

CMIA/Los Angeles

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Automated Vitals Signs Data – The Myth and the Reality behind EMR documentation for Patient Vital Signs Information

Significant nursing time is spent with the assessing and documenting vital signs data for the inpatient population. This discussion will explore some of the errors associated with both manual and automated vital signs documentation and the pitfalls with some EMR documentation solutions. It will also discuss the workflows associated with documenting vital signs data and some possible solutions that improve the accuracy and time expended for automated vital signs documentation. Case studies will be reviewed as well as possible solutions.

CMIA/LA

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FROM THE PRESIDENT

Larry Burton; President CMIA/LA



**From the fingers of the
President**

Greetings Colleagues and Readers,

I've learned of a development with the Biomedical group in Oregon this week; there are a number of postings in Biomedtalk of the issue. It seems the Fire Marshall is suggesting the BMETS should be "licensed" similarly as the electricians are in order to work on certain devices. I am not going to elaborate here but I encourage you to take some time and read the postings that relate to us all as professionals.

Along similar information venues, Respiroics has a website dedicated to sharing pertinent information with BMETs. We are seeing a number of online resources for information that is growing more prevalent and convenient for the profession to access.

Our meeting for March 9th is the first attempt we are making to attract the members to attend an informative class. It is my intention to provide CBETs and BMETs a means of continuing education and professional development skills; I know I could use some.

If you plan to attend, please e-mail me at: lburton@enbiocorp.com

Please use the tools of e-mail and our newsletter to keep in contact with one another and me; share your thoughts and needs. If we can accommodate a class need we will certainly try.

A definition of failure is doing the same thing and expecting different results.

I look forward to seeing you or typing to you in the future.

Larry Burton, BMET
CMIA, LA Chapter President

Hello Gents,

In this posting there's an underlying question as to how effective can our organizations be with state politics.

Food for thought.

Lar

-----Original Message-----

From: Biomedtalk

Sent: Thursday, February 18, 2010 5:50 PM

Subject: Electrical License for BMETs

Greetings- we have heard from our hospital electrician that Biomedics will be required to hold Limited Maintenance Electrician Licenses- at least in Oregon. I have not heard this from any other Biomedics, so I thought I'd ask. Therefore, we are being asked to attend a two year apprenticeship program in order to comply. It seems like this would also include manufacturer service techs.

They are referencing this (from a State of Oregon Technical Advisory 06-01): "Electrical equipment (for patient care area use) shall be serviced and evaluated by qualified personnel. Qualified personnel shall possess at a minimum, a valid limited maintenance low voltage license, and either certification of or written proof of successful competence as a biomedical electronic technician."

This clarification came from a Deputy State Fire Marshall: "I would believe that the low voltage is referencing 600 volts or less, not low voltage similar to fire alarm and telephone wiring...It is our belief that only qualified professionals can determine compliance with NFPA 99 Ch. 7 standards. Due to the complexity of the hospital environment and the interdisciplinary training and background required to perform such tasks appropriately, safety technology for patient care appliances should be provided only by trained professionals. The technical advisory was an attempt by our office to clarify what we would expect as a minimum to prove the technicians are qualified."

CT and CA

Doses of radiation from commonly performed CT scans vary widely, appear higher than generally believed and may contribute to an estimated tens of thousands of future cancer cases, according to two studies in the Dec. 14/28 issue of *Archives of Internal Medicine*.



In the U.S., about 70 million were performed in 2007, up from three million in 1980, according to Rebecca Smith-Bindman, MD, of the University of California, San Francisco, and colleagues.

“While CT scans can provide great medical benefits, there is concern about potential future cancer risks because they involve much higher radiation doses than conventional diagnostic x-rays,” wrote Smith-Bindman and colleagues. A chest CT scan exposes the patient to more than 100 times the radiation dose of a routine chest x-ray. “The risks to individuals are likely to be small, but because of the large number of persons exposed annually, even small risks could translate into a considerable number of future cancers,” they wrote.

In one study, Smith-Bindman and colleagues studied 1,119 patients undergoing the 11 most common types of diagnostic CT scans at four institutions in 2008. Using hospital records, the researchers calculated the radiation dosage involved with each scan and then estimated lifetime risks of cancer that could be attributed to those scans.

