The Impact of the COVID-19 Pandemic on the Field of Medical Dosimetry

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CE Credits

• To earn CE Credits for this session, you need to view the entire session and complete both the assessment questions and evaluation.
• These need to be completed by Thursday, July 15

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Disclosures
I have no disclosures to report.

Overview
Coronavirus Disease 2019 (COVID-19)

Jan 7, 2020
The cause was identified as a novel coronavirus, later named COVID-19

Jan 21
Multiple cases reported globally, including the first case in the US

Jan 27
WHO declares public health emergency

Jan 30, 2020
WHO declares COVID-19 a pandemic

Feb 25, 2020
CDC warns that the US needs to prepare – a state of emergency

Feb 29, 2020
Washington declares a state of emergency

Mar 7-8, 2020
8 states, including New York, declare a state of emergency

Mar 10, 2020
WHO declares COVID-19 a pandemic

Mar 11, 2020
US President declares a state of National Emergency

Dec 31, 2019
WHO was notified of cases of pneumonia in Wuhan, China with unknown cause

Dec 14, 2021
Testing begins in the US

First COVID-19 vaccination given
Importance for Radiation Therapy to Adapt to COVID-19

- **Cancer patients were shown early to be in a high risk population.**
  - Higher morbidity and mortality risk group: advanced age, immunocompromised, secondary conditions.  
  - China reported that cancer patients had a higher risk of contracting COVID-19 and having poorer outcomes.  
  - In Wuhan, China, it was estimated that almost 30% of cancer patients with COVID-19 had been infected at the hospitals while receiving their cancer therapies.  
  - Italy reported that approximately 20% of their COVID-19 fatalities had active cancer.  
  - The WHO reported that the fatality rate was doubled in patients with cancer.  

- **Possible increase in radiation therapy use.**
  - Nonmucosal surgical procedures were restricted, leading to patients being triaged towards comparable treatments.  

Adapting to COVID-19

- **Infection Control**
  - Screening patients and employees at the entrances.  
  - Proper PPE such as surgical masks and N95s.  
  - PPE shortage lead to sterilizing disposable PPE.  

- **Limiting in-person interactions**
  - Limiting visitors and caretakers.  
  - Limiting on-site personnel by moving as many services as possible to remote work.  
  - Ex. Medical physicists, medical dosimetrists, billing department.  
  - Maximizing telemedicine use for patient consultations and multidisciplinary conferences.
Medical Dosimetrists at MD Anderson

- Started preparations for possible remote work in February 2020
- Medical dosimetrists sent home on March 13, 2020 and have not returned to campus yet
  - Driving factors: limit employees on campus to protect patients, shortage of PPE, contact-tracing

Initial Challenges
- Technology/hardware
- Communication and communication software

Pros
- No commute time
- Feel the same or more productive
- More reachable
- Less symptoms of burnout
- Better work-life balance
- Able to join in on remote department social events
- 1-2x weekly meetings
- Lower operational costs for the institution

Cons
- More reachable → less breaks
- Isolation for some who live alone
- Less interpersonal relationship building
- Challenging for new hires

Survey
Methods

• Approval for this research study was obtained from the University of Texas MD Anderson Cancer Center’s (MDA) Institutional Review Board (IRB)

• Survey was designed and distributed in Qualtrics
  • 23 total questions:
    – 4 direct contact patient care role
    – 12 remote work
    – 6 demographics
    – 1 open ended to share experiences
  • Logic was built into the survey to show specific questions based on given answers
    – Not possible for a survey taker to answer all of the questions

• Pilot Study
  • Medical dosimetrists employed at MDA’s Proton Therapy Center
  • 2019 graduates of MDA’s School of Health Profession’s Medical Dosimetry program
  • Results were deleted prior to official survey distribution

• MDCB members were invited via email to participate in the study
  • Survey was open March 1, 2021 to April 2, 2021
  • Results were exported to IBM’s Statistical Package for Social Sciences (SPSS) software
  • Descriptive statistics were used to analyze continuous items, and frequency and percentages statistics were used on categorical items

Results
Demographics

Survey takers

▲ 4,450 out of 4,483 emails were successfully received
▲ 361 (8.1%) responded
▼ 1 did not consent to the survey
▼ 22 marked that their primary role was not clinical medical dosimetry + 1 did not answer
◊ The margin of error for a sample size of 337 was ± 5.13% at the 95% confidence level

Work Classification

- Full-time: 90%
- Part-time: 2%
- Temporary/Contract: 2%
- Per-diem: 2%

Institution

- Community hospital: 33%
- Academic medical center: 33%
- Freestanding center: 15%
- Private hospital system: 10%
- Other: 10%

Full-time 94%
Part-time 2%
Temporary/Contract 2%
Per-diem 2%

Demographics

Years of Professional Experience

- < 1 year: 2%
- 1-3 years: 13%
- 4-9 years: 18%
- 10-19 years: 28%
- >20 years: 39%

Highest Academic Degree

- Bachelor: 48%
- Master: 26%
- Associate: 16%
- Certificate: 9%
- Doctorate: 1%
- Other: 1%

AAMD Region

- Region II: AR, CO, IA, KS, LA, MI, MO, MT, NE, ND, SD, TX, WY, AB (Canada), MB (Canada), SK (Canada)
- Region III: IL, IN, KT, MI, WI, ON (Canada), all other countries except Canada
- Region IV: CT, ME, MA, NH, NJ, NY, RI, VT, NB (Canada), NL (Canada), NS (Canada), PE (Canada), QC (Canada)
- Region V: AL, FL, GA, ME, NC, PR, SC, TN
- Region VI: DE, MD, OH, PA, WV, VA, DC
- Region VII: AK, AZ, CA, HI, ID, NV, OR, WA, UT, BC (Canada)
- Region VIII: NM, NM (Mexico), TX, CO (Mexico)
Perceived Workplace Changes

