



Clinical Safety & Effectiveness Cohort # 12

Decreasing Length of Follow-up Appointment Time



CENTER FOR PATIENT SAFETY & HEALTH POLICY

UT HEALTH SCIENCE CENTER™

SAN ANTONIO

Educating for Quality Improvement & Patient Safety

UNIVERSITY OF TEXAS
MD ANDERSON
CANCER CENTER

Making Cancer History®

The Team

- Division

- Maxim Eckmann, MD; Medical Director
- Laura Monroe; Clinical Operations
- Barbara Pratt, RN; Clinic Manager
- S. Gorden Whiting; Clinical Operations
- Ameet Nagpal, MD; Fellow in Pain Medicine
- Jaqueline Cruz, Benefits Coordinator
- Rhonda Haywood, Scheduler
- Jesse Gamboa, Medical Assistant
- Pat Nahas; Facilitator

- Sponsor Department

- Department of Anesthesiology

Financial Disclosure

- Maxim Eckmann, MD has no relevant financial relationships with commercial interests to disclose.
- Laura Monroe has no relevant financial relationships with commercial interests to disclose.
 - Barbara Pratt, RN has no relevant financial relationships with commercial interests to disclose.
 - S. Gordon Whiting has no relevant financial relationships with commercial interests to disclose.

What Are We Trying to Accomplish?

OUR AIM STATEMENT

Our aim is to decrease the average amount of time (check-in to check-out) patients spend during their follow-up appointments at the UT Pain Clinic from 120 minutes to 105 minutes by May 31, 2013.

Project Milestones

- Team Created Jan-2013
- AIM statement created Feb-2013
- Weekly Team Meetings Ongoing
- Background Data, Brainstorm Sessions,
Workflow and Fishbone Analyses Mar-2013
- Interventions Implemented Apr-2013
- Data Analysis May-2013
- CS&E Presentation June 14, 2013

Background



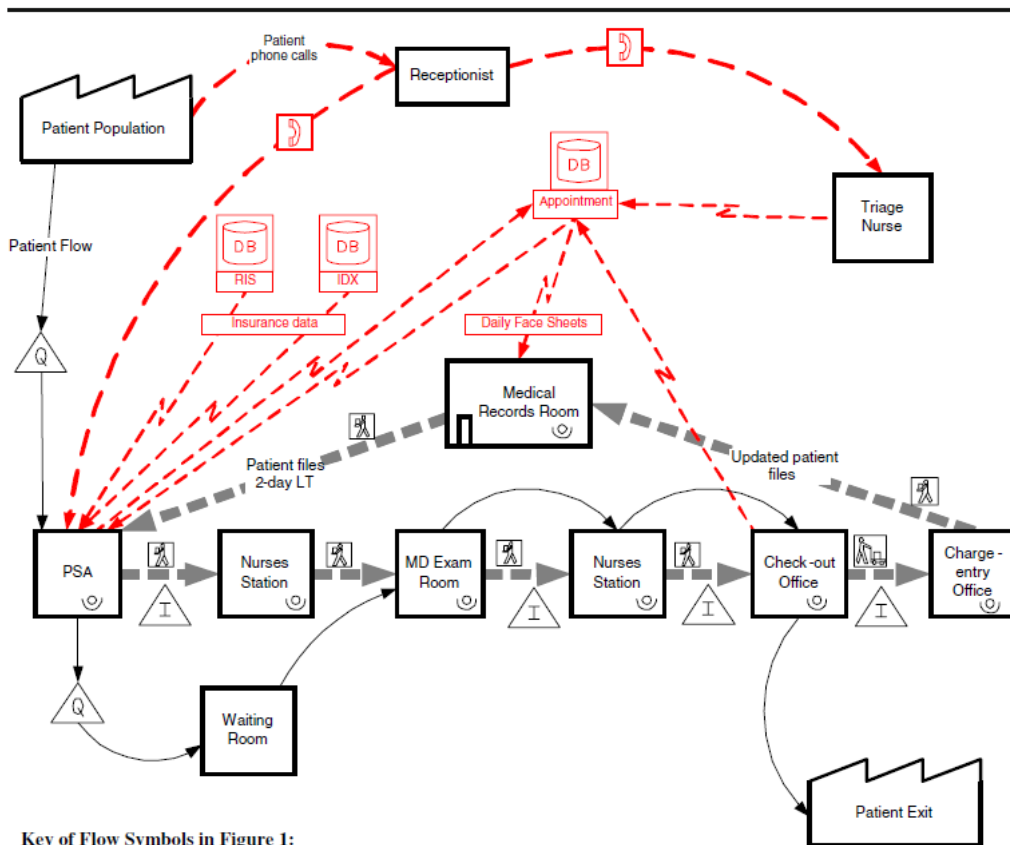
- Problems:

- Patient wait time for follow-up visits can be unpleasantly long for the patient
- Of three key visit types, clinic throughput needs to be increased in this area based on demand

- Rationale:

- Patient time and satisfaction are both intrinsically important and important to business
- Improved patient satisfaction improves provider satisfaction
- Improving flow for this type of clinic visit may translate to other visit types

Literature Review: Result of a Quality Improvement Project in an Outpatient Clinic



Key of Flow Symbols in Figure 1:

	Electronic Information Flow Icon
	Patient Record Flow Icon
	Patient Flow Icon

- Identified largest sources of variability
- Improvements:
 - 1) Call center
 - 2) No batching of registration
 - 3) Pooled queues
- Results:
 - Reduced wait and variation
 - Increased physician utilization

Chand S, Moskowitz H, Norris JB, Shade S, Willis DR. Improving patient flow at an outpatient clinic: study of sources of variability and improvement factors. *Health Care Manag Sci.* 2009 Sep;12(3):325-40.

Literature Review: Result of a Quality Improvement Project in a Tertiary Teaching Perioperative Clinic

	n	Cycle 1		Cycle 2		P Value
		Mean \pm SD	Median (Quartiles)	Mean \pm SD	Median (Quartiles)	
Q1 (explain process office)	798	4.07 \pm 1.13	4.0 (3.0–5.0)	4.31 \pm 0.94	5.0 (4.0–5.0)	0.008
Q2 (clearly receptionist)	824	4.26 \pm 1.03	5.0 (4.0–5.0)	4.31 \pm 0.94	5 (4.0–5.0)	0.95
Q3 (courtesy receptionist)	849	4.43 \pm 0.88	5.0 (4.0–5.0)	4.64 \pm 0.63	5.0 (4.0–5.0)	0.001
Q4 (time waiting)	790	3.03 \pm 1.52	3.0 (2.0–4.0)	3.36 \pm 1.45	4.0 (2.0–5.0)	0.002
Q5 (explain options anesthesia)	765	4.58 \pm 0.76	5.0 (4.0–5.0)	4.59 \pm 0.74	5.0 (4.0–5.0)	0.84
Q6 (explain procedure)	803	4.54 \pm 0.76	5.0 (4.0–5.0)	4.59 \pm 0.72	5.0 (4.0–5.0)	0.39
Q7 (explain how to prepare)	811	4.60 \pm 0.69	5.0 (4.0–5.0)	4.61 \pm 0.71	5.0 (4.0–5.0)	0.58
Q8 (skill technicians)	658	4.55 \pm 0.72	5.0 (4.0–5.0)	4.61 \pm 0.68	5.0 (4.0–5.0)	0.24
Q9 (overall care)	825	4.56 \pm 0.75	5.0 (4.0–5.0)	4.61 \pm 0.68	5.0 (4.0–5.0)	0.54
Q10 (overall service)	816	4.39 \pm 0.96	5.0 (4.0–5.0)	4.51 \pm 0.78	5.0 (4.0–5.0)	0.28
Q11 (degree questions answered)	812	4.58 \pm 0.77	5.0 (4.0–5.0)	4.66 \pm 0.62	5.0 (4.0–5.0)	0.41
Q12 (after center how prepared)	806	4.48 \pm 0.81	5.0 (4.0–5.0)	4.57 \pm 0.65	5.0 (4.0–5.0)	0.38
Q13 (courtesy provider)	837	4.69 \pm 0.67	5.0 (5.0–5.0)	4.77 \pm 0.50	5.0 (5.0–5.0)	0.13
Q14 (time with provider)	807	4.52 \pm 0.78	5.0 (4.0–5.0)	4.60 \pm 0.71	5.0 (4.0–5.0)	0.18

Harnett MJ, Correll DJ, Hurwitz S, Bader AM, Hepner DL. Improving efficiency and patient satisfaction in a tertiary teaching hospital preoperative clinic. *Anesthesiology*. 2010 Jan;112(1):66-72.

