ACR Dose Index Registry

Richard L. Morin, Ph.D., FAAPM
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Why a Dose Index Registry?
CT scans contribute 25% of radiation dose


What is the national average level of radiation administered by imaging facilities for a CT of the head?

We don’t really know!
What is the Dose Index Registry?

- One component of the National Radiology Data Registry
- Collects and compares dose index information across facilities
- Uses standard methods of data collection
  - DICOM SR, IHE REM Profile
- Establishes national benchmarks and practice patterns in dose indices

Does It Work?

- Evidence of data-driven improvement in performance from:
  - Medicine in general (outside radiology)
  - CT dose (for CCTA)
  - ACR registries (for recent registries)
Evidence on CABG mortality from the Society of Thoracic Surgeons National Adult Cardiac Database


Evidence on CCTA From Michigan Registry


Evidence From ACR Registries: Adequacy of Screening CTC Exams

The blue line across the chart indicates the trend in the measure over time with 95% confidence interval.
The vertical orange bars indicate the number of cases used to calculate the measure.
How does the Dose Index Registry work?

Challenges

- Procedure name standardization
  - Map procedure names to RadLex
- Ability to capture data from new and old scanners
  - DICOM structured report for new scanners
  - OCR on dose screen for old scanners
- Patient size adjustment
  - Begin collecting localizer image in April 2012
Registration Process
• Sign Participation Agreement
• Register on NRDR website
• Download software to transmit data
  – We will contact you and walk you through the installation
• Configure scanners (or PACs)
• Data transmission to NRDR is completely automated – no personnel required beyond initial setup

Using the registry
• Run reports on own data at any time
• Receive benchmark reports every six months
• Map facility procedure names to standard tags to facilitate meaningful comparisons

Current status
Number of registered facilities 392
Number of active facilities 163
## International Participation

<table>
<thead>
<tr>
<th>Country</th>
<th>Registered</th>
<th>Interested</th>
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<td>4</td>
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<td>Switzerland</td>
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<tr>
<td>New Zealand</td>
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</table>
Sample Feedback Report

• Provided every 6 months
• Will soon include SSDE

Inclusion Criteria

• Date range from July 1 – Dec 31, 2011
• Age of patient > 18
• Name of exam had to be tagged using DIR Exam Mapping Tool
• At least 100 exams from at least 10 different facilities had to be mapped to the same tags
CTDvol Per Scan
CT Head WO IV Con

<table>
<thead>
<tr>
<th>Facility</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</tbody>
</table>

![Graph showing CTDvol Per Scan]

Mapping
- Radlex Playbook
- Each facility mapped exam descriptions to standard terms

![Graph showing CTDvol Per Scan]
Participation fees

- One time registration fee of $500
- Annual participation fee based on number of radiologists in practice and number of sites.
  - For most practices with fewer than five sites, the annual participation fee is between $500-$2000
  - For practices with six or more sites, the annual fee is between $1,000-$10,000.
- The annual fee allows a facility to contribute data to any of five NRDR registries as a facility chooses. The five registries include DIR, NMD, CTC, ICE and GRID.

For more information, please contact:

Laura Coombs, PhD
lcoombs@acr.org
703-715-4383

or

Mythreyi Chatfield, PhD
mchatfield@acr.org
703-715-4384