Changes at the Medical Dosimetry Level

Direct-Contact Patient Care Role Changes

**Radiation Therapy Related Duties**
- 55% had RTT related duties
  - 68% did not experience changes
  - 32% have reduced or stopped duties
    - 10% only during first 3 months
    - 2% increased

**Brachytherapy Related Duties**
- 22% had BT related duties
  - 62% did not experience changes
  - 38% reduced or stopped duties
    - 9% only during first 3 months
    - 3% increased

**Sim/Setup Duties**
- 61% had sim/setup related duties
  - 91% did not experience changes
  - 9% reduced or stopped duties
    - 2% only during first 3 months
    - 0% increased

Changes to Direct-Contact Patient Care Roles

Possibility of Permanent Changes?

- No Changes 26%
- Reduced after 3 months 45%
- Increased 15%
- Unsure 4%
Remote Work Status Changes

Allowed to Work Remotely Prior to COVID-19?
- Yes: 75%
- No: 23%

Newly Allowed to Work Remotely due to COVID-19?
- Yes: 75%
- No: 25%

Possibility of Permanent Change?
- Only temporarily: 12%
- Permanent: 18%
- Unsure: 40%
- Other: 9%

Changes By Those Already Allowed to Work Remotely
- 7% were allowed to work remotely 100% of the time
- 40% of these did not actually do so, but did after COVID-19
- The majority worked remotely 10-20% of the time prior to COVID-19
- 40% moved to working remotely 100% of the time at some point during the first 6 months
Changes By Those Newly Allowed to Work Remotely

- **41%** were newly given the option to work remotely
  - 52% of these chose to do so more than half of the time

- **34%** were newly **required** to work remotely
  - 78% of these did so more than half of the time

- **By August 2020**
  - 16% went back into clinic full time, leaving 84% still working remotely at least some of the time
  - 67% were still working remotely more than half of the time
  - 34% were working remotely 100% of the time

Remote Work - Connection

**Items Given from Institution**

- None: 96
- Laptop: 82
- Desktop: 31
- Monitor: 87
- Mouse: 31
- Keyboard: 18
- Other: 28

**How Do You Access Work Programs and Files?**

- Web-Based VPN: 108
- VPN Software: 83
- VPN Hardware: 29
Remote Work - Interruptions

**Are You Able to Work Remotely Largely Without Interruption?**

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Somewhat Agree</th>
<th>Neither</th>
<th>Somewhat Disagree</th>
<th>Strongly Disagree</th>
</tr>
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<tbody>
<tr>
<td>140</td>
<td>60</td>
<td>0</td>
<td>20</td>
<td>0</td>
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</tbody>
</table>

**Types of Interruptions Experienced**

- Personal/Family: 20
- Internet Connection: 40
- VPN Connection: 60
- Other: 10

Do You Feel More Productive Working Remotely?

- Strongly Agree: 100
- Agree: 80
- Neither: 40
- Somewhat Disagree: 20
- Strongly Disagree: 10

Remote Work Productivity
Remote Work Burnout

Do You Experience Less Symptoms of Burnout Working Remotely?

Remote Work Preference

Do You Prefer to Work Remotely?
Increase of tensions between departments (Dosi/Physics vs Therapy/Nursing) due to the prior having flexibility to work from home and "shield" themselves from public interactions.

Zero face to face interaction with coworkers decreases spontaneous collaboration efforts and those who live alone face isolation.

Reduced hours due to reduced procedures. Had to use vacation time or unpaid. Dosimetrists had to spread out within department to non optimal work spaces.

We requested to work from home at department level. Corporate management and Medical Director agreed. Department management wasn’t so keen. The compromise was one CMD on site and three work from home. We rotate weeks.

Virtual meetings have become the norm. Maintaining continuing education has become easier.

I do think that being onsite every few weeks is good for connecting with the team. It’s a good idea to have a short zoom meeting every few weeks as well.

I believe my physical and mental health were positively impacted by working from home. I am closer to my children if a problem should arise with their care. I can take of small chores around the house on my lunch break. I get more sunshine and get out more often during the week, walks on lunch (i have a view of the great outdoors now too). I save money on gas, parking, and car maintenance (stress is reduced without the commute). Less interruptions from people walking through the office to chat, but some days there are technology issues, which can and do happen at the office as well.

Remote Work Outside of Medical Dosimetry

![Graph showing the percentage of employees working from home]

**Four-in-ten adults working from home all or most of the time say they have more flexibility to choose their hours now than before the coronavirus outbreak**

**Among employed adults who are working in the same job as before the coronavirus outbreak,** % saying that, compared with before the coronavirus outbreak, they...

- Work from home all/most of the time: 40%
- Work from home some/some/never: 21%
- Work can't be done from home: 19%

- Feel less connected to their coworkers: 21%
- Have more flexibility to choose their hours: 21%
- Are working more hours: 12%
- Find it easier to balance work and family responsibilities: 7%
- Are more satisfied with their job: 9%

*Based on those who say that, for the most part, the responsibilities of their job can be done from home.

**This question was not asked of those who are self-employed and do not have any employees.**


FEW RESEARCH CENTER

*Recorded presentation transposed this number at 84%, however it is actually 48%*
Limitations

- Only focused on clinical medical dosimetrists
  - Education, research, business, etc.
- Did not ask specifically if participants were in the US
- Low response rate
- Self-reported data
- Still may be too early to tell permanent changes

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References


Questions?

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Thank you!