How Will We Know That a Change is an Improvement?

- Types of measures: Time in minutes
- How you will measure:
 - Calculate check-in time to check-out time as registered in the “Anodyne Analytics” database.
 - Time each step of patient transition through the clinic (with stopwatch), trial of 10 patients, before and after interventions
- Specific targets for change: Decrease average time by 15 minutes compared with data obtained from 1/2012 through 12/2012.

What Changes Can We Make That Will Result in an Improvement?



- Changes

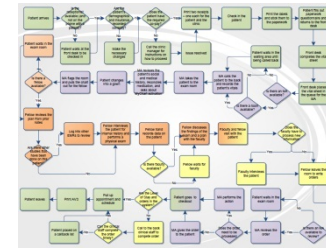
- Limits: Funding and Time
- Philosophy: Preserving Value with Less Work (LEAN)
- Strategy: “Improve” information handoff steps throughout a patient’s flow through the clinic

- Techniques

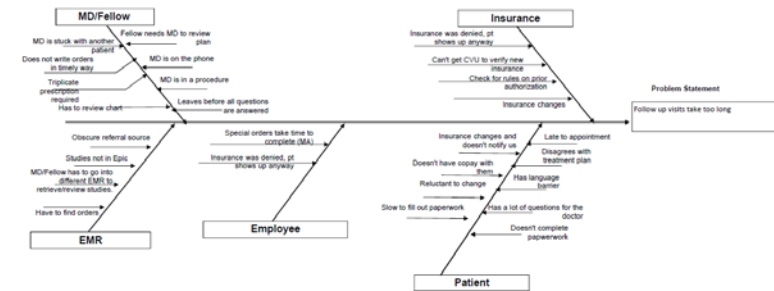
- Increasing utilization of downtime
- Increasing physician preparedness
- Reducing / Simplifying Paperwork
- ?Investing in infrastructure/staffing

Selected Process Analysis Tools

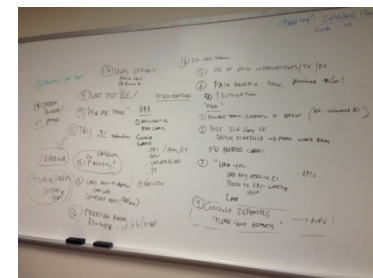
- Flowchart
 - Created with interdisciplinary team including front desk staff, medical assistants, clinic manager, clinic medical director, fellows, and clinical operations workgroup

