Top-Ranked Comprehensive Cancer Center

Perfecting the Ambulatory Care Experience

Challenge

Create an integrated, optimized patient experience through a redesign of the existing ambulatory care model at a top-ranked comprehensive cancer center in Western United States.

Methodology

Provided strategy and guidance for the redesign efforts informed by:

– Robust data analysis
– Sophisticated simulation models
– Team experience and expertise around Lean principles and industry best practices.

Met with various stakeholders to explain the realities of the current state and amass buy-in for the proposed optimal state.

Solutions

After final recommendations were presented, the cancer center’s administration was equipped to make smart, strategic decisions about the immediate and long-term organizational, operational, and infrastructural changes needed to optimize the patient experience and position the organization for long-term success. Notable outcomes included:

– Operational Efficiency: Creation of simulation model informed proposal of initiatives to reduce length of stay (LOS) by up to 22% and significantly reduce travel distances for staff and patients.
– Alignment & Integration: Data integrity paired with consensus-building through informational and educational meetings helped foster “buy-in” among top stakeholders.
– Service Excellence: Physician-attributed cancellation rates dropped by 80% after client was presented with findings from the current state.

Location

Western United States

Completion Date

May 2013

Services Provided

Operational Consulting, Simulation Modeling

Departments Impacted

Oncology, Infusion Services, Blood Draw

Simulation modeling was used as a tool to test different scenarios. This helped the team understand the current state and make recommendations for the future state. In this example, the model is set up to understand the impact of consolidating Pediatric services in a single center.
Transitioning to an interdisciplinary model from a service line based model was a key recommendation based on both the findings from the current state and the guiding principles identified by the client. In the example above, all required care is coordinated across multiple disciplines for a breast cancer patient, instead of having the patient make appointments across different service lines.

Data Acquisition and Analysis

The engagement began with a comprehensive assessment of the current state of the cancer center’s clinics. This included:

- Review of client data from the previous 12 months
- Clinic observations
- Interviews and validation of their current staff roles

To gather the needed patient throughput data, CannonDesign spent four weeks on site administering a manual time stamp survey (Figure 1) covering the process times for each step from arrival to departure. Staff collected over 1,300 unique surveys from existing patients. This manual time stamp study identified areas of inefficiency in the patient experience, by clinic and disease-site.

Current State Assessment

Based on activities during data acquisition and analysis, the team made a series of recommendations for improving the ambulatory care experience in the current state. These included but were not limited to:

- Transition to an interdisciplinary ambulatory model of care with dedicated tumor-based clinics (Figure 2)
- Develop a comprehensive clinical care coordinator model that facilitates a single point-of-contact for all patient needs
- Develop 24-hour nurse call triage system for patients with clinical or logistical questions

Guiding Principles

As part of the project, the cancer center laid out seven guiding principles to guide decisions that would inevitably have to be made regarding the future of their ambulatory cancer care models, services, and spaces:

- Patient First
- Ease of Access by Patients
- Coordination of All Care with Optimal Communications
- Accountability to the Patient and Each Other at All Times
- Interdisciplinary Model of Care
- Appropriate and Comfortable Physical Setting
- Patient and Care Provider Time is Spent Wisely

Baseline Disease-Based Simulation

After making initial recommendations based on the current state operational assessment, the team then tested these recommendations by creating over 30 separate simulation models. Since the cancer center anticipated a new replacement facility would be built within the next five to ten years, the models were built to determine the optimal operational state possible within the existing facility prior to the new building being opened. The combination of initiatives tested in the simulation model included changes made to operational processes, restacking the building, adding or removing staff, and investing in technology.

Visioning Sessions

Concurrent with simulation modeling activities, CannonDesign led five visioning sessions with over 100 key stakeholders to discuss innovative methods from other industries to improve healthcare delivery, outputs of the baseline simulation model, and participants’ experiences with the existing operational environment. These visioning sessions yielded a shared vision of the optimal patient experience, customized performance benchmarks and optimal future-state value-stream maps for patient flow and staff roles.

