

Assessment of Emerging Technologies Used in Adjuvant Radiotherapy for Gastric Cancer: Preliminary Findings from the Quality Research in Radiation Oncology (QRRO) GI Committee Process Surveys

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Purpose/Objectives

- Radiation oncology practice for gastrointestinal (GI) malignancies has been evolving over the last decade due to rapid clinical adoption of sophisticated new technology for radiotherapy (RT) planning and delivery.
- The American College of Radiology (ACR), Quality Research in Radiation Oncology (QRRO), aims to evaluate quality of care of the radiation oncology community .
- Through process surveys , QRRO aims to track the distribution and utilization of advanced RT technology with the goal of assessing the appropriate use of these emerging technologies.

Study Design

National Process Survey

- A National Process Survey was developed for gastric cancer to measure:
 - Patient demographics
 - Geographic region
 - Practice setting
 - Insurance status
 - Workup and Studies
 - Medical History and Comorbidities
 - Staging and Extent of Disease
 - Treatment Course (Surgery, Radiotherapy, and Chemotherapy details)
- Two-stage stratified random sample of:
 - 106 Radiation oncology facilities nationwide invited (first stage)
 - Eligible cases within those facilities (second stage)
- Facility Survey Data & Process Survey Data used to calculate national averages and make statistically valid inferences for national process measures
- Survey data collected via retrospective review of patient charts and records
- Time period
 - 2005 - 2007

Study Design

Clinical Performance Measures

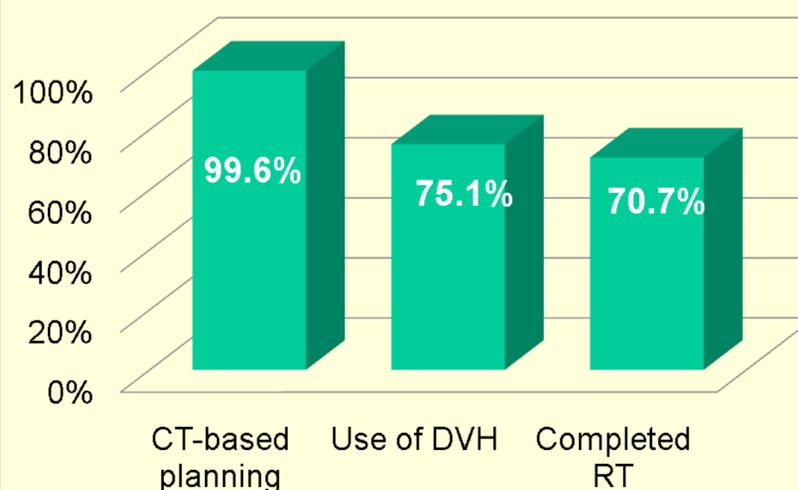
- The QRRO Gastrointestinal Cancers Committee defined a set of process measures based on national practice guidelines which can be used to measure performance:
 1. **Use of CT-based simulation and treatment planning**
 2. **Use of dose volume histograms (DVH) to evaluate normal tissue doses to the kidneys and liver**
 3. **Completion of planned RT course within the prescribed time frame**
- Emerging process of care measures were defined based on best available evidence and expert consensus:
 1. **Use of Intensity Modulated Radiotherapy (IMRT) treatment delivery when 3D conformal technology is used in treatment planning**
 2. **Use of image-guided tools (IGRT), other than computed tomography scans, for radiation therapy target delineation**
 3. **Use of preoperative (neoadjuvant) radiotherapy**

Results

Clinical Performance Measures

- CPMs were computed on data for **250** eligible patients at 45 institutions.

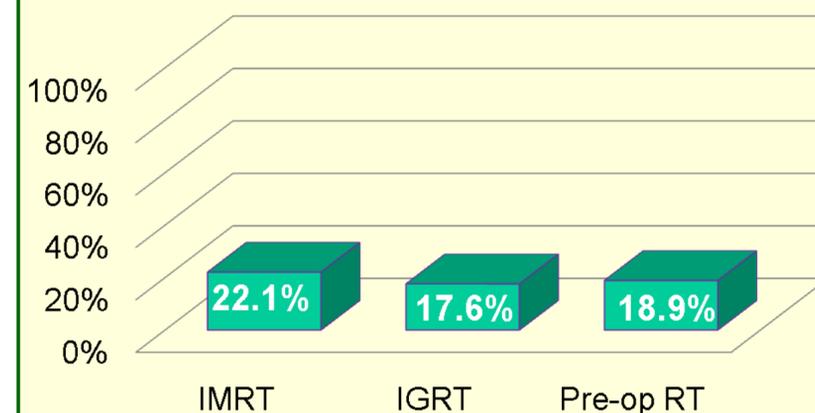
Core CPM's



Results

Clinical Performance Measures

Emerging CPM's



- IGRT techniques included: PET (n=20), MRI (n=1), respiratory gating and/or 4D-CT (n=22) and on-board imaging (n=10)

Conclusions

- As radiation oncologists incorporate new technology and clinical guidelines into their practice, re-assessment of quality of care is necessary to inform practitioners of their professional performance
- Findings from the QRRO emerging CPMs indicate widespread adoption of CT-based planning and use of DVH's to evaluate normal tissue doses and to limit the doses to surrounding organs based on the known radiation tolerance doses of these organs
- Other image-guided techniques had not been routinely incorporated into practice during the 2005-2007 time period
- QRRO's Survey Data will provide national benchmark data for future QRRO surveys of emerging technologies