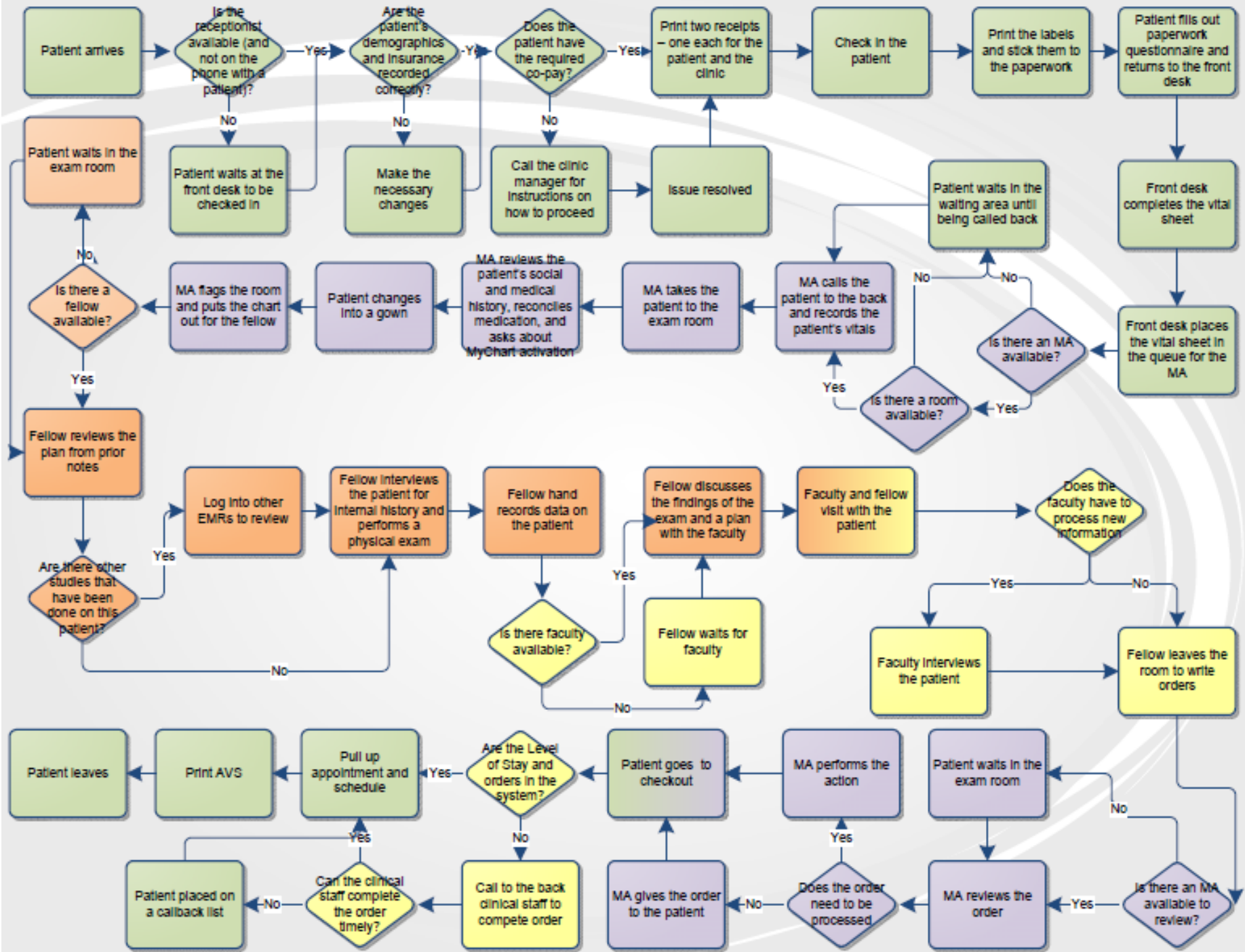


- Cause and Effect “Fishbone” Diagram

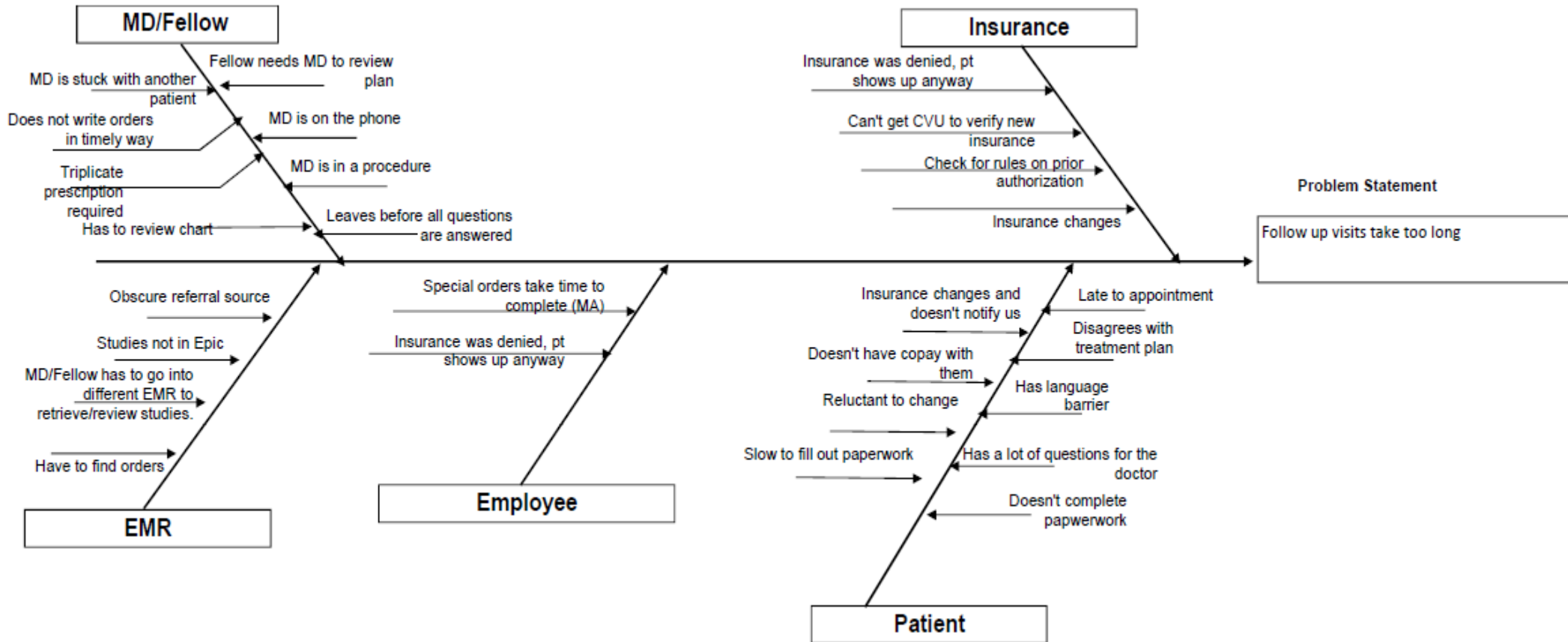


- Brainstorming





UT Med – Pain Clinic Fishbone Diagram



(3) Fellows Get DEA

(17) MUS ORDERS:
DRUGS FAX
PHONE #

(18) 2nd vitals Station

(14) ORDER BUNDLES / PT IMAGES

(8) LAST VISIT / / / INTERVENTIONS

(9) "ASK ME THREE" \$\$\$

- ASSISTANT TO PREP CARTS
- SURPRISE SURPRISE
- MRI / XRAY / CT.
- EMR
- LAST NOTE BY MD.
- PT

(5) HX OF PAIN INTERVENTIONS / TX / RX

(6) PAIN RELIEF DAYS. PREVIOUS YES/NO?

(7) ? LITIGATION "FREE"

(1) DOUBLE TEAM CHECKIN IF BACKUP. (NS: INSURANCE A's)

(2) POST 2nd COPY OF DAILY SCHEDULE => MARK WHICH ROOM

MD PREPARES CHART

(3) "HAVE YOU:
HAD ANY MEDICINE A's - EPIC
BEEN TO ERI - WHERE HOSP

(10) TRC / PC instructions

IN SERVICE

(11) 2x SEMINARS FACULTY?

(15) WALSH / MED CONTRACTING FLOOR

(12) LESS NON-FULLTOD ON WED. COMPLEX PROC (90 min) FACULTY

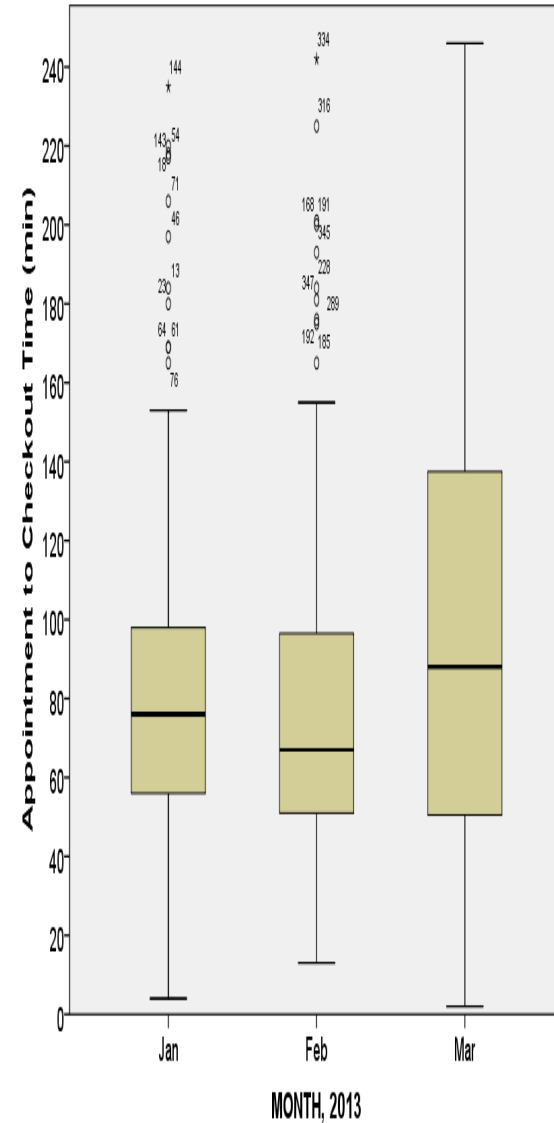
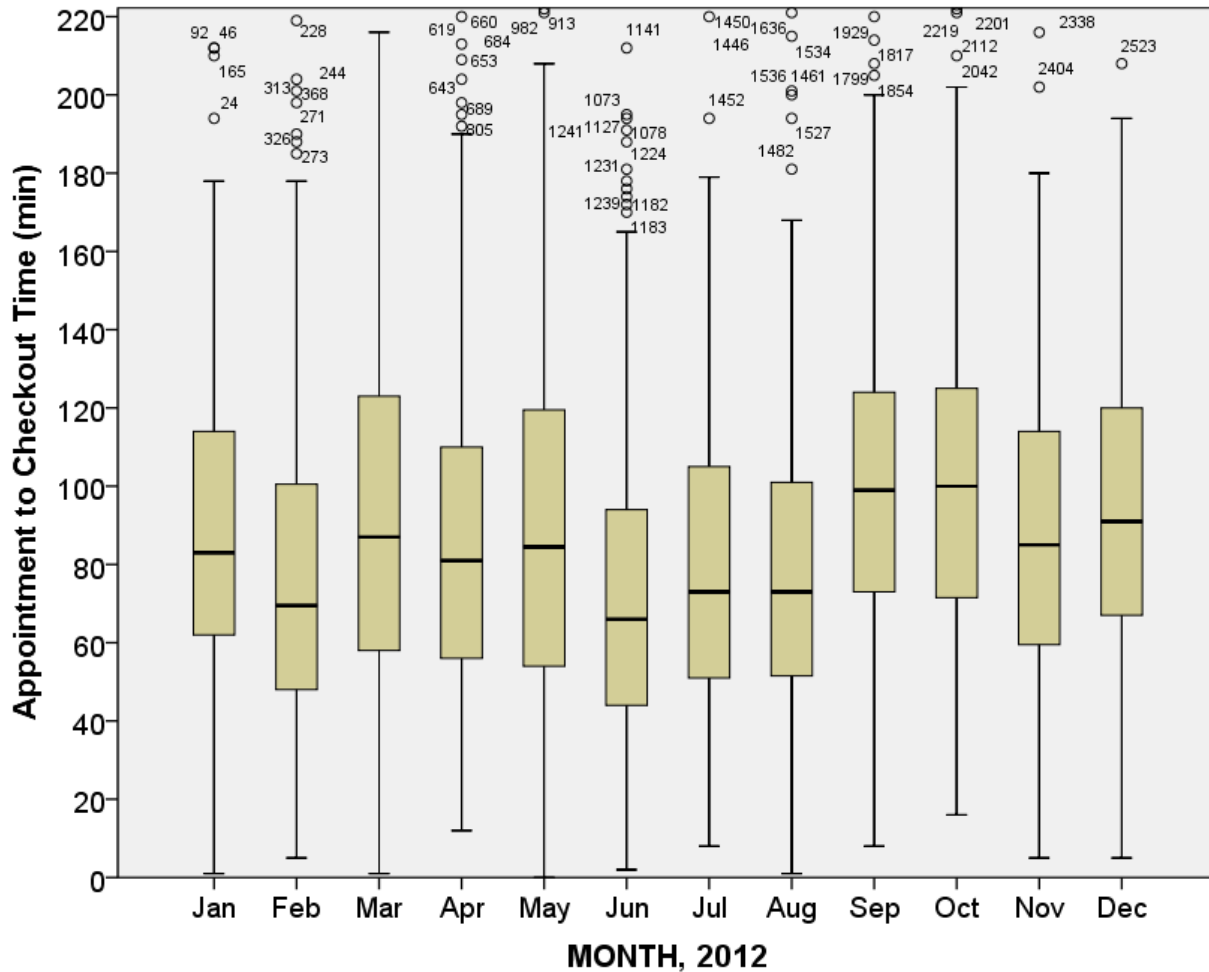
(16) PRECEDING ROOM REMINDER - LOS / FU / ORDERS

