Impact of Education on Physician Attitudes Toward Computed Tomography (CT) Utilization and Consent

Michael B. Weigner MD
Lehigh Valley Health Network, Michael_B.Weigner@lvhn.org

Kate M. Dewar DO
Lehigh Valley Health Network

Hilary F. Basham DO
Lehigh Valley Health Network

Valerie A. Rupp RN, BSN
Lehigh Valley Health Network, Valerie.Rupp@lvhn.org

Marna R. Greenberg DO, MPH
Lehigh Valley Health Network, marna.greenberg@lvhn.org

Follow this and additional works at: https://scholarlyworks.lvhn.org/emergency-medicine
Part of the Emergency Medicine Commons

Published In/Presented At
Impact of Education on Physician Attitudes toward Computed Tomography (CT) Utilization and Consent
Michael Weigner, MD; Kate Dewar, DO; Hilary Basham, DO; Valerie Rupp, RN, BSN; Marna Rayl Greenberg, DO, MPH
Lehigh Valley Health Network, Allentown, Pennsylvania

Objective:
With increasing focus on the risks of radiation exposure from CT scans, we set out to determine whether emergency physician attitudes and their predictions of ordering behaviors could be influenced by education.

Methods:
We surveyed emergency medicine resident and attending physicians at a tertiary suburban, level 1 trauma center with a yearly census of 74,000. The emergency medicine dually accredited residency has 56 residents in a 4-year program.
IRB approval was obtained after expedited review. Education was mandatory for those in attendance at the grand rounds and department meeting where presentations occurred. However, participation in the research survey was voluntary and anonymous for all participants.

Physicians were given a baseline survey that encompassed personal demographics, attitudes toward consent, knowledge of patient adverse reactions, and ordering behaviors. Thereafter, a brief power point presentation was given regarding CT scan risks. Subsequently, each participant received a matched follow up survey which was completed and returned in a sealed envelope with their baseline survey to a restricted access collection box. The survey format included yes/no and multiple-choice questions. Specifically, physicians estimated the number of scans they ordered per shift, the type of scan they most frequently ordered, the risk factors they considered prior to ordering a CT, and the influences that impacted the studies they ordered. Data analysis was performed using simple frequencies and Pearson’s chi square.

Results:
A total of 75 physicians participated in the study; 69% (52/75) were residents and 31% (23/75) were attendings. Of those surveyed, 34% were females and 66% were male; 95% were white, and 99% non-Hispanic.

Ordering a CT in which an adverse event occurred was reported by 43% (32/75) of respondents. Some (13%;10/75) reported they did not know if informed consent was required for CT scans ordered from their Emergency Department. Pre education, 69% (67/75) reported sometimes ordering a CT due to a consultant request that they did not think was indicated and 92% (69/75) reported that they sometimes ordered a CT to appease a patient or family. 85% (64/75) reported that they sometimes ordered a CT scan defensively due to malpractice risk.

After the education session, physicians were more likely to believe a patient should give informed consent prior to CT (p=0.047; 52/74 before, 63/74 after). Physicians are significantly more likely to believe that patients should give informed consent prior to CT scan. Additionally, education significantly influenced physician predictions that they would be significantly more likely to verbally discuss the risks/benefits of CT with their patients all of the time (p=0.002; 4/75 before, 18/75 after). Compared to their estimated current ordering patterns, education did not significantly influence their predictions of sometimes ordering a ‘defensive’ CT due to malpractice risk (p=0.998; 64/75 before, 65/75 after).

Conclusions:
After a brief education session about the risks of CT utilization, physicians are significantly more likely to believe that patients should give informed consent prior to CT scan. Additionally, education significantly influenced physician predictions that they would be significantly more likely to verbally discuss the risks and benefits of CT with their patients all the time. However, education does not appear to significantly influence physician predictions of sometimes ordering a ‘defensive’ CT scan due to malpractice risk.