RSNA®
Radiological Society of North America

820 Jorie Blvd
Oak Brook, IL 60523
TEL 1-630-571-2670
FAX 1-630-571-7837
RSNA.org

NEWS

RSNA Press Release

Emergency Departments See Substantial Increase in CT Exams

Released: November 29, 2010

OAK BROOK, Ill. — A new study reports that the use of computed tomography (CT) in the nation's emergency departments is growing exponentially. If the growth trend continues, by 2011, nearly 20 percent of all emergency department (ED) visits may involve a CT exam. The results of this study were presented today at the annual meeting of the Radiological Society of North America (RSNA) and published online and in the journal *Radiology*.

At A Glance

- Emergency department CT exams increased from 2.7 million in 1995 to over 16 million in 2007, an average growth rate of 16 percent per year.
- If this growth continued, by 2011, nearly 20% of all emergency department visits would involve a CT exam.
- In 2007, abdominal pain surpassed headache as the complaint most often associated with CT exams.

"It is not surprising that CT utilization has increased," said lead researcher David B. Larson, M.D., M.B.A., director of quality improvement in the department of radiology at Cincinnati Children's Hospital Medical Center in Ohio. "What's surprising is the sustained high rate of that growth. However, recent developments, such as increased awareness of cost, radiation concerns, national health care reform legislation and the economic recession, are likely to inhibit further growth."

Dr. Larson's research team used data collected by the National Hospital Ambulatory Medical Care Survey from 1995 through 2007 to identify nationwide trends associated with CT use in the ED. The researchers performed statistical analysis on a mean of 30,044 ED visits from each year over the 13-year period to estimate overall usage of CT in the ED.

"We have seen a remarkable growth in CT utilization, not only in the number of ED visits that involve CT imaging but in the percentage of patients walking into the ED that receive a CT," Dr. Larson said.

According to the analysis, the number of ED visits that included a CT exam increased from 2.7 million in 1995 to 16.2 million in 2007, a 5.9-fold increase and an average growth rate of 16 percent per year. The percentage of ED visits involving a CT exam rose from 2.8 percent in 1995 to 13.9 percent in 2007.

"CT is a wonderful technique that is widely available," Dr. Larson said. "Over the 13 years in our study, image resolution improved significantly, making CT a great tool to look for kidney stones, appendicitis and coronary artery disease."

For much of the 13-year period studied, headache was the complaint most commonly associated with a CT exam in the ED. But by 2007, headache was surpassed by abdominal

Copyright © 2014 Radiological Society of North America (RSNA)

pain as the complaint most often associated with CT imaging. In 2007, patients with abdominal pain represented 12.8 percent of all ED visits involving CT.

CT exams to investigate abdominal pain have a higher radiation dose than CT exams used to determine the cause of a headache. The study found that, overall, the use of CT for complaints that are typically related to exams with a higher radiation dose grew faster than those typically related to exams with a lower radiation dose. This suggests that the radiation dose associated with CT in the ED may be growing at a faster rate than the growth in the overall use of CT.

In 1995, a patient visiting the ED with chest pain rarely received a CT exam. But by 2007, chest pain was the third most common complaint in the ED associated with CT imaging.

"Our emphasis now should be on carefully evaluating the use of CT in specific situations and making sure it is used appropriately," Dr. Larson said.

# # #

"National Trends in CT Use in the Emergency Department: 1995-2007." Collaborating with Dr. Larson were Lara W. Johnson, M.D., Beverly M. Schnell, Ph.D., Sheila R. Salisbury, Ph.D., and Howard P. Forman, M.D., M.B.A.

Radiology is edited by Herbert Y. Kressel, M.D., Harvard Medical School, Boston, Mass., and owned and published by the Radiological Society of North America, Inc. (*http://radiology.rsna.org/*)

RSNA is an association of more than 46,000 radiologists, radiation oncologists, medical physicists and related scientists committed to excellence in patient care through education and research. The Society is based in Oak Brook, Ill. (*RSNA.org*)

For patient-friendly information on CT and radiation safety, visit *RadiologyInfo.org*.

Copyright © 2014 Radiological Society of North America (RSNA)