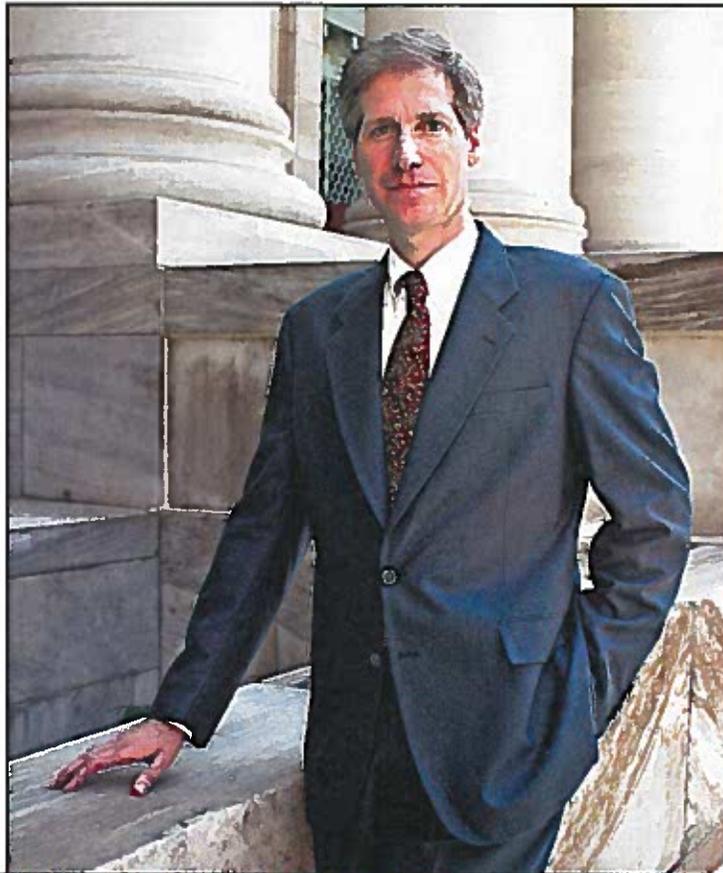
TheAnswerPage uses the Socratic question-and-answer teaching method that characterizes much of the clinical educational experience. The content, written by academic clinicians respected in their fields, is peer-reviewed and referenced from current texts and recent literature.

Subscribers receive *AMA PRA Category 1 CME Credits*™ by reading the content and completing an industry-unique interactive crossword puzzle. Crossword clues are structured to reinforce the teachings, and links are provided to related content. Subscribers have personal accounts that organize their CME credits and allow them to download, email or print CME certificates for credentialing and licensing.

"Registering and content remain free so that physicians, researchers and other healthcare professionals around the world may take advantage of the exceptional content and reinforce their learning through our interactive crossword puzzle methodology," said John Stephenson, CEO of The Answer Page, Inc.

ABOUT THE ANSWER PAGE: TheAnswerPage is a medical education website founded in 1998, providing daily education to doctors and other healthcare professionals. It is read in over 120 countries, has more than 20,000 registered users, and has granted over 100,000 hours of CME credits. The Massachusetts Medical Society jointly sponsors and accredits all of the educational content.

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The top medical minds in the world are right here in Greater Boston. Inside, we feature those making a difference – in business, in medicine and beyond.

Boston Business Journal

August 5-11, 2005

Anesthesiologist Doubles as Inventor, Entrepreneur

BY ROBERTA HOLLAND
SPECIAL TO THE JOURNAL

While other sixth-graders were whiling away their summer swimming or playing ball, **Stephen B. Corn, M.D.**, was inventing an irrigation system for his parents' Long Island home.

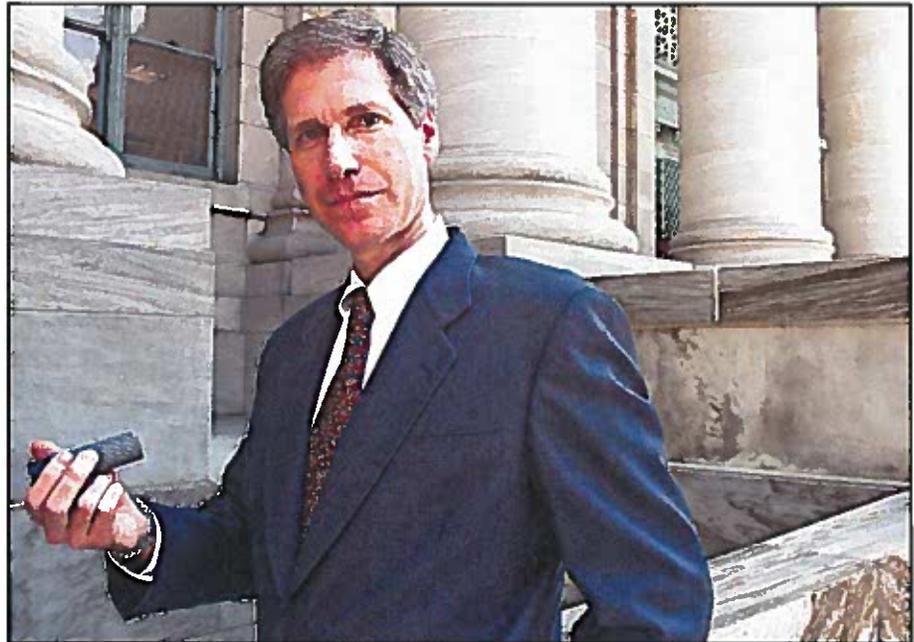
Now 45, Corn is still wowing his peers with his innovations — only now those innovations sprout from his work as an award-winning anesthesiologist and **Director of Clinical Innovation at Children's Hospital Boston and Brigham & Women's Hospital.**

Corn, who also teaches at **Harvard Medical School**, holds 28 patents and is responsible for devices that now have become standards of care for patients around the country.

