Clinical Safety & Effectiveness Cohort # 10

Improve Patient Census and Referral Tracking to Grow Oncology Service Lines at CTRC

Educating for Quality Improvement & Patient Safety

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## The Team

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Niko Papanikolaou, Ph.D.</td>
<td>CS&amp;E Participant</td>
<td>Project Leader</td>
</tr>
<tr>
<td>Don York, MS</td>
<td>CS&amp;E Participant</td>
<td>Project Leader</td>
</tr>
<tr>
<td>Richard Crownover, MD</td>
<td>Team Member</td>
<td>Advisor</td>
</tr>
<tr>
<td>Emily Garrison, MHA</td>
<td>Team Member</td>
<td>Marketing development and strategy</td>
</tr>
<tr>
<td>Lissa Persson, BBA</td>
<td>Team Member</td>
<td>Database queries and report development</td>
</tr>
<tr>
<td>Debbie Ivy</td>
<td>Billing SME</td>
<td>Average charges by Tx type</td>
</tr>
</tbody>
</table>
Aim Statement

The aim of this project is to increase patient census and referrals from UT Medicine to CTRC from an average relative value of 22% to 50% by the end of 2012.

There is currently no reliable, consistent methodology for tracking or reporting patient census counts and referrals. The ability to track these measures is necessary in order to grow service lines and increase revenues at CTRC.
Project Milestones

• Team Created Jan 2012
• AIM statement created Jan 2012
• Background Data, Brainstorm Sessions, Jan – Mar 2012
  Workflow and Fishbone Analyses
• Interventions Implemented May 2012
• Data Analysis Apr-May 2012
• CS&E Presentation Jun 2012

Graduation Date
Background

Tracking the patient census and referral data is important to CTRC in order to identify:

- The source of referrals or lack thereof
- The fraction of patients that decide to receive treatment at CTRC, and
- The relative census per disease site treated at CTRC compared against TX State published data for site specific cancer incidence.
Desired Outcomes

Analysis of the data from this project will help CTRC to:

• Facilitate business and marketing strategies through accurate, consistent and timely data reporting.
• Identify specialty areas where referrals to CTRC can be improved.
• Identify limitations in the current data collection methodology.
• Develop an automated solution for collecting and reporting data for review and strategic planning.
• Follow up with patients that elected to not receive treatment at CTRC and find the reasons for their decision.
Data to be Collected

- Incidence of cancer by disease site from the Texas Cancer Registry.
- Count of Patients with cancer Dx by disease site for all of UT Medicine (includes CTRC).
- New Patient counts by disease site for CTRC.
- Count of New Patients electing to receive Tx at CTRC.
- Count of New Patient referrals from UT Medicine by disease site.
Data Sources

• Epic EMR (Clarity DB at UT Medicine)
• Mosaiq EMR (CTRC)
• IDEAS (Clinical Trial DB)
• Texas Cancer Registry
• CTRC Data Warehouse
## Data Analysis

<table>
<thead>
<tr>
<th>Data</th>
<th>What it tells us</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly diagnosed patients at UT Medicine compared to all incidents in south/central Texas by disease site.</td>
<td>Opportunities for reaching more patients in our immediate region.</td>
</tr>
<tr>
<td>NPVs at CTRC vs. newly diagnosed patients at UT Medicine.</td>
<td>Opportunities within UT Medicine to refer more patients for CTRC.</td>
</tr>
<tr>
<td>CTRC Referrals from UT Medicine</td>
<td>How often UT Medicine physicians are referring cancer patients to CTRC.</td>
</tr>
<tr>
<td>Patients treated compared to NPVs</td>
<td>Whether patients that came to CTRC for a NPV elected to stay at CTRC for their treatment.</td>
</tr>
</tbody>
</table>
# Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
</table>
| **UT Med Total Patients**  
Region 8 Total | Patients at UT Medicine compared to all incidents of the same disease in Region 8* |
| **NPV**  
UT Med Total Patients | New Patient Visits (NPV) at CTRC compared to all patients at UT Medicine (including CTRC) with a cancer Dx |
| **UT Med Referrals**  
NPV | NPV from UT Med seen at CTRC compared to all NPV (from all referral sources) seen at CTRC |
| **Patient Tx**  
NPV | Percentage of New Patients seen at CTRC that elected to receive their Treatment at CTRC |

* Region 8 includes Bexar county and 27 surrounding counties.
# CTRC Metrics for 2011

<table>
<thead>
<tr>
<th>Metrics</th>
<th>Breast</th>
<th>Prostate</th>
<th>Lung</th>
<th>Liver</th>
<th>Lip, Oral</th>
<th>Colon</th>
<th>Brain; Nervous</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT Medicine Total/Region Total</td>
<td>24%</td>
<td>23%</td>
<td>14%</td>
<td>78%</td>
<td>50%</td>
<td>16%</td>
<td>58%</td>
<td>38%</td>
</tr>
<tr>
<td>NPV/UTM Total</td>
<td>71%</td>
<td>58%</td>
<td>78%</td>
<td>61%</td>
<td>81%</td>
<td>61%</td>
<td>76%</td>
<td>69%</td>
</tr>
<tr>
<td>UTM Referrals/NPV</td>
<td>21%</td>
<td>30%</td>
<td>16%</td>
<td>24%</td>
<td>34%</td>
<td>12%</td>
<td>15%</td>
<td>22%</td>
</tr>
<tr>
<td>Tx/NPV</td>
<td>96%</td>
<td>87%</td>
<td>90%</td>
<td>96%</td>
<td>98%</td>
<td>93%</td>
<td>96%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Improvement over current baseline statistics will result in higher percent values for all the data shown in this table.
Process Analysis Tool

Patient Census Reporting & Tracking at CTRC

People
- No one tasked with collecting data or monitoring
- No staffing
- UT Medicine may not know of CTRC’s capabilities and not sending patients to CTRC

Process
- No processes exist
- No marketing strategies for targeted diseases
- Data Collection

Technology
- IT Resources
- No means to collect state registry data
- No collecting of data at present time
- No data fields to capture all the desired data

Reporting
- No reports developed
- No accountability for report results

Process to get patient scheduled for same day as UTMB appt.
Is CTRC referring patients back to UTMB?

