Radiation Oncology Future State Map for Bone and Brain Metastatic Patients
From Consult Request to First treatment

Sub group in the process being reviewed

1. Request made, Info gathered

2. Schedule appt, EWS, VaRis, Sched

3. Prepare Radiation Oncology chart

4. Patient checks in for consult, sim and TX

5. Add additional paperwork to Radiation Oncology Chart

6. Pt waits in lobby

7. Gather Pt and chart

8. Vitals taken

**First Time Quality:**
90% VA
100% FTQ

**Wait Time:**
1740 PT
180 W/T
1920 Lead Time

**Minutes**
120 P/T
1680 W/T
30 FTQ

Some Standard Shapes (Other Shapes in AutoShapes & "Learning to See" Book):

- Patient Diagram:
- Prescription:
- Formulas:
- Process Time: P/T
- Electronic Flow:
- Wait Time: W/T
- Information Flow:
- First Time Quality: FTQ
- Multi-Flow:
- Workers:
- Rework Flow:
- Data Box:
All encounters done at same visit, same room, staff change per procedure.

Simulation Directive written and standardized.

Patient fit into schedule: team work on all units.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Time (min)</th>
<th>Value Added</th>
<th>FTQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Pt put in exam room</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Dr. paged</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Consult, consent, video and education</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Pt taken to simulator</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Simulation performed</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Pt given tour</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Pt treated</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Wait Time: 1.08 Days
Time in Process: 0.38 Days
Lead Time: 1.58 Days

Clinic open: 10 hour

P/T: 100%  W/T: 100%  F/T: 100%  R/T: 100%  P/A: 100%

Value Added (P/T/LT): 100.00%
Figure 2. Future state value stream map. The future state map reveals a more standardized and ordered way to approach treating patients with bone and brain metastasis. In process step 2, all appointments were scheduled and given to the patient by a radiation oncology clerk at the time of request. As the information required was made available upfront in the process steps, the number of process steps was reduced from 27 to 16 and the number of patient encounters from three to one. The total process time to evaluate, simulate, and treat the patient decreased to 225 minutes and even more remarkable was the reduction in wait time and lead time. The total wait time was now just 1.2 days (based on a 10-hour clinic open time), and the total lead time now 1.58 days (compared with the previous 13.74 days). The billing office is now notified immediately to start working on the authorization. Steps were combined or reduced by standardizing work and implementing clear process guidelines. Simulation sheets were written and implemented so that the physician would give the simulation therapists clear instructions.

CT sim, computed tomography simulation; EWS, enterprise wide scheduling system; MDC, multidisciplinary clinics; PAD, physician activity document; Rad, radiation; RadOnc, radiation oncology; Sched, home grown scheduling system; TX, treatment; UMHS, University of Michigan Health System; VaRis, commercial scheduling and charge capture system; P/T, process time; W/T, wait time; FTQ, first time quality; VA, value added.