Clinical Safety & Effectiveness
Cohort # 24
Team #6
Optimizing Ophthalmic Imaging Processes

UT Health
San Antonio
Ophthalmology
Ophthalmology Imaging Team

Team Leader: Jennifer Ramos, COA, Practice Manager
Team Secretary: Kathi Huprich, MBA, CMPE, CPC, Assoc Dir/Finance
Medical Director: Constance L. Fry, MD
Lead Photographer: Carrie Cooke, COA, CRA, CDOS
Senior Technician: Miguel Villanueva, COA
Facilitator: Sherry Martin, MEd
Statistical Consultant: Wayne Fischer, PhD

Clinic participants:
Tarana Ahmed, COA
Lorraine Lopez, COA
Edward Martinez, COT
Stefan Sensenbrenner, COA
Stephanie Zamarripa – Clinic Supervisor

Dr. Jihad Isteitiya – Physician Liaison
Dr. Hamzah Khalaf – Physician Liaison
Natalie Leija Torres - Front desk lead
Halley Herrera – Scheduling
Braeden Moody, MS 1

Sponsor:
Daniel A. Johnson, MD, Professor & Chair, Ophthalmology
Background
SHORT TESTS < 10 MIN
INTERMEDIATE TESTS 20 MIN
LONG TESTS ~ 45-60 MIN
Patient Wait Time for Imaging

SPC Individuals Chart - Time waiting for test (min)

Phase Limits

<table>
<thead>
<tr>
<th>Phase</th>
<th>LCL</th>
<th>Avg</th>
<th>UCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before</td>
<td>-17.9</td>
<td>13.6</td>
<td>45.2</td>
</tr>
</tbody>
</table>
AIM STATEMENT

To decrease the average time waiting for Ophthalmic Imaging from 13.6 minutes to 10 minutes by June 2019
# Data Collection

<table>
<thead>
<tr>
<th>Type of Measure</th>
<th>Measure</th>
<th>Data Category</th>
<th>Data Source</th>
<th>Data Frequency</th>
<th>Data Steward</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging time</td>
<td>Minutes waiting for imaging</td>
<td>New</td>
<td>Manual tracking</td>
<td>Per session</td>
<td>Carrie</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>Positive responses for would always recommend</td>
<td>Existing</td>
<td>Automated</td>
<td>Average per month</td>
<td>Amber</td>
</tr>
<tr>
<td>Physician &amp; Staff Experience</td>
<td>Positive responses on Practice Reserve Survey</td>
<td>Existing</td>
<td>Automated</td>
<td>Quarterly</td>
<td>Jennifer/ Dr. Fry</td>
</tr>
</tbody>
</table>
How will we know it has improved?

- Decrease Patient imaging time – Manual Time Study
- Increase number of patients – EPIC reports
- Improve patient experience – Patient Satisfaction Survey
- Physician & Employee experience improved – Practice Health Survey
44 steps
Cause & Effect Diagram

Diagnostic Imaging Delay for Ophthalmology

- Communication 20%
  - Missing Orders
  - Unclear Orders - orders Placed by other Physicians
  - Lack of Transfer for Verbal Orders
  - Lack of Protocols
  - Imaging Personnel Availability
  - Next Steps After Testing Not Clear

- Benefits 5%
  - Pre-Audit for Unscheduled Testing
  - Wrong Info Verified
  - Wrong Demographics
  - Lack of Training on Codes for Testing
  - Takes Time - up to One Hour

- Technology 10%
  - Entering Orders
  - System Intercommunication
  - Data Transfer
  - Manual Import
  - Digital Import
  - EMR Accessibility

- Scheduling 30%
  - Testing Not on Schedule
  - Multiple Appointments per Machine per Time Slot
  - Templates (pre-ops scheduled at same time)

- Performing Test 15%
  - Explaining Reason for test
  - Consenting
  - Describing Test
  - Patient Prep for Test
  - Inadequate # of Staff Cross-Trained

- Equipment/Space 20%
  - Multiple High Volume tests in One Room
  - Inadequate Space for Technology
  - Not Enough Equipment

3%

15%
Researching Best Practices

Visited Austin Retina Associates

Observed Lean processes in action
• Instant messaging
• POD system
• Cross-trained teams
Interventions
**Goal**

- Decrease patient wait time for Ophthalmic Imaging from 13.6 minutes to 10 minutes by June 2019

**Primary Drivers**

- Improve scheduling processes
- Optimize Communication
- Cross training personnel to handle more imaging functions
- Obtain additional equipment & space for imaging

**Interventions**

- Update slot durations
- Tech review scheduled imaging & ensure accuracy with physician plan
- Identify session for imaging
- Match scheduling & workup protocols
- Avoid unnecessary testing
- Update & use Routing Form
- For next appointment needing imaging – providers route EPIC check out notes to Front Desk Pool
- Techs to do short imaging tests
- Standardize test instructions to patient (AIDET)
- Rearrange imaging setup -allow multiple tests simultaneously
- Obtain new a new OCT machine (year)