(4) CONSULT REFERRALS
"PLEASE SEND REPORTS" -> NPV

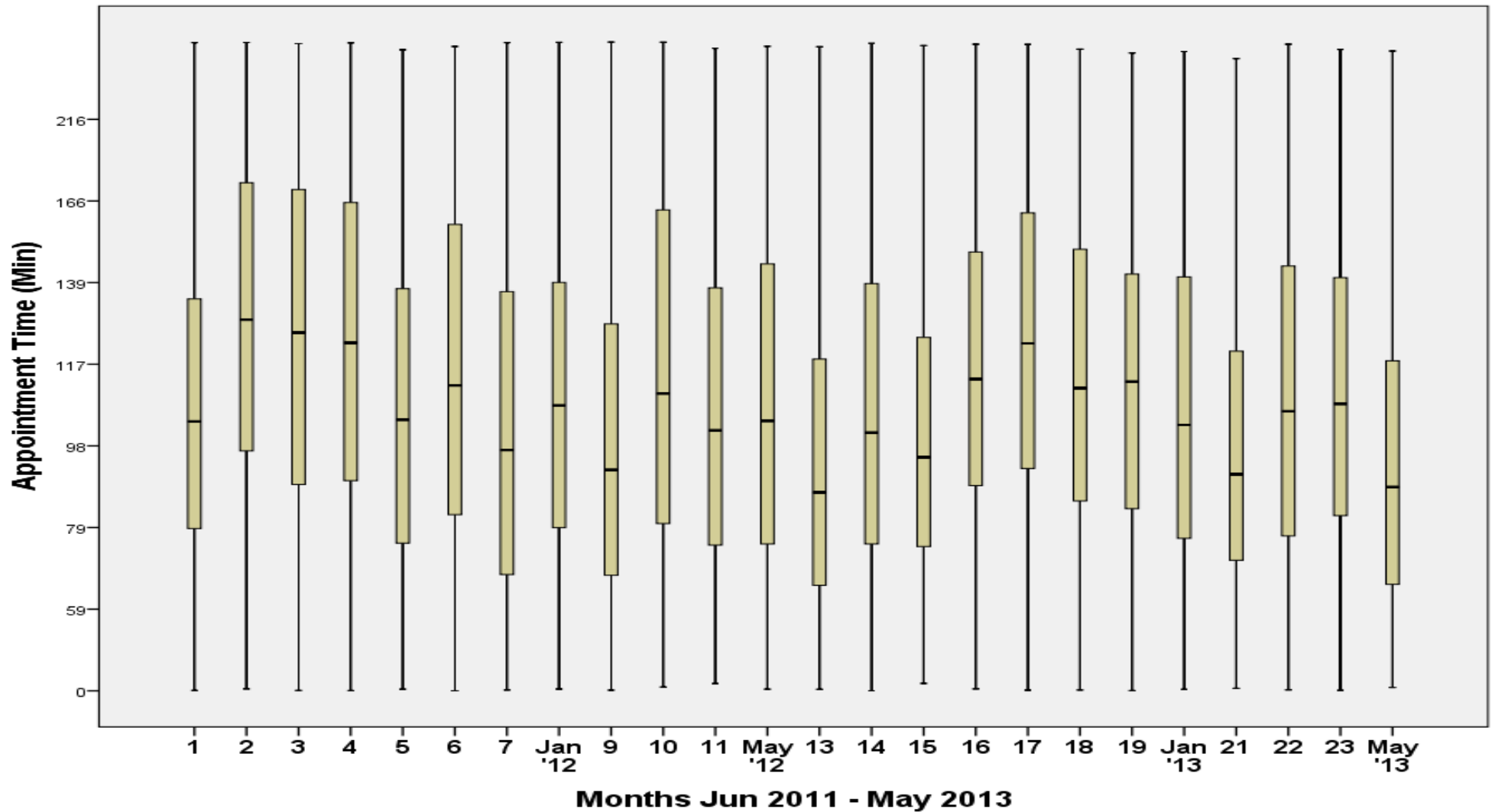
Background Data

- Defined total visit length as Check-in time to Check-out Time
 - Strengths:
 - Easy to get large retrospective data set from database
 - Objective, electronic measurement
 - Weaknesses:
 - Patients who arrive early may artificially increase this measure;
 - Does not identify time intervals at specific steps;
 - Mistakes in documenting check-out time can lead to erroneous outliers
- The “Anodyne Analytics” database was queried from 1/2012 to 5/31/2013.
- “Stopwatch Times”: Time each step of patient transition through the clinic (with stopwatch), trial of 28 patients, before and after interventions

