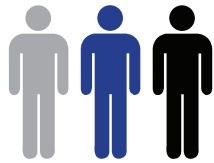


UNDUE EXPOSURE TO RADIATION

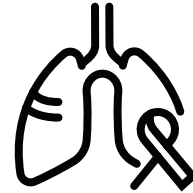
CASE FOR CHANGE



14,500 future deaths may occur as a result of the nearly 72 million unnecessary CT scans.¹



1,450 – 2,900 potential number of lives saved nationally with a 10% - 20% reduction in undue exposure to radiation.¹



29,000 future cancers may occur as a result of the nearly 72 million unnecessary CT scans.¹

Reduce unnecessary use of combination (with and without contrast) thoracic CT scans by

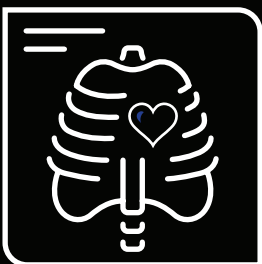
20
PERCENT
by 2019.

BOLD AIM & KEY DRIVERS

- ◀ Right Study
- ◀ Right Order
- ◀ Right Dose

KEY LEARNING

MEASURES



Process:

- Total CT Dose Capture Compliance Dose length product
- Total CT Dose Capture Compliance Volume CT Dose Index
- Total CT Dose Capture Compliance Size-Specific Dose Estimate

Outcome:

- Abdomen CT – Use of Contrast Material
- Thorax CT – Use of Contrast Material

- Engage multidisciplinary teams in the process by creating awareness, training, and education around current evidence-based practice using national guide lines from the American College of Radiology (ACR), Image Wisely, and Image Gently
- Engage and educate patients and families
- Utilize the ACR Dose Index Registry to reduce dose indices and optimize protocols
- Collaborate with the health information technology (IT) department for data extraction reports from electronic health records (EHRs) and building of IT solutions
- Collaborate with Laboratory Services to obtain evidence-based lab solutions (D-dimer levels)
- Develop radiation report cards to benchmark and monitor compliance with best practices
- Engage clinicians (MDs and RNs) in reviewing data
- Larger hospitals can provide guidance to smaller community hospitals regarding protocols if they utilize the same group of radiologists for reading studies; smaller hospitals can show how to get it done quickly
- Collaborate with other hospitals to review protocols and determine best practices

UNDUE EXPOSURE TO RADIATION

RAPID CYCLE INNOVATIONS

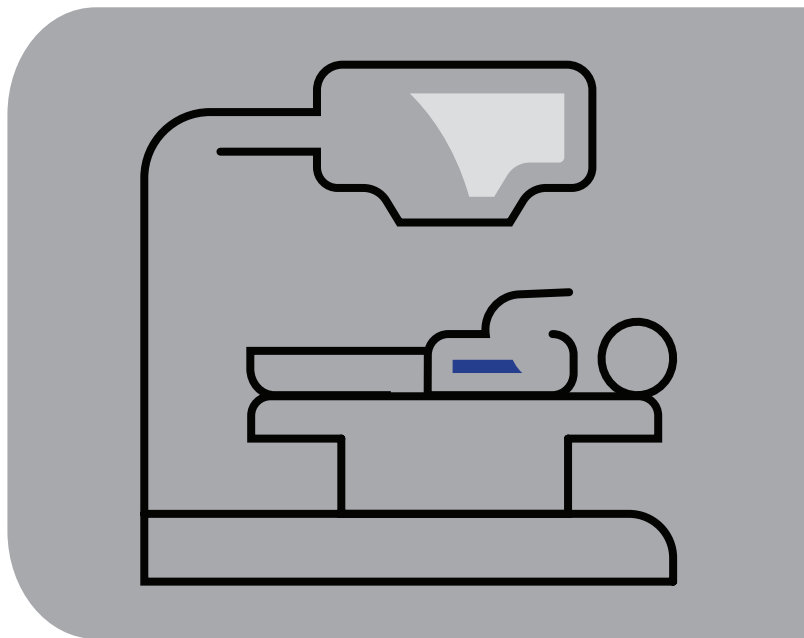
Right Study

- Adopt a standardized risk stratification tool
- Utilize Wells Score¹, to assess the risk of deep vein thrombosis (blood clot) and as a main component of best practice protocol for ruling out a PE (blood clot in the lung)
- Use D-dimer level results to assess pretest probability of PE
 - A negative D-dimer test will virtually rule out a blood clot. Research indicates the most available D-dimer tests with a negative result will reduce the probability of thrombus disease to less than 1%
 - If the D-dimer reading is high, then further testing is required to confirm the presence of thrombus
 - A normal D-dimer level is <0.5
- Implement IT solutions within the EHRs, including building orders, a risk stratification tool and first generation best practice alerts
- Engage clinicians in workflow decisions in regards to best practice alerts, orders, and risk stratification tools

¹ The Wells Tool applies a numeric score to assess the risk of deep vein thrombosis. It is a validated tool in determining pre-test probability of a PE.

Right Order

- Use order sets to assist clinicians in choosing the rationale for exam
- Use scripted IT solutions to assist clinicians in clinical decision making in the form of best practice alerts with team consensus on content
- Build quality bundles within the EHR platform
- Automate and standardize Choosing Wisely® and Image Gently® through building best practice alerts and decision support tools within each pilot site's EHR (in collaboration with IT)
- Engage with IT for dose tracking in the EHR
- Report to a Radiation Dose Index Registry
- Utilize a Standardized Nomenclature for CT imaging description



Right Dose

- To create awareness, document Dose Length Protocols immediately when DLP numbers are out of range rather than waiting a month to find out that DLP numbers were out of range
- Use data (e.g. Dose Length Product), to identify significant variation from hospital to hospital. Individual hospitals are starting to recognize their own outliers and review these incidents for compliance with protocols
- Compare data to gauge to benchmark, and set dose or radiation reduction goals
- Implement a multi-disciplinary team to review cases of high dose radiation studies and monitor ongoing performance
- Implement appropriate shielding protocols to protect patients from unnecessary radiation when other body parts are being studied
- Review CTDIvol data to identify variation and deviation from CTDIvol protocols for specific tests
- Create a radiation report card to assess each technologist and ensure parameters are followed and correct protocol was applied
- Count Potential High Dose Radiation Imaging Studies

Source:

1. Holmberg O, et al: Current issues and actions in radiation protection of patients. European Journal of Radiology, 2010, doi:10.1016/j.ejrad.2010.06.033