Radiation dosage varied widely between different types of CT studies; median doses ranged from 2 mSv for a routine head CT scan to 31 mSv for a multiphase abdomen and pelvis scan. “Within each type of CT study, effective dose varied significantly within and across institutions, with a mean [average] 13-fold variation between the highest and lowest dose for each study type,” the authors wrote.

The estimated number of CT scans that would lead to the development of one cancer case also varied by type of CT scan and also by each patient’s age and sex. For instance, an estimated one in 270 women and one in 600 men who undergo CT coronary angiography at age 40 will develop cancer as a result. One cancer case will likely occur among every 8,100 women and 11,080 men who had a routine head CT scan at the same age.

“For 20-year-old patients, the risks were approximately doubled, and for 60-year-old patients, they were approximately 50 percent lower,” the authors wrote.

“The radiation exposure associated with CT has increased substantially over the past two decades, and efforts need to be undertaken to minimize radiation exposure from CT, including reducing unnecessary studies, reducing the dose per study and reducing the variation in dose across patients and facilities,” they concluded. “Patient outcomes studies are needed to help define when CT leads to the greatest benefit and when these studies may have no impact, [to determine] where the radiation risk may be greater than the benefit expected from the examinations. Understanding exposures to medical radiation delivered through actual clinical studies is a crucial first step toward developing reasonable strategies to minimize unnecessary exposures.”

In another study, Amy Berrington de González, DPhil, of the National Cancer Institute in Bethesda, Md., and colleagues constructed a risk model to estimate age-specific cancer risks for each scan type. They derived the data from previous reports of radiation-associated cancer risks, national surveys and insurance claims.

“Overall, we estimated that approximately 29,000 future cancers could be related to CT scans performed in the U.S. in

2007,” the authors wrote. This includes an estimated 14,000 cases resulting from scans of the abdomen and pelvis; 4,100 from chest scans; 4,000 from head scans; and 2,700 from CT angiography. One-third of these projected cancer cases would occur following scans performed on individuals age 35 to 54 years, compared with 15 percent due to scans performed in children and teens. Two-thirds of the cancers would be in women.

“Changes made to practice now could help to avoid the possibility of reaching the level of attributable risk suggested above (2 percent). Our detailed estimates highlight several areas of use in which the public health impact may be largest, specifically abdomen and pelvis and chest CT scans in adults aged 35 to 54 years,” the authors concluded. “Further work is needed to investigate the balance of the risks and benefits from CT scan use and to assess the potential for dose or exposure reduction.”

“The articles in this issue make clear that there is far more radiation from medical CT scans than has been recognized previously, in amounts projected to cause tens of thousands of excess cancers annually,” wrote Rita F. Redberg, MD, of the University of California, San Francisco, in an accompanying editorial. “Also, as these scans have become more sensitive, incidental findings lead to additional testing (and often more radiation), biopsies and anxiety.”

“Although a guiding principle in medicine is to ensure that the benefit of a procedure or therapy outweighs the risk, the explosion of CT scans in the past decade has outpaced evidence of their benefit,” Redberg wrote. “Although there are clear instances when CT scans help determine the treatment course for patients, more and more often patients go directly from the emergency department to the CT scanner even before they are seen by a physician or brought to their hospital room.”

“To avoid unnecessarily increasing cancer incidence in future years, every clinician must carefully assess the expected benefits of each CT scan and fully inform his or her patients of the known risks of radiation,” Redberg concluded

←

RISK & BENEFIT

In a retrospective analysis of nearly 700,000 non-elderly Americans who underwent at least one medical imaging procedure over a three-year period, approximately 20 percent received a moderate to very high dose of radiation, according to data in the Aug. 27 *New England Journal of Medicine*. Michael S. Lauer, MD, who wrote the accompanying perspective, stated that most imaging tests haven’t yet proven their benefit compared with the potential risks and costs.