### Data Table

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Centralized Infusion</th>
<th>Baseline Disease</th>
<th>Scenario 1: Expanding Weekdays to 14 Hours</th>
<th>Scenario 2: Expanding Weekends to 14 Hours</th>
<th>Scenario 3: Expanding Hours to Saturday and Sunday</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OVERALL AVG. LOS (mins)</td>
<td>RETURN PATIENT LOS (mins)</td>
<td>NEW PATIENT AVERAGE LOS (mins)</td>
<td>INFUSION AVERAGE TAT (mins)</td>
<td>AVERAGE DAILY INFUSION THROUGHPUT</td>
</tr>
<tr>
<td>Current State</td>
<td>161 mins</td>
<td>160 mins</td>
<td>191 mins</td>
<td>194 mins</td>
<td>158 mins</td>
</tr>
<tr>
<td>Baseline Disease</td>
<td>153 mins</td>
<td>153 mins</td>
<td>153 mins</td>
<td>153 mins</td>
<td>153 mins</td>
</tr>
<tr>
<td>Scenario 1</td>
<td>136 mins</td>
<td>136 mins</td>
<td>139 mins</td>
<td>136 mins</td>
<td>176 mins</td>
</tr>
<tr>
<td>Scenario 2</td>
<td>134 mins</td>
<td>134 mins</td>
<td>136 mins</td>
<td>134 mins</td>
<td>176 mins</td>
</tr>
<tr>
<td>Scenario 3</td>
<td>132 mins</td>
<td>132 mins</td>
<td>138 mins</td>
<td>132 mins</td>
<td>215 mins</td>
</tr>
</tbody>
</table>
Future State Simulation Model

The outputs of the future state simulation model yielded recommendations that could ultimately be adapted into a comprehensive transition plan for implementation. The CannonDesign team worked closely with the cancer center’s process improvement team to translate the recommendations into short- and long-term actions and identify needed resources, budget assumptions and timeline to completion.

Ultimately, CannonDesign’s recommendations (sidebar) were reflective of the client’s guiding principles and were presented as options requiring varying levels of time and resource investment and with varying degrees of impact (FIGURE 5).

Impact of Scenarios on Length of Stay

<table>
<thead>
<tr>
<th>Scenario</th>
<th>% Added To LOS on Top of Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>-17%</td>
</tr>
<tr>
<td>Centralized Check-In</td>
<td>-11%</td>
</tr>
<tr>
<td>Lab Consolidation</td>
<td>-10%</td>
</tr>
<tr>
<td>Lab Automation</td>
<td>-13%</td>
</tr>
<tr>
<td>Streamlined Intake</td>
<td>-6%</td>
</tr>
<tr>
<td>Top of License</td>
<td>-13%</td>
</tr>
<tr>
<td>OP Imaging</td>
<td>-1%</td>
</tr>
<tr>
<td>Centralized Infusion</td>
<td>-1%</td>
</tr>
<tr>
<td>Interdisciplinary Model</td>
<td>5%</td>
</tr>
<tr>
<td>Combined</td>
<td>-22%</td>
</tr>
</tbody>
</table>

Intermediate State Recommendations

- Organize clinics by tumor site.
- Expand registration to create a single point of entry.
- Consolidate vascular access center and blood draw functions.
- Designate a separate pediatrics center.
- Create an outpatient imaging center.
- Centralize infusion services (FIGURE 3).
- Re-envision staff responsibilities to ensure they are working at the top of their license.
- Streamline the intake process.
- Develop a interdisciplinary model of care.

About CannonDesign
CannonDesign is an integrated, interdisciplinary design firm bringing together architects, engineers, clinicians, healthcare executives, scientists, economists, interior designers, and experiential designers. Together we develop solutions to the most complex challenges facing healthcare providers today.

Contact Information
For more information please visit www.cannondesign.com.