Historically, radiation therapists received on-the-job training (OJT) to become medical dosimetrists. Each OJT program was unique to the employer; however, the experience was influenced by the instruction from clinical mentors. As formal medical dosimetry programs emerged and accreditation followed, OJT was phased out. Today, medical dosimetry education is measured and evaluated so there is a level of accountability that exists in the profession. Prior researchers have demonstrated that, when compared to RTTs, medical dosimetry graduates had superior critical thinking skills, superior peer-reviewed medical dosimetry skills, and successfully graduated without a radiation therapy certification. Most formal medical dosimetry programs require radiation therapy certification for admission due to the historic, traditional route to OJT in medical dosimetry.

**Problem & Purpose**

All but a small number of formal medical dosimetry programs require radiation therapy certification for admission. The **problem** is a lingering perception from the radiation oncology community that medical dosimetry students must have a prior radiation therapy certification and/or experience. There is a paucity of evidence in the literature to support the perception that prior radiation therapy certification equates to better job performance as a medical dosimetrists. The **purpose** of this quantitative comparative study was to investigate outcomes of medical dosimetry graduates with and without prior radiation therapy certification (RTT and non-RTT).

**Research Questions**

1. **What are the differences in program effectiveness data between medical dosimetry graduates with and without prior radiation therapy certification?**
2. **What are the differences in clinical supervisor surveys between medical dosimetry students with and without prior radiation therapy certification?**
3. **What are the differences in employer surveys between medical dosimetry graduates with and without prior radiation therapy certification?**

**Methods & Materials**

A **Quantitative Comparative Study of Medical Dosimetry Graduates with and without Prior Radiation Therapy Certification**

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**Results**

**MEAN GPA CALCULATIONS**

<table>
<thead>
<tr>
<th>Completed the program (n=130)</th>
<th>Did not pass MDCB 1st attempt (n=16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RTT (88)</td>
<td>non-RTT (42)</td>
</tr>
<tr>
<td>Cumulative GPA</td>
<td></td>
</tr>
<tr>
<td>3.43</td>
<td>3.30</td>
</tr>
<tr>
<td>Science GPA</td>
<td></td>
</tr>
<tr>
<td>3.18</td>
<td>3.14</td>
</tr>
<tr>
<td>Medical Dosimetry GPA</td>
<td></td>
</tr>
<tr>
<td>3.91</td>
<td>3.91</td>
</tr>
</tbody>
</table>

**Program Completion Rate**

- **RTT**: Admitted 91, Withdrawn/Dropped 3, Graduated 88
- **non-RTT**: Admitted 45, Withdrawn/Dropped 3, Graduated 42

**Job Placement Rate**

Total 136, Graduated 130, 100%

**Conclusions**

- There were no relevant differences between RTT and non-RTT cohort students.
- The 6 non-graduates had significantly lower SGPA compared to graduates, suggesting that the lower range of admission SGPA could have contributed to unsuccessful completion of the program.
- The 16 graduates that did not pass the MDCB exam on 1st attempt had significantly lower CGPAs, SGPAs, and medical dosimetry GPAs compared to the passing graduates, suggesting that the lower admission GPAs could have contributed to the lower medical dosimetry GPAs and ultimately the inability to pass the MDCB exam on 1st attempt.
- Surveys: many of the clinical supervisors and employers agreed that (a) non-RTT students required more initial training and supervision compared to the RTT students, most likely attributed to the prior radiation therapy experience of RTT students; (b) there were notable differences in non-RTTs based on their prior degree; prior RTT certification was not as important as the person’s ability to recognize anatomy, see 3D, create and interpret plans; (c) there were no reservations in hiring RTT or non-RTT graduates from the program and stated they were well prepared for graduation.

Comparison of RTT and non-RTT graduates who failed the MDCB exam on 1st attempt (n=16) to those who passed on 1st attempt (n=114). The CGPA (left), SGPA (middle), and medical dosimetry program GPA (right) all display a generally higher density in the lower GPA regions for the graduates (n=16) who failed the MDCB exam on 1st attempt.

Comparison of RTT and non-RTT cohorts that graduated (n=130) and did not graduate (n=6). The CGPA plot (left) failed to show relevant differences between the 2 groups; however, the SGPA plot (right) non-RTT graduates displayed a generally higher density in the lower GPA region for the non-graduate group.