**Measures**

- EPIC slot utilization reports on unscheduled tests
- Patient Wait Time for Imaging from time chart put in bin to end of test
- Amount of testing done in a period of time
- Overtime
Improve Imaging Scheduling

- Align slot durations to testing type
- Assign personnel to review scheduled tests & ensure consistency with physician plan
- Identify session max for testing/imaging
Communication

Faculty to Photographer

• Diagnosis

• Draw - the area of interest

  – Where does patient go next

Avoid Verbal Orders
Increase Photography Capacity

• Before intervention: 1 full-time photographer & 1 assisting at peak hours
• After intervention: 2 full-time photographers & 3rd photographer assisting at peak times
• Shift modifications to meet imaging demands
• No FTEs were added to the budget
Cross-training Staff

Available technicians perform short tests

- OCTs
- External Photos
Equipment & Space

- New OCT & OCT-A funded by grant
- Retrofit exam room with blue wall for external photos – thus expanding space for imaging
Results
### Before Intervention

**44 Steps**

1. Chart goes in bin for testing
2. Photographer picks up chart
3. Photographer reviews routing sheet for orders
4. Missing orders on routing form
5. Search Epi c notes or find provider for orders
6. Missing reason for test
7. Search for ordering doctor to confirm
8. Doc on 7th Floor
9. Photographer walks upstairs
10. Authorization required
11. Take chart to BC and review notes
12. Photographer leaves chart with BC and moves on to next pt.

### After Intervention

**28 Steps**

1. Chart goes in bin for testing
2. Photographer picks up chart
3. Photographer reviews routing sheet for orders
4. Log patient on testing schedule
5. Open Epic & review orders from last visit
6. Go to event log and select start diagnostic
7. Multiple tests ordered
8. Go to I&P and select multiple tests ordered
9. Go to chart notes and add .iittd smartphrase
10. Enter Demographics
11. Load pt info for test
12. Search for pt in lobby area
13. Escort pt to testing room
14. Perform test
15. Save test & send to Synergy
16. Need manual import to Synergy
17. Print
18. Ready for checkout
19. Walk patient to the next destination
20. Place chart in provider bin
21. Go to a computer and log into Epic
22. Import images to Synergy
23. Send to printer
24. Escort patient to check out
25. Get printouts from printer and attach to chart
26. Find patient on schedule & select diagnostic imaging complete

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Patient Wait Time for Imaging

**SPC XBar-Chart: Mean of Time waiting for test (min)**

Note: The sigma was calculated using the standard deviation.

**Phase Limits**

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<tr>
<td>After</td>
<td></td>
<td>8.1</td>
<td></td>
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**40% DECREASE**
Wait Time for Short Tests
Before & After Cross-training Techs

OCT

External Photos

Decreased variation in wait times
Results

AIM: To decrease the average time waiting for Ophthalmic Imaging from 13.6 minutes to 10 minutes by June 2019

OUTCOMES

• Decreased wait time to 8 minutes, a 40% reduction and falling

• Decreased clinic cycle time for imaging patients by 18%
Patient Experience

Real-Time Analysis

WOULD RECOMMEND

90.6  
(n=3,214)

Jan 1  Jul 1  Aug 1  Sep 1  Oct 1  Nov 1  Dec 1  Jan 1  Feb 1  Mar 1  Apr 1  May 1

Medical Practice  

Patient Score  

May 31, 2018 - May 31, 2019
Return on Investment

Increase patient volumes due to improved through-put for testing

- Anticipate an additional 5 patients per session at an average reimbursement of $137/visit = $685
- $685/session at 322 sessions annually = Gross Collections of $220,570, which equals Net Collections of $172,045
No New Direct Expenses

• New OCT Machines were purchased by Biggs Alzheimer Institute and placed in MARC Clinic ($0 out of pocket for Ophthalmology – valued at $156,000)

• No additional FTE were hired for Photographer duties (reassigned current staff)
Lessons Learned

• Communication is Key
  – Providers communicate Scheduling needs
  – Personnel obtain Preauthorization
  – Standardized protocols with Standing Orders

• Cross-training decreases Wait Times for short tests

• Match personnel assignments to clinic demand
Next Steps – The Whole Clinic

• Incorporate other providers into Lean Processes
• Evaluate Total Clinic Cycle Time
• Identify other Bottle-necks: Lines at Check-In
  • Check-In for multiple providers in parallel vs vertical check-in processes
  • Kiosk registration coming to Ophthalmology
    – Scans insurance card
    – Decreases manual entry errors
• Incorporate Provider specific team-based care (PODS)
• Template Optimization
• Periodic Imaging Wait Time Re-Analysis