"It's an enjoyment, not a task," Corn said. "This is an incredible chance to reduce morbidity and mortality and reduce adverse effects for patients." Corn's inventions include a device to secure epidural catheters, an anesthesia docking station and an ambulatory intravenous holder. They all resulted from the same process: Corn had wanted to buy a device and discovered it didn't exist — so he created one. He has worked closely with the hospitals' intellectual property offices to find manufacturers and negotiate licensing fees.

"As a clinician, I'm in an incredible position to be able to take care of patients and I'm also privy to gaps in the technology," Corn said. "I never set out saying, 'I'm going to invent something.'"

Corn and a colleague invented technology to prevent physicians or nurses from injecting medicine into the incorrect pathway in a patient. Currently, all medications have universal connections for catheters, and sometimes a drug intended for one route is incorrectly injected into another, a mistake that happens about



W. MARC BERNSAU / BUSINESS JOURNAL

STEPHEN B. CORN, a professor of Harvard Medical School and director of clinical innovation at Brigham & Women's Hospital, is pictured here with a breathing monitor device he invented, just one of several devices he's invented. Corn also holds 28 patents.

INNOVATOR

25,000 times a year nationwide and can result in paralysis or even death. The technology, which replaces universal connectors with coded male and female pairs, should be appearing within six months, Corn said.

Charles Vacanti, Chairman of the department of anesthesiology, perioperative and pain medicine at Brigham & Women's Hospital, says Corn is one of the most innovative minds he has met.

"As a clinician, I'm in an incredible position to be able to take care of patients and I'm also privy to gaps in the technology," Corn said.

"I never set out saying, 'I'm going to invent something.'"

Stephen B. Corn, M.D.

"In my career of 25 years of academic medicine, he's one of those people who have the unusual combination of talent, dedication and meticulous attention to detail," Vacanti said. "I was aware from day one that he was not only respected clinically as a physician, but also as an innovator."

Corn also is lauded for his work as an educator. He developed an online educational tool (www.TheAnswerPage.com) for the medical community. The website, which features a daily question, continuing medical-education credit and content for handheld devices, is ranked one of the top medical Web sites by the **American Medical Association.**

Corn's daily life as an anesthesiologist ranges from placing routine labor epidurals to working on groundbreaking fetal surgery teams. His post as Director of Clinical Innovation means he will help colleagues convert their own ideas

Boston Business Journal

August 5-11, 2005

INNOVATOR: Patent-holding anesthesiologist is also an inventor, entrepreneur

into intellectual property and products.

"I think the difference between Stephen and the average physician is, even though we all see problems in the medical field, he actually comes up with a solution," said **Dr. Meredith Fisher**, an anesthesiologist at **Women & Infants Hospital** in Providence. "The devices he's invented will really improve patients' lives — and maybe even save lives."

Perhaps Corn's biggest innovation is an apnea monitor, the first non-contact system to monitor breathing. Corn and officials at Children's believe the device has so many potential applications that they formed a new company, **Respimetrix Inc.**, around the technology.

The device, which uses ultrasound technology to track breathing, could be used in hospitals to monitor post-operative patients and patients in lower-staffed wards. In the home, the device could be used as a "smart baby monitor" to guard against Sudden Infant Death Syndrome and suffocation, as well as a diagnostic tool measuring sleep disorders.

Corn and Children's have equity stakes in the company, and Corn said he expects to have a product ready within two years.

"At the heart of all of his inventions is the goal of making health care delivery better and safer for patients," said **Donald Lombardi**, chief intellectual property officer at **Children's Hospital Boston**.

"He's a really interesting and unique combination of a first-class clinician, — clinical researcher and entrepreneur all at once," Lombardi said.

"One of the most innovative minds I have met."

"In my career of 25 years of academic medicine, he's one of those people who have the unusual combination of talent, dedication and meticulous attention to detail," Vacanti said. "I was aware from day one that he was not only respected clinically as a physician, but also as an innovator."

Charles A. Vacanti, M.D.
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Some Champions get Trophies

Some get prizes, or crowns, or jewels, or hoards of screaming fans. The Champions we honor today get something even more precious. They get to know that in some significant way they have helped to make someone's life healthier. Sometimes they have helped make hundreds or thousands of precious lives healthier. So, whether it's research, business, health promotion, community outreach or employee health, today we are proud to salute the "Champions in Health Care" team. The prize? Healthier lives for all. Doesn't get any better than that!

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