Introduction

Within radiation oncology, the emergence of complex treatment regimens, advanced technology, evolving research protocols, and world-wide collaborative efforts, has created a patient-centric environment with quality and patient outcomes front-facing.

With high healthcare demand and shifting premiums, oncology patients are expecting quality results.

Physicians and administrators alike are tasked with meeting this demand.

It is imperative that healthcare systems provide highly efficient and quality care at the most optimal cost.

Purpose

The purpose of this study was to prospectively develop and implement a custom-designed electronic workflow management system created by Medlever, Inc.

In order to improve efficiency, leveraging inter-operability and maximizing workflow tools can improve cost control, clinical outcomes, and patient satisfaction.

Administrators and clinicians from five Banner M.D. Anderson Cancer Center, Department of Radiation Oncology clinics utilized Medlever, Inc. to track and analyze clinical workflow process steps.

Methods

A custom electronic workflow management program was created for Banner MD Anderson Cancer Center by MedLever Inc. with inputs from Banner administration and highly experienced IT department.

Medlever, Inc. specializes in providing automated systems for tracking clinical process steps, improve documentation, and overall improvement of interoperability.

The configuration was reviewed and approved to be HIPPA compliant.

Methods

The use of Medlever was piloted by dosimetrists, radiation therapists, medical physicists, and physicians.

Real-time data was collected for the duration of 3 months – November 1st, 2019 – January 31, 2020.

Conclusions

The results showed that Medlever’s workflow management system is an effective tool to provide results for real-time data tracking, improving efficiency, and evidence-based approaches to workflow decision making.

Results

The overall efficiency score for facility A through E were approximately 72%, 77%, 82%, 66% and 60%, respectively.

The overall average efficiency score for the clinical process steps were as follows:

- Simulation - 66%
- Define target volume - 69%
- Creating a treatment plan - 71%
- Plan review - 76%
- Finalizing plan - 81%
- Physics review - 73%
- IMRT QA - 72%
- Approving treatment plan - 69%
- Therapy chart check - 66%

Efficiency Defined

For the purpose of this project, efficiency score is defined as:

(Total number of process steps completed on time – Total number of process steps completed late) / (Total Number of Process Steps completed)

Where late process steps were based on pre-defined timelines for each process steps. These timelines are as shown below:

<table>
<thead>
<tr>
<th>Process Step</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simulation</td>
<td>74%</td>
<td>53%</td>
<td>78%</td>
<td>74%</td>
<td>53%</td>
</tr>
<tr>
<td>Define Target Volumes/ Blocks</td>
<td>72%</td>
<td>79%</td>
<td>81%</td>
<td>57%</td>
<td>57%</td>
</tr>
<tr>
<td>Create Treatment Plan</td>
<td>81%</td>
<td>82%</td>
<td>83%</td>
<td>60%</td>
<td>48%</td>
</tr>
<tr>
<td>Plan Review</td>
<td>84%</td>
<td>82%</td>
<td>82%</td>
<td>69%</td>
<td>62%</td>
</tr>
<tr>
<td>Finalize Chart</td>
<td>88%</td>
<td>82%</td>
<td>88%</td>
<td>81%</td>
<td>65%</td>
</tr>
<tr>
<td>Physics Review</td>
<td>76%</td>
<td>78%</td>
<td>73%</td>
<td>71%</td>
<td>66%</td>
</tr>
<tr>
<td>IMRT QA</td>
<td>68%</td>
<td>78%</td>
<td>79%</td>
<td>61%</td>
<td>75%</td>
</tr>
<tr>
<td>Approve Treatment Plans</td>
<td>57%</td>
<td>82%</td>
<td>84%</td>
<td>59%</td>
<td>52%</td>
</tr>
</tbody>
</table>

References


Reference...

https://doi.org/10.1016/j.ijrobp.2015.07.1822


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