

British advisory panel deems CT screening tests safe and effective

An advisory healthcare panel in the U.K. has found that CT screening of the lung, heart, and colon exposes patients to safe levels of radiation. It is also clinically effective, according to a [report](#) published July 31.

The report recommended annual audits of outcomes and a better infrastructure to ensure compliance with national and international radiation exposure protocols.

The Clinical Advisory Committee of Diagnostic Imaging, set up in January 2007, asked experts to review evidence-based clinical papers and research to examine the role of diagnostic imaging in preventive medicine, looking specifically at CT screening in the early detection of certain diseases.

The aims of the committee were to inform political policy on medical imaging with regard to the private sector and establish a framework more focused on safety, clinical effectiveness, and quality than cost-effectiveness.

The committee found that CT colonography in experienced hands can detect colon cancer at its earliest, most curable stages. CT colonography screening is approved for use in the U.K. for high-risk asymptomatic patients. The report noted that fecal occult blood tests have low sensitivity and a high false-positive rate.

Members of the committee recommend working alongside the professional organizations to:

- produce guidelines for optimizing the quality of CT colonography, including patient experience, scan technique, report language, and interpretation accuracy
- make best use of available evidence and debate the relative merits and necessary guidance for screening for colon cancer

The committee found that coronary artery calcium scoring is the most powerful risk factor for coronary artery disease, either alone or in combination with other existing risk factors. Members acknowledged, however, that no current trials demonstrate an increased survival in those who are aware of their high coronary calcium score. They therefore recommended that a trial be undertaken to demonstrate whether coronary calcium scoring and subsequent intervention in those with high scores is cost-effective.

Regarding lung cancer screening, the committee noted the successful results of low-dose screening from the International Early Lung Cancer Action Program (I-ELCAP), especially its potential to reduce mortality by 80% for high-risk patients. The advisory body also acknowledged that the results from the National Lung Screening Trial, a U.S. government-funded randomized controlled study, should provide a definitive answer, but not until 2010.

"Until the results of the [NIH] study are known, it is reasonable to conclude that CT screening has the capability to detect lung cancers at early stages when curative treatment is feasible, but that this approach may not necessarily prevent

death from more aggressive tumors," the report states.

The committee recommends that practitioners follow protocols from I-ELCAP on further management to avoid unnecessary intervention and associated risks. It wants providers to give patients balanced information on the perceived value of CT screening, making it clear that screening may result in the detection of an early treatable cancer, but this approach will not necessarily avoid the development of an aggressive fatal cancer.

Current published data suggest that approximately 10% of patients have clinically significant findings and that the incidence of false-positive/negative results from colon and lung cancer screening are extremely low when appropriate protocols are used. Panel members noted that the incidence of false positives in coronary artery screening is virtually nonexistent and false negatives are extremely rare.

They recommend that private clinics undertake an annual audit of outcome data to ensure that their results are comparable to published data and that performance is satisfactory. The incidence of positive findings should be reviewed against published standards where these exist.

Regarding radiation dose, the committee found that the doses involved in screening are small in comparison with total lifetime exposure. Any theoretical harmful effects are either too small to measure in a meaningful way or likely to be outweighed by the potential benefits derived from early diagnosis of serious conditions. The panel did not look at whole-body screening.

A typical CT scan of the abdomen or pelvis yields an effective dose of about 10 mSv. If extrapolated to a large population in which every person had one scan, the theoretical lifetime risk of radiation induced fatal cancer would be about one in 2000 (0.05%), according to the report. This can be compared with the normal spontaneous risk of fatal cancer, which is about one in four (25%).

The panel suggested that any extra costs to the U.K. National Health Service or insurers should be offset by savings encountered from cheaper treatment options made possible by early diagnosis. It will submit this report and recommendations to the U.K. Department of Health.

Members of the committee included:

- Dr. David Burling, a consultant radiologist at St. Marks Hospital
- Dr. John Giles, a consultant cardiovascular radiologist at Conquest Hospital and clinical director of Lifescan
- Dr. Paul Jenkins, a consultant physician at Barts Hospital and medical director of European Scanning Centre
- Trevor Perry, director of government affairs for GE Healthcare
- Dr. Phil Shorvon from the Association of Independent Radiologists
- Dr. Stuart Taylor, a consultant radiologist at University College Hospital