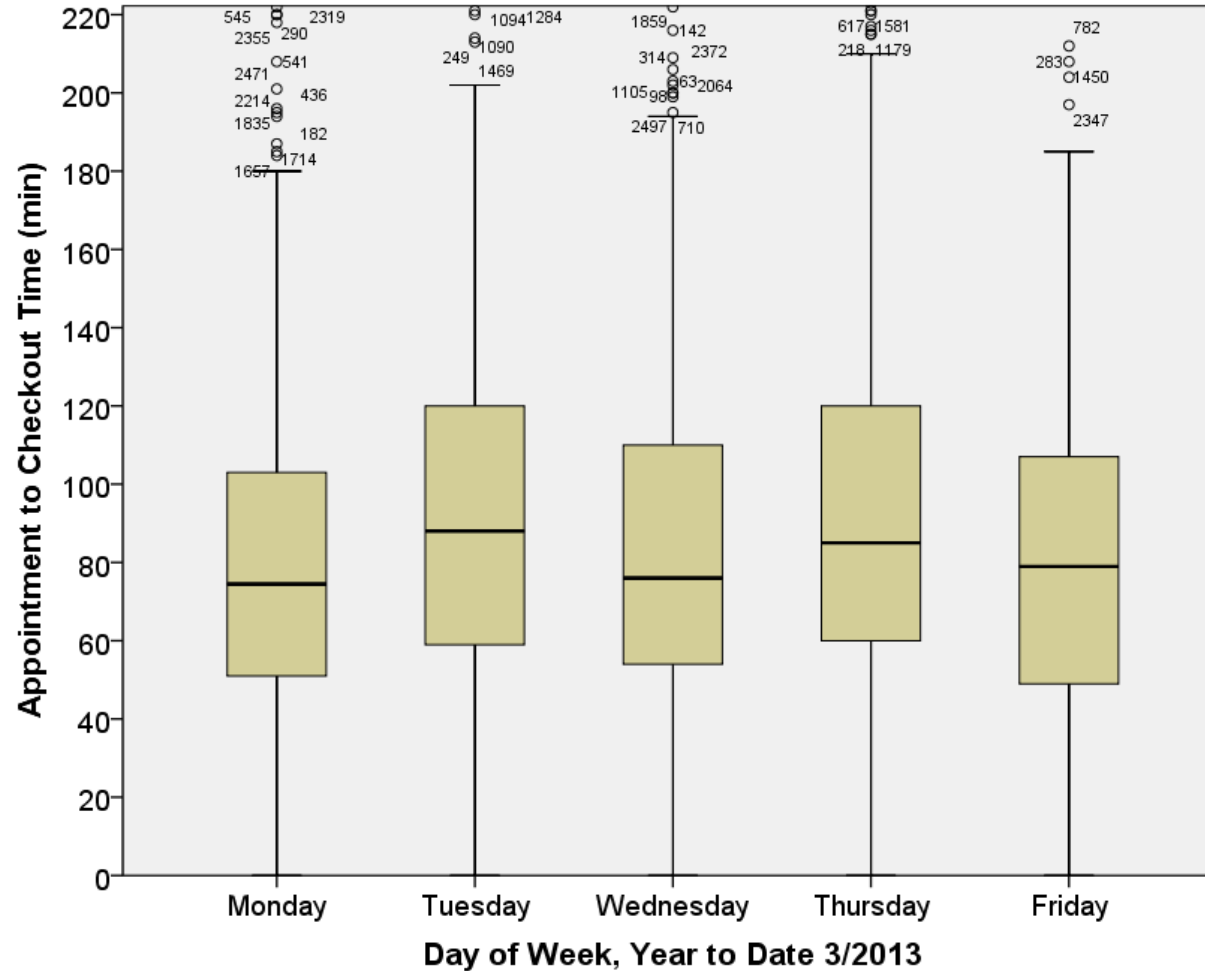
Median Follow-up Visit Lengths since 1/2012



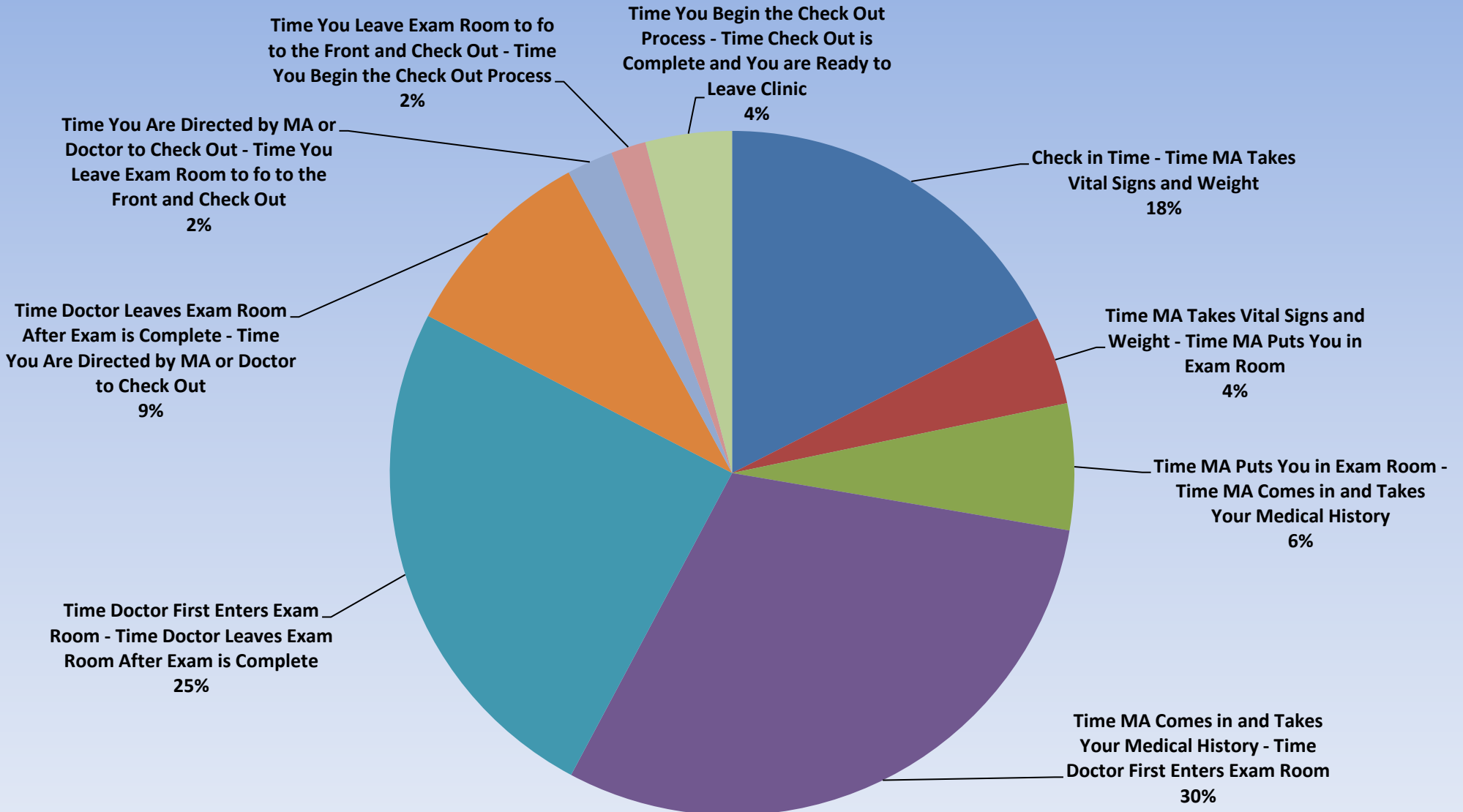
Check-in to Check-out Time, 2 years to date



Median Follow-up Visit Lengths by Day of Week YTD



“Stopwatch” times – key steps



Plan

Intervention

- Involve “front-line” members of all steps in clinic flow
 - Including Front staff, Clinical staff, Fellows
- Identify and Stratify Potential Solutions
- Identify and implement low cost /complexity solutions
 - Predominantly Clinic Work Flow Changes
- Identify resource investments as future interventions
 - Personnel FTE and Technology Investments
- Initial Implementations 4/1/2013

Implementation

- Obtain timed data of patient flow prospectively
 - Personnel Availability can affect every step from check-in to check-out
 - Longest times involve Physician related steps; these were identified in interviews with Fellows:
 - Gathering studies from multiple EMRs
 - poor in-room computer ergonomics and cumbersome charting
 - non-portability of some electronic orders
 - checking out to faculty
 - Highest variability in efficiency occurs in low physician staffing situations in a non-linear fashion.