Reza Fazel, MD, from the division of cardiology at Emory University School of Medicine in Atlanta, and colleagues identified 952,420 subjects (mean age, 36 years old; 52.4 percent women) from UnitedHealthcare claims between Jan. 1, 2005 and Dec. 31, 2007. They focused on five healthcare markets: Arizona; Dallas; Orlando, Fla.; South Florida and Wisconsin, and examined claims from hospitals, outpatient facilities and physicians’ offices.

The researchers found 655,613 enrollees, or 68.8 percent, underwent at least one imaging procedure. CT and nuclear imaging accounted for 75.4 percent of the procedures, with 81.8 percent of these administered in outpatient settings.

Overall, Lauer questioned whether the benefits of medical imaging have been weighed against their potential “harms” -- cost and radiation exposure that could potentially lead to cancer. In an interview, Lauer, from the National Heart, Lung and Blood Institute, stopped short of saying that any diagnostic setting was overusing imaging.

“We don’t know if there is overuse or not, because the term ‘overuse’ implies that we know what the appropriate use is,” he said. “In order to understand the appropriate level of use, we need to know what value can be gained from the tests and, specifically, how much they improve health.”

RISK & BENEFIT (Continued)

Fazel and colleagues found that nearly 80 percent of the patients received an average of 2.4 mSv per year, which is equivalent to the natural background radiation that the average person absorbs in a year. Overall, moderate effective doses, defined as more than 3-20 mSv of radiation, were incurred by 19.38 percent of the enrollees per year. The researchers also reported that high (more than 20-50 mSv) and very high (more than 50 mSv) doses were incurred by 1.86 percent and .19 percent of the enrollees per year, respectively.

Although 80 percent of the study population received a low radiation dose, the remaining 20 percent is "disconcerting," without proven benefits, he said.

John Lesser, MD, co-director of cardiac CT at the Minneapolis Heart Institute, said in an interview that these types of studies are helpful because they inform physicians about the radiation risks involved with the tests. He added that diagnostic techniques are "moving targets," and therefore, difficult to assess as radiation doses are dropping with new technologies and techniques, especially in CT.

"We, as physicians, should lower the risk whenever possible, by lowering the radiation dose whenever we use these studies, and also assessing the individual patient based on their accumulated radiation dose," Lesser stated.

Based on specific imaging procedures, Fazel and colleagues found that 20 procedures formed the largest contribution to the annual cumulative effective dose. The highest dose procedure was myocardial perfusion imaging, which accounted for more than 22 percent of the total effective dose.

Lauer noted in his perspective that myocardial perfusion scans increased by more than 6 percent between 1993 and 2001, with "no justification for their use."

Though Lesser acknowledged that these high statistics may indicate an inappropriate ordering of nuclear imaging tests, he observed that physicians are only equipped with the best tools at their disposal to make the right decisions for their patients.

Fazel's group also found that imaging procedures increased with advancing age and were more frequent for women than men. The authors noted that more than 40 percent of women in the study, compared with 30 percent of men, received doses exceeding 20 mSv. They wrote that due to the "related risks [that] accrue over a lifetime...cancer may be more likely to develop in women than in men after similar levels of exposure."

In addition to this gender-specific consideration, Lauer said imaging protocols should be re-evaluated for all patient populations.

"The value of most imaging protocols in cardiovascular medicine is unknown. We don't know if these tests save lives or prevent heart attacks. We need to conduct randomized, controlled trials to establish answers to these remaining questions," he said.

Though mortality due to heart disease has been reduced by 34.3 percent between 1995 and 2005, according to American Heart Association statistics, Lauer said that there is no evidence to prove that this can be correlated to early detection through medical imaging tests.

However, he said that at least half of the mortality decrease can be ascribed to "standard prevention," such as control of hypertension and reduction of high cholesterol. He added that there is "no evidence right now that imaging is playing a major role in the decline of coronary heart disease deaths."

RISK & BENEFIT (Continued)

Lesser noted that such evidence is complicated to obtain. “When anyone attempts to prove that medical imaging improves longevity, it is very difficult because it is one step along the way in patient assessment and treatment, which is how it differs from procedures,” he noted. “However, imaging procedures allow the physician to make a diagnosis that may or may not necessarily improve mortality, such as the detection of coronary disease or the confirmation that coronary disease does not exist.”

