Introduction

• Medical Physicists are good at physics, not always so good at communication
• To succeed we need to communicate with many
  – Hospital Administrators
  – University Administrators
  – Departmental Administrators

Hospital Administrators

• Know your audience
• Patient Safety
• Quality of Care / Outcomes
• Return on Investment
• Evaluation and selection of technology
• Role of acceptance testing
Clinical quality measures, or CQMs, are tools that help measure and track the quality of health care services provided by eligible professionals, eligible hospitals, and critical access hospitals (CAHs) within our health care system. These measures use data associated with providers’ ability to deliver high-quality care or relate to long-term goals for quality health care. CQMs measure many aspects of patient care including:

- Health outcomes
- Clinical processes
- Patient safety
- Efficient use of health care resources
- Care coordination
- Patient engagement
- Population and public health
- Adherence to clinical guidelines

Measuring and reporting CQMs helps to ensure the best health care eg for patients, leading to safer, patient-centered, equitable, and timely care.

To participate in the Medicare and Medicaid Electronic Health Record (EHR) Incentive Programs and receive an incentive payment, providers are required to submit CQM data from certified EHR technology.

AAPM Medical Physics Practice Guideline 2.a:
Commissioning and quality assurance of X-ray–based
image-guided radiotherapy systems

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AAPM Guidance Documents:
Physicist support for IGRT

1. Two-dimensional MV imaging systems
   • Acceptance/Commissioning/Documentation: 18–36 hours
   • Ongoing support: 25–50 hours annually
2. Two-dimensional kV imaging systems
   • Acceptance/Commissioning/Documentation: 18–36 hours
   • Ongoing support: 25–50 hours annually
3. Three-dimensional MV imaging systems
   • Acceptance/Commissioning/Documentation: 18–36 hours
   • Ongoing support: 100–125 hours annually
4. Three-dimensional kV imaging systems
   • Acceptance/Commissioning/Documentation: 18–36 hours
   • Ongoing support: 100–125 hours annually

Table 4.1. Scheduling and Minimum Process Time (Required for Safety)

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Minimum Process Time Required for Safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>After imaging (Completion of target volumes, definition of plan inter- normal structure volumes, anatomy approved)</td>
<td>x days</td>
</tr>
<tr>
<td>After anatomy approval</td>
<td>x days</td>
</tr>
<tr>
<td>Planning (2D, 3D)</td>
<td>x days</td>
</tr>
<tr>
<td>Planning (4D, IMRT, Volumetric Modulated Arc Therapy (VMAT))</td>
<td>x days</td>
</tr>
<tr>
<td>Planning (3D/4D)</td>
<td>x hours</td>
</tr>
<tr>
<td>Plan evaluation and physician approval</td>
<td>x minutes through x hours must be allocated to schedule this item</td>
</tr>
<tr>
<td>IMRT QA and analysis</td>
<td>To be completed x hours before treatment</td>
</tr>
<tr>
<td>Treatment preparation (transfer from treatment planning system to treatment management system before treatment start)</td>
<td>Allow x hours</td>
</tr>
<tr>
<td>Final checks before treatment</td>
<td>x minutes or x hours</td>
</tr>
<tr>
<td>Treatment setup and delivery (based on complexity)</td>
<td>x minutes</td>
</tr>
</tbody>
</table>
Demonstrating the value of the QMP to administration

- Impact on accreditation
- Impact on patient care
- Engagement/staff satisfaction
- Impact on reimbursement

Safety Profile Assessment

- 92 questions carefully selected from various authoritative reports and recommendations to assess performance in key, safety-critical areas
- Summary of your clinic’s performance via visual pie charts
- Bar graphs allowing you to benchmark your performance against other participants
- Downloadable Quality/Safety Improvement Log to guide safety improvement initiatives
- Annotated bibliography for further guidance on best practices and standards
Implementation of New Technologies into the Clinic

Fundamental Keys to Success
1) identify a project champion
2) multi-disciplinary approach
3) show clinical efficacy and return on investment (ROI)
4) articulate the project concisely
5) celebrate successful implementation


Lost Opportunities for Improved Care and Revenue Generation
- Stereotactic Radiosurgery -- 12.3 k
- MR-guided radiation therapy -- >20k
- Volumetric arc radiation therapy -- 18.2 k
- Stereotactic Body Radiation Therapy -- 16.1 k

*HOPPS National Average APC payment per case

University Administrators
Increased Medical Physics Faculty

- Enhance clinical service
  - Increase number of patients
  - Increase types of procedures
  - Increase complexity of procedures
  - Expand to services outside institution
- Expand educational programs
- Improve scholarly works

4D Imaging (PET, CT, MRI)
Stereotactic Radiosurgery
Stereotactic Body SBRT
Gated Treatment Delivery
Medical Stereotactic RT
Total Skin Electron Therapy
Static Modulated Arc Radiation Therapy
Prostate Breast Treatments
MR guided HDR Brachytherapy
INTREBEAM electronic brachytherapy
VISIONRT Optical Image Guidance
Interstial Brachytherapy
Prostate Seed Implants
Eye Plasques

Medical Physics Scholarly Activity
Academic Tenure

Promotion (Tenure Track)

• To associate professor
  – Developed independence
  – Effectiveness as a teacher
  – Developing an external presence
  – Evidence of ability to attain full professor
• Should not be used as a vehicle for retention
• Early promotion should be carefully assessed as a standard is then set

Promotion (Tenure Track)

• To full professor
  – National and/or international reputation
  – Study sections, editorships, invited lectures
  – Ongoing research productivity
  – Clearly training the next generation – completed PhDs, other trainees
  – Continued teaching effectiveness
**Promotion (Clinical Track)**

- To associate professor
  - Teaching success in context of clinical service, with quantitation where possible
  - There has been evidence of progress towards professional productivity
  - Excellent clinical service

- To full professor
  - Needs an external presence (regional or national)
  - Exemplary Clinical service
  - continued teaching success
  - Established record of professional productivity
  - Is leading programs in the college or hospital
  - Can be granted for administrative activities

**Departmental Administrators**
**Vacation and Leave Time**

- Clinical Requirements: 6.0 FTE
- Vacation time (24 days/year)
- Sick leave (18 days/year)
- Academic days (25 days/year)
- Clinic is open (250 days/year)
- 0.75 FTE available from each faculty member
- Would need 8 faculty members to cover the 6.0 FTE of clinical work

**Addressing Salary**

![Graph showing median salary for clinical medical physics in radiation oncology vs. years of experience.](image)