Implementation

Lower Cost/Complexity (4/2013)

- Double-teaming check-ins
- Second vital signs station
- Intake Form Change:
 - Medicine changes, ER visits, disability/litigation claims
 - Pain Relief Amount/Duration after procedure
- Walkie Talkies
- Education: writing orders before discharge, reminder stickers

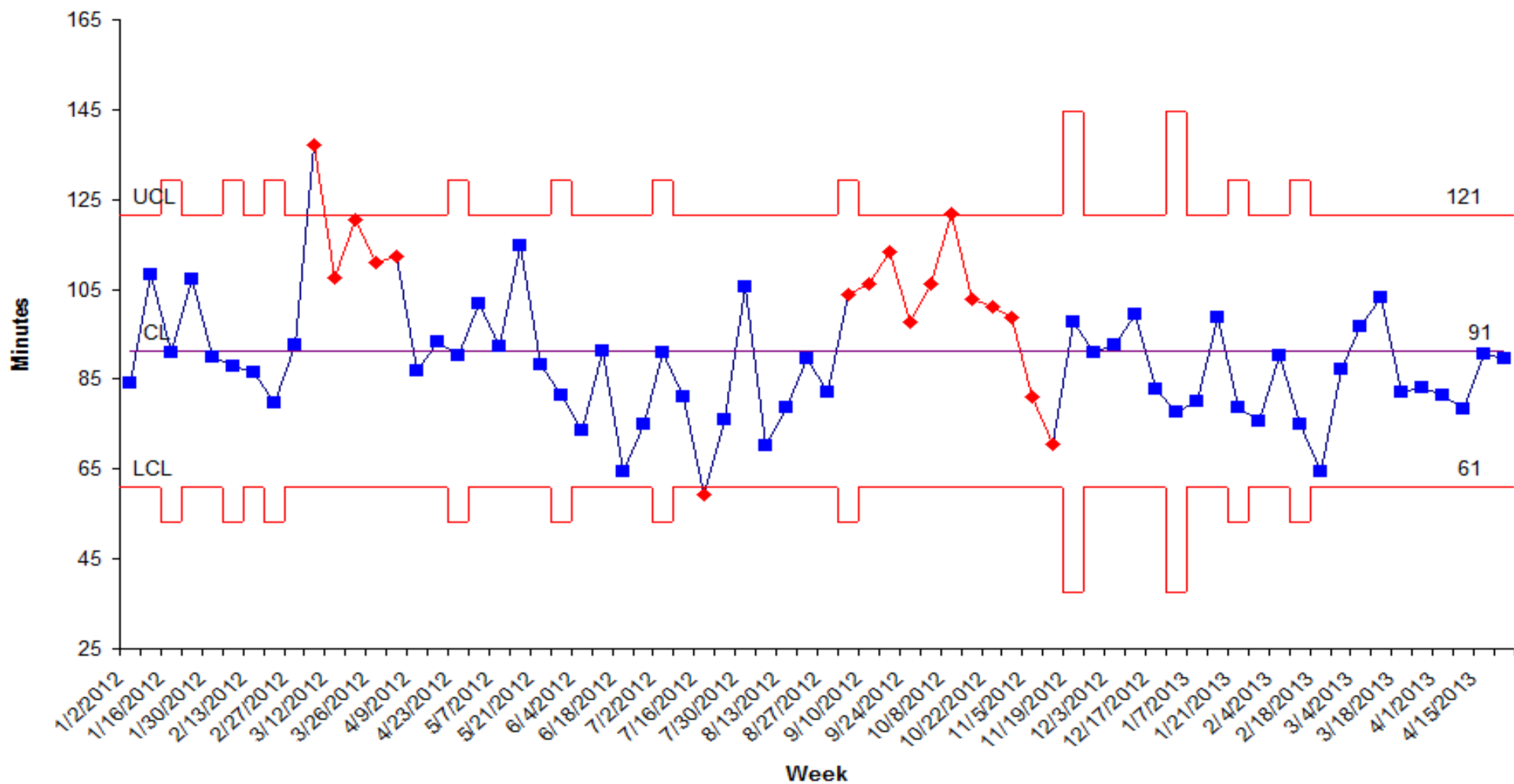
Higher Cost/Complexity

- Developing Pain specific EPIC “Smartsets”
 - Train physician “super-user” - approved
- Simplifying E&M visit scheduling and organizing ultrasound procedures (July 1).
- Increase Fellow Availability – Critical number = 3 (July 1)
- ½ FTE assistant to assemble pre-visit studies, chart prepare
- Purchase 3 “C.O.W.s”
- Increase faculty availability on Mondays and Wednesdays (Aug 1)