Lesser concurred this type of proof can only emerge from a large, randomized trial that would require a great deal of time and money; however, it would effectively assess the use of diagnostic techniques leading to improved patient outcomes. In the meantime, he said, practitioners need to assess and treat their patients, and they often need imaging tests to bolster their diagnosis in real-life clinical practice.

“Because you can’t prove its benefits over risks through trials yet doesn’t mean physicians shouldn’t use imaging,” Lesser stated. “In various patient groups, I am forced to make a choice between lots of different diagnostic tests—not all radiation based.”

Lauer does not think that physicians should refer asymptomatic coronary artery disease patients or screening imaging tests, unless it is as part of a randomized trial. To support this, he cited the DIAD randomized trial of 1,000 asymptomatic patients with diabetes, which found that SPECT imaging did not reduce cardiac events. On the other hand, he stated that large, randomized trials have demonstrated that abdominal ultrasound can save lives.

Lauer cited the National Cancer Institute’s National Lung Screening Trial, funded by the National Institute of Health, as an example of such a randomized, controlled imaging trial. The investigators have randomized 50,000 asymptomatic, at-risk smokers to chest x-ray or CT screening scans, and are examining whether CT imaging can reduce deaths from lung cancer. This study is currently in its follow-up stage.

“We need the same type of trial for asymptomatic heart disease,” he stressed.

Lauer also cited mammography as an imaging procedure that has proven that its benefits justify its potential risks. A number of trials have clearly proven that mammography reduces breast cancer death rates, he said.

Until the emergence of large-scale randomized trial evidence is presented, Fazel and colleagues stated that strategies for “optimizing and ensuring appropriate use of these procedures in the general population should be developed.”



April 15th Approaches

CMIA/LA Dinner & Meeting

DATE: Tuesday March 9th, 2010

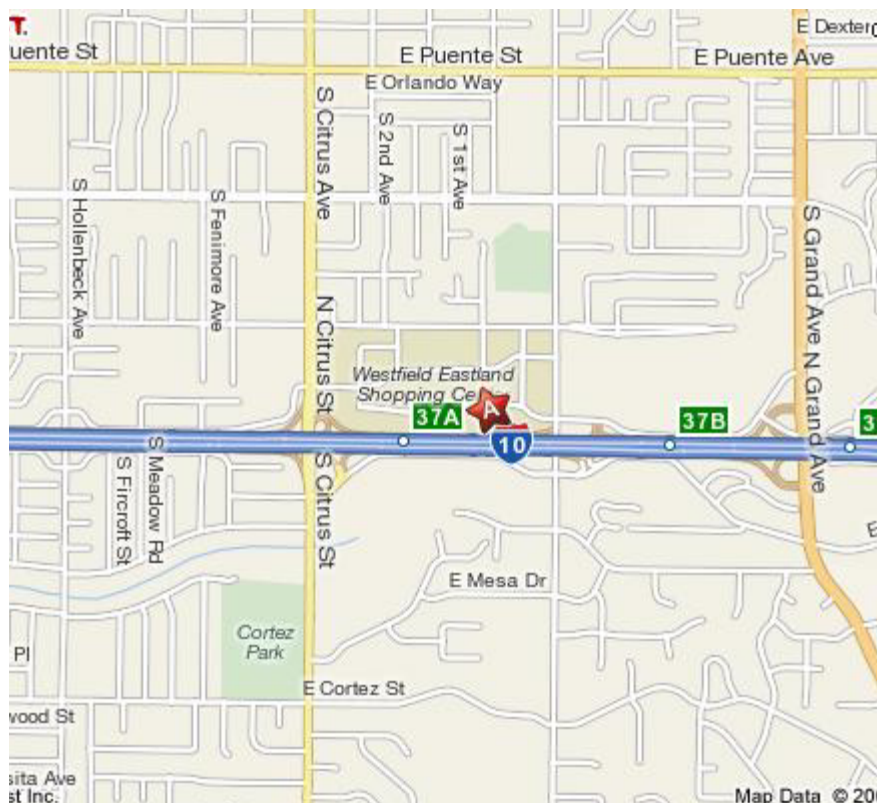
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