Patterns of Radiotherapy Practice in the Management of Gastric Cancer: Preliminary Findings from the Quality Research in Radiation Oncology (QRRO) GI Committee Process Surveys

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Purpose/Objectives

- American College of Radiology, Quality Research in Radiation Oncology (QRRO), formerly Patterns of Care (PCS), aims to provide an evidence base for quality of care in radiotherapy (RT).

- Through process surveys, QRRO aims to:
  - Conduct surveys allowing documentation of process of care and quality assurance
  - Collect data
  - Define a core set of process measures for major cancers
  - Document the effects of clinical trials results, practice guidelines and appropriateness criteria
  - Identify factors associated with higher compliance with clinical standards
  - Describe patient and practice-based parameters
  - Benchmark and track the distribution and utilization of advanced radiotherapy technology
  - Disseminate information and educate target audiences

- Gastric cancer was selected as one of 5 disease sites for study to determine the national patterns of radiotherapy practice in patients treated for Stage IB–IV (non-metastatic) gastric cancer

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 core clinical process measures (CPM) 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 clinical process 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) RT**

Computation of CPMs

Proportion of patients that meet the CPM

=

Sub-set of the patient population with the condition that meets the defined criteria

/

Patient population with the condition

Less

Patients with exclusions
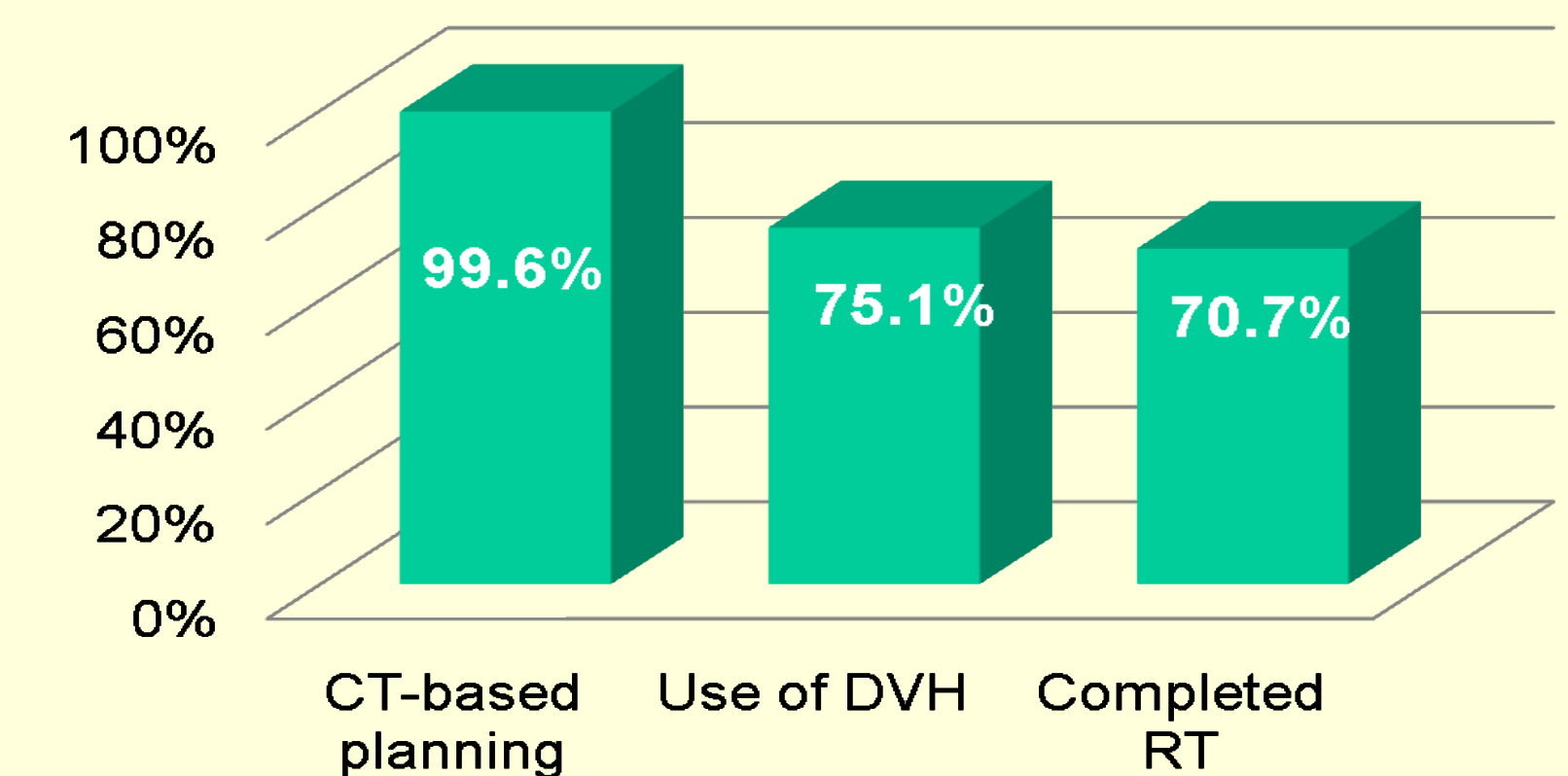
Results
Demographics