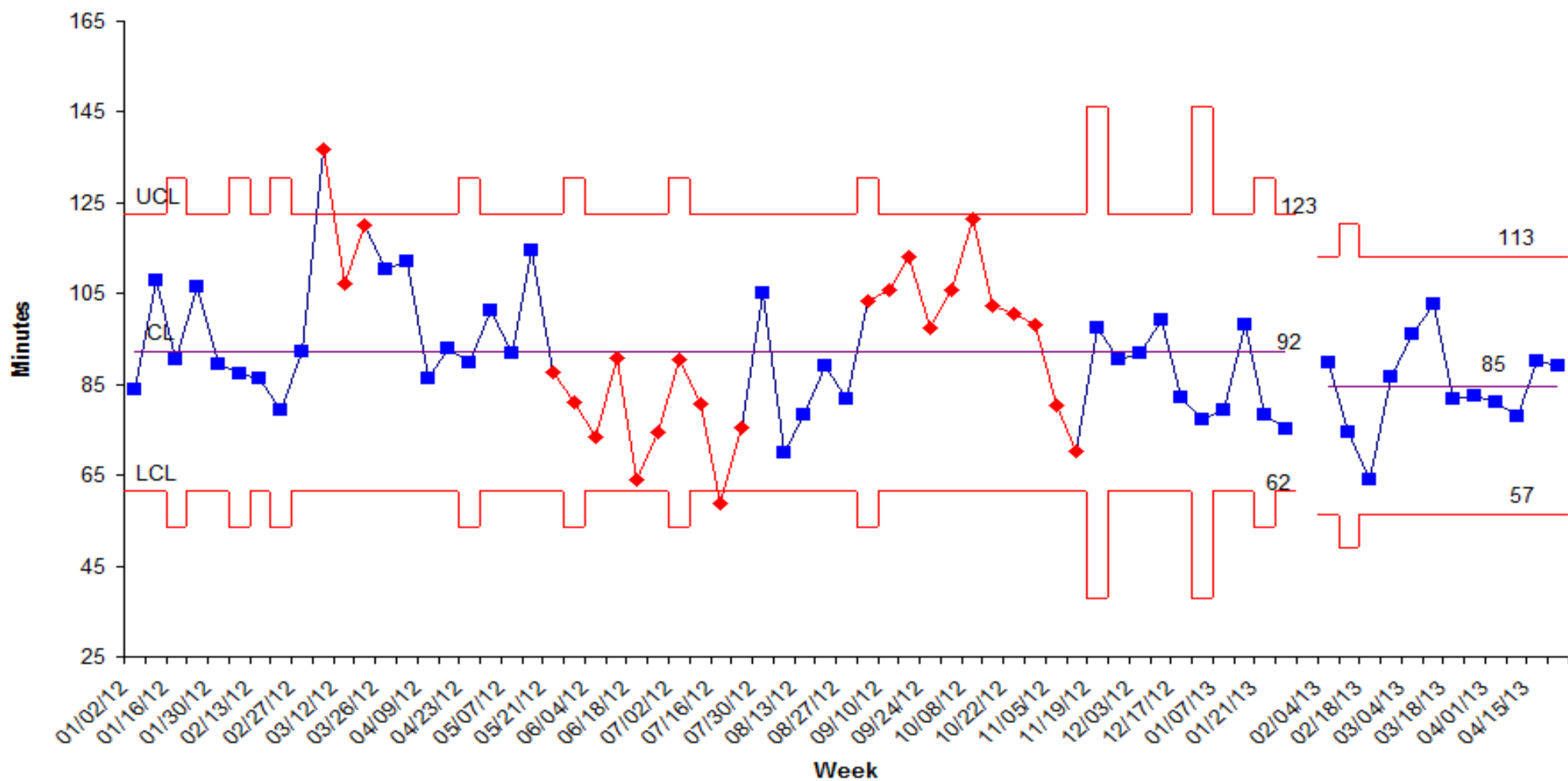
Following Outcomes

- Obtained multi-year database records of visit times
- Continue to track database quarterly over next 12 months
- Perform “stop-watch” prospective observations 12 months from last
- Lobby for funding for higher cost interventions based on initial ROI analysis (some pending)
 - Repeat ROI analysis in 12 months.
- Obtain post intervention staff/physician satisfaction data

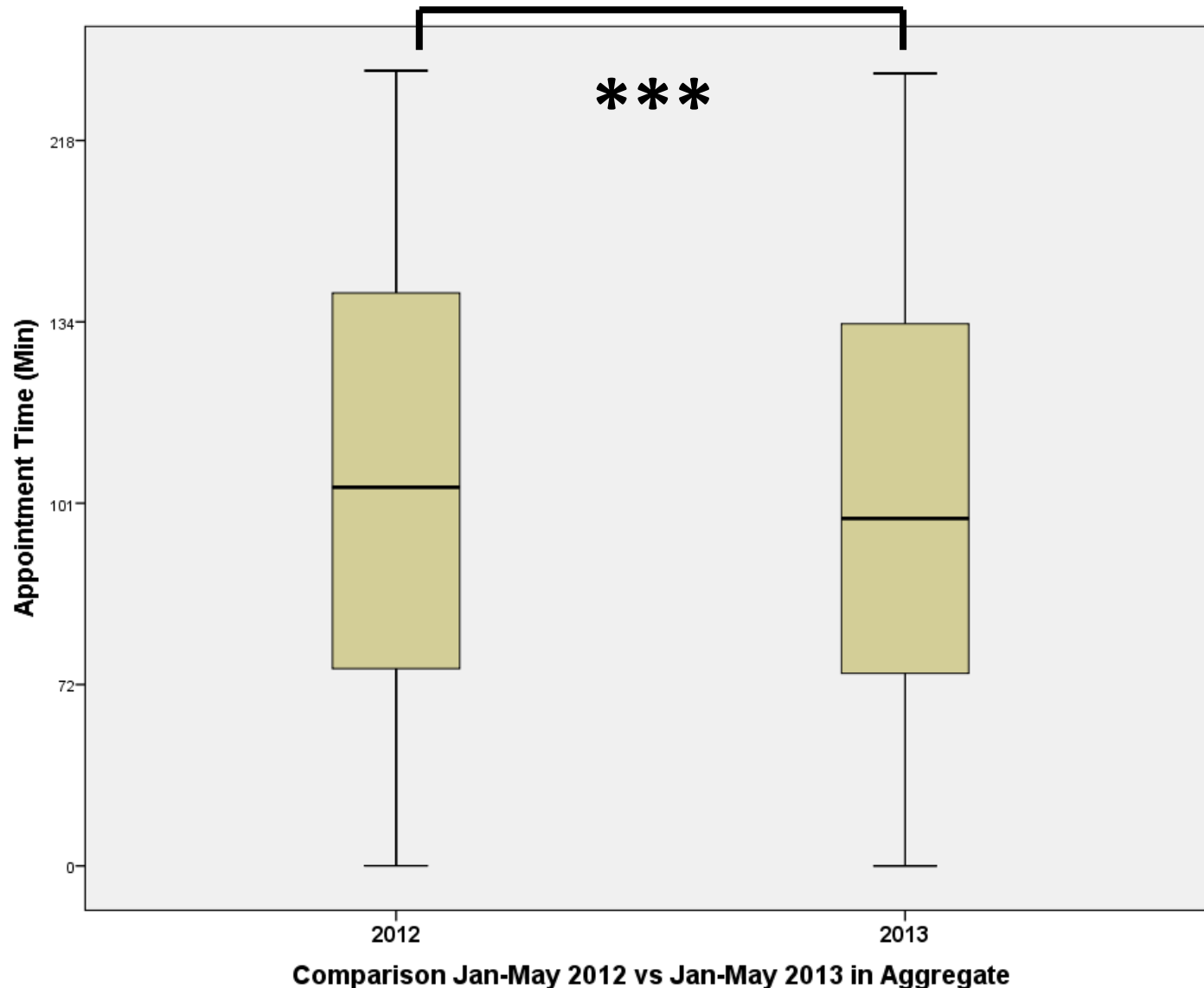
**UT Pain Clinic - Average Weekly Length of Visit in Minutes
Appointment Time to Check Out Time**



UT Pain Clinic - Average Weekly Length of Visit in Minutes Appointment Time to Check Out Time