No accurate, reliable method for reporting patient census counts and referrals
Changes That We Expect Will Result in Improvements

• Monthly reporting using standardized, validated queries.
• Implementation of rules for internal processes to standardize the capture of referring data.
• Scrub referral tables in Mosaiq to ensure clean data.
• Marketing of CTRC services to internal (UTMed) and external physician groups.
System Changes Made (or in Process)

- Interface upgrade
  - More demographic and referral data from Epic is captured in Mosaiq
- Standardization of Referral data entry
Intervention (Plan)

- Validate queries and create monthly, automated reports.
- Perform monthly review of data and trends.
- Plan marketing efforts accordingly.
Implementing the Change (Do)

• Publish monthly reports for CTRC leadership
• Aggressively market CTRC services to all UT Medicine physicians to maximize internal referrals
• Schedule “Meet & Greet” sessions
• Follow up with physicians that have in the past or present referred patients to CTRC
Results/Impact (Check)

- Monitor trends on monthly charts.
- Watch for upticks following marketing efforts
Expansion of Our Implementation (Act)

• Expand tracking for more disease sites
• Break down data into finer elements
  – Medical Oncology
  – Radiation Oncology
  – Surgical Oncology
Breast Cancer Patients – 2012

<table>
<thead>
<tr>
<th>Month</th>
<th>Region 8 (avg)</th>
<th>UTM</th>
<th>NPV</th>
<th>NPV + Tx</th>
<th>UTM Ref</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>138</td>
<td>53</td>
<td>32</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>February</td>
<td>138</td>
<td>37</td>
<td>13</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>March</td>
<td>138</td>
<td>57</td>
<td>23</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>April</td>
<td>138</td>
<td>35</td>
<td>21</td>
<td>24</td>
<td>0</td>
</tr>
</tbody>
</table>
# Metrics for Breast Cancer – 2012

<table>
<thead>
<tr>
<th>Metric</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>Avg</th>
</tr>
</thead>
<tbody>
<tr>
<td>UT Medicine Total/Region Total</td>
<td>38%</td>
<td>27%</td>
<td>41%</td>
<td>25%</td>
<td>33%</td>
</tr>
<tr>
<td>NPV/UTM Total</td>
<td>60%</td>
<td>35%</td>
<td>40%</td>
<td>60%</td>
<td>49%</td>
</tr>
<tr>
<td>UTM Referrals/NPV</td>
<td>0%</td>
<td>0%</td>
<td>4%</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td>Tx/NPV</td>
<td>66%</td>
<td>138%</td>
<td>61%</td>
<td>114%</td>
<td>95%</td>
</tr>
</tbody>
</table>

Note: Coding and billing are typically several weeks behind in processing claims; therefore, data may not be complete for several months.
Breast Cancer Metrics – 2012

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**Return On Investment**

**Breast Cancer:** An increase in referrals from 21% to 50% (29 additional patients) has the potential for the following increases:

<table>
<thead>
<tr>
<th>Item</th>
<th>2011 (Baseline)</th>
<th>Increase to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Referrals</td>
<td>59</td>
<td>88</td>
</tr>
<tr>
<td>NPV</td>
<td>277</td>
<td>306</td>
</tr>
<tr>
<td>NPV $\rightarrow$ Tx</td>
<td>266</td>
<td>295</td>
</tr>
<tr>
<td>Avg. Revenue for Breast cancer patients receiving treatment*</td>
<td>$5.1M</td>
<td>$5.7M</td>
</tr>
</tbody>
</table>

* Average revenue per patient is $19,441/year and is based on a sampling of patients treated for Breast cancer in both Medical Oncology and Radiation Oncology departments. Sampling provided by the Billing Office.
## ROI – All Primary Disease Sites

<table>
<thead>
<tr>
<th>Referrals</th>
<th>Breast</th>
<th>Prostate</th>
<th>Lung</th>
<th>Liver</th>
<th>Lip, Oral</th>
<th>Colon</th>
<th>Brain; Nervous</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 Baseline</td>
<td>59</td>
<td>68</td>
<td>26</td>
<td>28</td>
<td>33</td>
<td>10</td>
<td>11</td>
<td>235</td>
</tr>
<tr>
<td>Potential 2012</td>
<td>88</td>
<td>102</td>
<td>39</td>
<td>42</td>
<td>50</td>
<td>15</td>
<td>17</td>
<td>353</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Referrals</th>
<th>Total</th>
<th>Avg Rev/Pat</th>
<th>Rev (Avg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 Baseline</td>
<td>235</td>
<td>$19,441</td>
<td>$4.5M</td>
</tr>
<tr>
<td>Potential 2012</td>
<td>353</td>
<td>$19,441</td>
<td>$6.8M</td>
</tr>
<tr>
<td><strong>Return</strong></td>
<td>+118 patients</td>
<td></td>
<td><strong>$2.3M</strong></td>
</tr>
</tbody>
</table>

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Conclusion/What’s Next

• The data confirms that several opportunities exist for increasing patient census.
• The data confirms that more referrals could be sent to CTRC from UT Medicine.
• Due to lag times in coding and Billing, data from the most recent months is not always accurate.
• Implement rules for capturing referring data.
• Scrub tables to ensure accurate, complete data.

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Thank you!!