- A total of 250 eligible pts treated for gastric cancer from 45 institutions were reviewed
- Six facilities had no eligible patients.
- Stratum-specific weighted percentages were calculated to reflect the distribution in the population as a whole
  - Median age was 62 years
  - 65% male
  - 68% Caucasian; 17% African American; 6% Asian; 8% other/unknown
  - AJCC 2002 pathologic stage was :13% stage I, 27% II, 30% IIIA, 9% IIIB, and 14% IV
  - Most pts (36%) were treated at small non-academic centers with the remainder split between large (24%) and medium (29%) non-academic facilities. Only 11% were treated at academic centers
  - 39% of pts were covered by Medicare, 29% had private insurance and 13% were covered by an HMO; only 4% had Medicaid as a payor
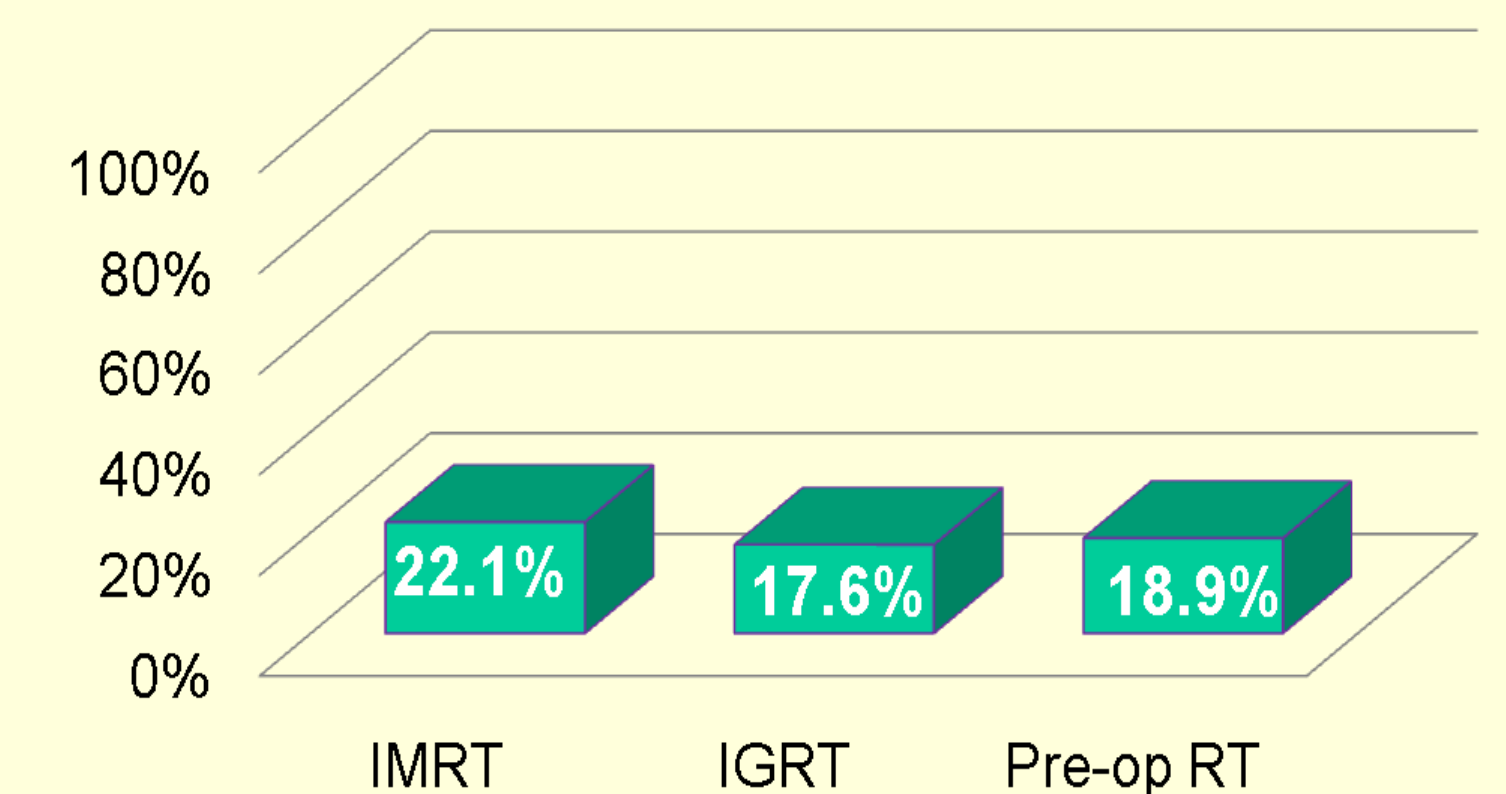
Results
Clinical Performance Measures

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

Core CPM's

CT-based planning	Use of DVH	Completed RT
99.6%	75.1%	70.7%

Emerging CPM's

IMRT	IGRT	Pre-op RT
22.1%	17.6%	18.9%

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

Conclusions

- QRRO's analysis of radiation practice patterns for non-metastatic gastric cancer indicate widespread adoption of CT-based planning with the use of DVHs to evaluate normal tissue doses

- Most pts completed adjuvant RT in the prescribed time frame

- Emerging RT techniques such as IMRT and IGRT were not routinely incorporated into clinical practice during the evaluated time period

- These data will serve as a benchmark for future QRRO gastric cancer surveys