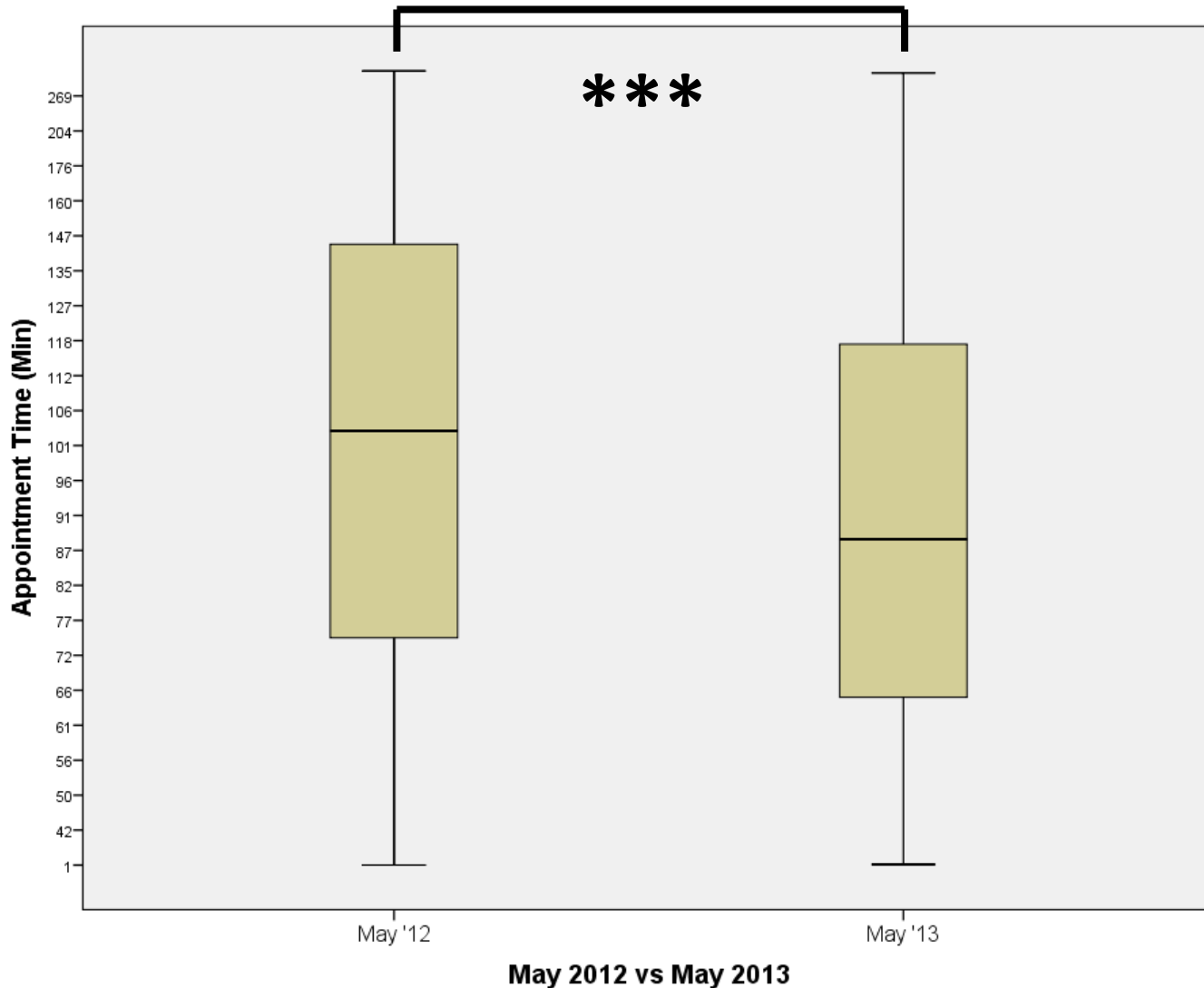
Check-in to Check-out Time, YTD Jan-May



Results

- Mean Time:
- **121 vs 109 min**
 - (12 min reduction)
 - $p < 0.001^{***}$
 - T-test, IBM SPSS v20
- ? Study effect vs true change vs other source of variability

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



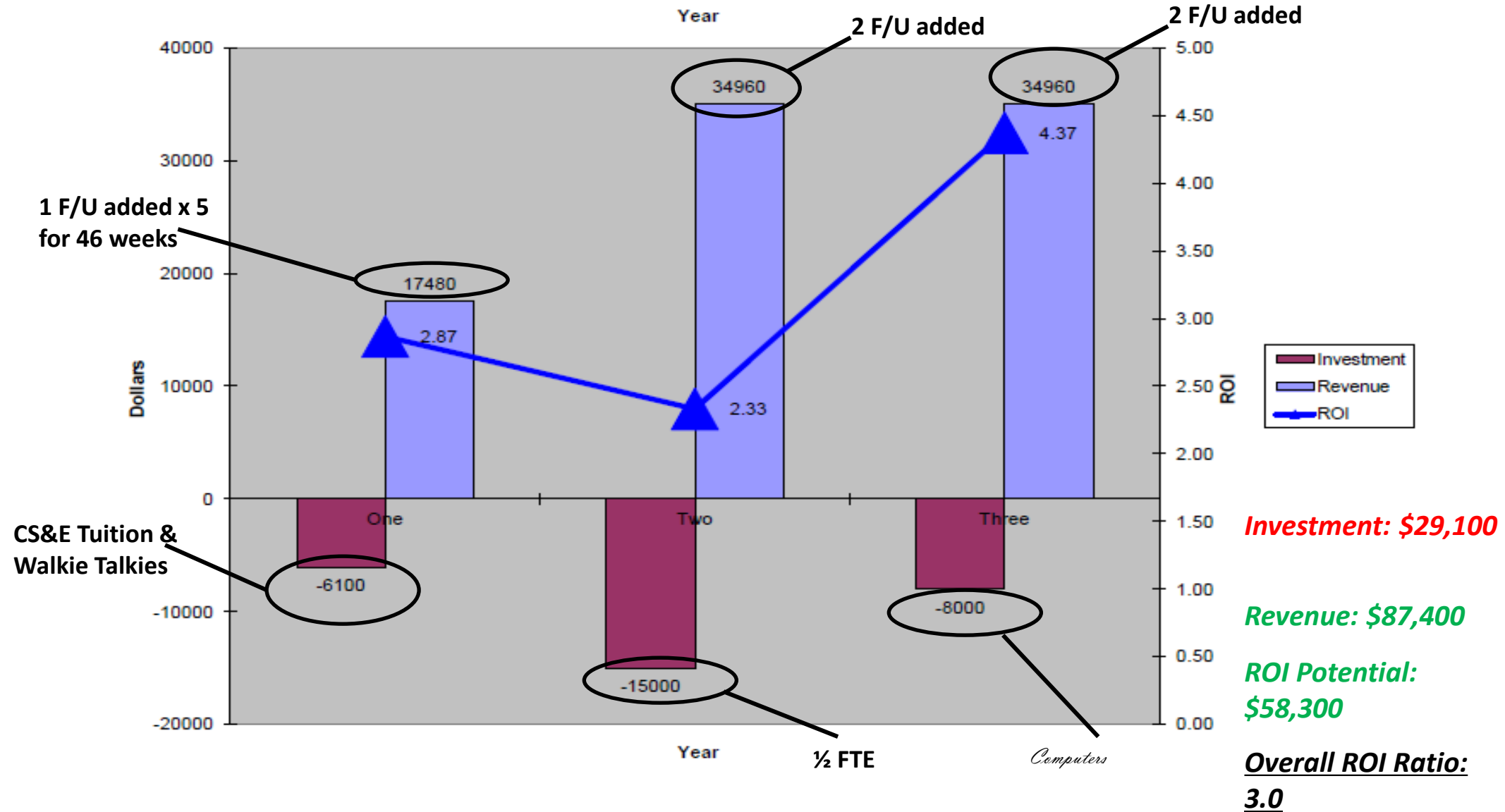
Results

- Mean Time:
- **118 vs 99 min**
 - (19 min reduction)
 - $p < 0.001^{***}$
 - T-test, IBM SPSS v20
- ? Initial result of implementations made in April

Expansion of Our Implementation

- Increase scheduled visits to challenge the new systems
- Demonstrate increased encounters and revenue
- Continue to lobby for increased technical investment to speed personnel efficiency and improve ability to absorb variability
- Grow physician practice with a profitable business model

Return on Investment



Conclusion/What's Next

- Initial interventions are possibly showing a real effect in the month of May compared to last year.
- More data are needed over the next year to see if the improvement is consistent.
- Continued monitoring by leadership/management to confirm survival of long term process changes.
- If this model successful, apply to other aspects of clinic care:
 - Procedure Visits

Thank you!



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