Purpose/Aim: As identified in the Chancellor’s Framework for Advancing Excellence, one of UT Health Science Center’s strategic goals is to increase the efficiency of care provided to our patients. Doing so will enhance patient experience of care, reduce wait times, increase revenue, and improve access to care. Access to care is of particular importance to the UT Medicine Pain Clinic, where the current wait time for follow up appointments can be unpleasantly long. The aim of our project was to decrease by 15 minutes the average follow up visit time at the UT Medicine Pain clinic by May 31, 2013, in order to add additional follow up appointment slots to providers’ templates.

Tools and Measurement: All follow up visits from January 1 2012-March 1 2013 were examined in order to pinpoint a current median follow up visit length. Using check in/check out data pulled from the Epic database, we created a box and whisker chart which revealed a median follow up visit length of 121 minutes (Appendix A). Using a fish bone diagram (Appendix B) and a flow chart (Appendix C), we, along with key clinic staff, reviewed the entire follow up visit process and identified areas of bottlenecking and delay in the visit process. Several interventions for efficiency improvement were discussed and divided into two categories: low cost/complexity interventions that could be implemented immediately and high cost/complexity interventions to plan and budget for in the future. Low cost/complexity interventions included re-tasking staff to work the front desk during peak check-in times, adding an additional vital signs station at the front of the clinic, revising the patient intake form, improving provider/medical assistant communication by instituting walkie-talkies, and placing stickers on exam room folders to remind faculty and fellows to write their orders prior to patient discharge. High cost/complexity interventions included hiring a part time employee to do chart preparation, sending a physician champion to EMR “super user” training, purchasing mobile computer units for the exam rooms, and increasing fellow and faculty availability in the clinic. Time and budget constraints lead us to choose and implement the low cost/complexity interventions first.

Intervention and Improvement: We decided to pilot our interventions for six weeks starting April 15: two weeks to “pilot” the intervention and make any necessary changes, and four weeks to institute the finalized interventions and collect data. Starting April 15 also gave us enough time to purchase the walkie-talkies, revise the intake form, and collect and analyze data before needing to present our results in June to University faculty and staff. At a clinic-wide staff meeting, we introduced the chosen interventions and plan of action and began our first two weeks of implementation on April 15 as planned. At peak check in times, a benefit coordinator was re-tasked to help check in patients. The medical director and clinic manager revised the patient intake form to include questions about medication changes, ER visits, disability/litigation claims, and patient’s assessment of pain relief amount/duration after their initial pain management procedure. A second vital
signs station was set up at the front of the clinic, and patients were vitalized right after check in rather than waiting until an exam room was available. The clinic manager, medical assistants, front desk staff, faculty, and fellows all used walkie-talkies to communicate about room readiness, faculty/fellow availability, and patient status. The clinic manager placed reminder stickers onto each exam room folder to prompt faculty and fellows to write their orders prior to patient discharge. On May 1, another meeting was convened, the interventions discussed, and it was decided to continue the interventions for another four weeks unchanged.

**Intervention Results:** Check in/check out data from all follow up visits occurring between April 15 and May 31 were abstracted from the Epic database. Mean visit length was 99 minutes for these visits, a reduction of 19 minutes compared with mean visit length during that same month a year prior (Appendix D). Implementation of the initiatives continues, and we plan to sample the data again in six months to monitor continued improvement.

**Revenue Enhancement /Cost Avoidance / Generalizability:**

The Return on Investment on our project is very good (Appendix E), with a potential ROI ratio of 2.87 in the first year alone. The monetary investment for this project was minimal: $6100, which included the cost of the Clinical Safety and Effectiveness Course tuition for four team members ($6000) and the walkie-talkies ($100). By reducing follow up visit time by 19 minutes, we will be able to add one additional follow up visit slot every day for the next year, resulting in additional revenue of $17,480 (revenue was calculated using an average reimbursement for a follow up visit of $72.00 according to UT Medicine Finance). In years two and three, we hope to hire a part time employee to do chart preparation ($15,000 on average according to UT Human Resources), and purchase the portable computer units ($8000) but to counterbalance this we will be adding five follow up slots per week in both years. Overall, our project has an ROI potential of $58,300 over three years.

We learned several lessons from our project. First, our project is a testament that big changes can be seen without a big monetary investment; throughout our project we held fast to the idea of “creativity before capital” and did not let our lack of funds deter us. Second, we believe our interventions worked because they were developed with heavy input from the staff members themselves. LEAN principles dictate that in order to be lasting and meaningful, the individuals who are actually doing the work need to be involved in the improvement process from the beginning. We found this to be crucial not only in uncovering all the inefficiencies, but also in obtaining buy-in. Lastly, the use of quality improvement tools such as flow charts and fish diagrams was key; we will be using these tools regularly in our clinic when confronted with other issues and improvement opportunities.

Our interventions were low cost and easy to implement. As such, they can be used in many different clinic settings. We presented our findings to the clinic managers at UT Medicine in the hopes that other clinics can institute similar changes. In the future, we hope to implement interventions in our other visit types in order to increase efficiencies there as well.
Median Follow-up Visit Lengths since 1/2012

MONTH, 2012

MONTH, 2013
Pain Clinic Workgroup

**Appendix B**

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**MD/Fellow**
- MD is stuck with another patient
- Does not write orders in timely way
- Triplicate prescription required
- Must review chart

**Employee**
- Special orders take time to complete (MA)

**EMR**
- Obscure referral source
- Studies not in Epic
- MD/Fellow has to go into different EMR to retrieve/review studies
- Have to find orders

**Insurance**
- Insurance was denied, pt shows up anyway
- Can't get CVU to verify new insurance
- Check for rules on prior authorization
- Insurance changes

**Problem Statement**
- Follow up visits take too long

**Patient**
- Late to appointment
- Doesn't have copay with them
- Reluctant to change
- Has language barrier
- Slow to fill out paperwork
- Has a lot of questions for the doctor
- Doesn't complete paperwork

**Problem Statement**
- Insurance was denied, pt shows up anyway

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Check-in to Check-out Time, May ‘12 vs ‘13

Results

- Mean Time:
- 118 vs 99 min (19 min reduction)
Return on Investment

CS&E Tuition & Walkie Talkies

1 F/U added x 5 for 46 weeks

2 F/U added

34960

2 F/U added

Computers

Revenue: $87,400

ROI Potential: $58,300

Overall ROI Ratio: 3.0

Investment: $29,100