Clinical Safety & Effectiveness
Session # 6

Increasing Medication Reconciliation in an Outpatient HIV Clinic

Educating for Quality Improvement & Patient Safety

Team Members

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Table 1. Aim Statement

Project Aim	To increase the percentage of medication reconciliation conducted by providers at the UHS Immunosuppression Clinic (FFACTS) to 100%
Intervention Period	October 1 to December 31, 2010
Rationale	Improve patient safety by meeting Joint Commission's National Patient Safety Goal #8 – "accurately and completely reconcile medications across the continuum of care"

Project Milestones

Milestone	Date
• Team created	August 2010
• AIM statement created	August 2010
• Weekly team meetings	August-November 2010
• Background data, brainstorm sessions, workflow and fishbone Analyses	September-October 2010
• Interventions implemented	October - December 2010
• Data analysis	October 2010 - January 2011
• CS&E presentation	January 20, 2011

Medication Reconciliation

- National Patient Safety Goal (NPSG) #8

  "accurately and completely reconcile medications across the continuum of care"

- Definition

  process of identifying the most comprehensive and accurate list of medications a patient is taking, and using this list to provide correct medications to the patient anywhere in the system

Med Rec (cont.)

- Medication discrepancies (medical record vs. patient's list) reported in the ambulatory setting: 26% - 88%

- Medication error accounts for:
  - > 7,000 deaths annually[1]
  - > $3.5 billion in hospital costs[2]

1. Institute of Medicine. To err is human: building a safer health system, 1999.
2. Institute of Medicine. Preventing medication errors: quality chasm series, 2006.

Med Rec (cont.)

Why? Avoid medication errors - omissions, duplications, dosing errors, drug interactions

When? At every transition of care; during any episode of care

What? *Communicate* the updated list to appropriate care providers, caregivers, and the patient

Example: reconciled medication list

Medication reconciliation--AMBULATORY [Jan-14-2011

Complete, General

Allergies:

- **No Known Medication Allergies**:

Medications:

- **doxycycline hyclate 100 mg tablet**: 1 tab(s) orally once a day, Active, 30, 0
- **econazole topical 1% cream**: 1 app apply topically 2 times a day, Active, 60, 2
- **albuterol CFC free 90 mcg/inh aerosol with adapter**: 2 puff(s) inhaled 4 times a day x 30 days, Active, 240, 6
- **Advair Diskus 100 mcg-50 mcg powder**: 1 puff(s) inhaled 2 times a day x 30 days, Active, 60, 6
- **erythromycin 250 mg tablet**: 1 tab(s) orally every 6 hours x 30 days, Active, 120, 6
- **Nexium delayed release capsule 40 mg**: 1 cap(s) orally once a day, Active, 30, 6
- **Lipitor tablet 10 mg**: 1 tab(s) orally once a day (at bedtime), Active, 30, 6
- **Oramorph SR tablet, extended release 30 mg**: 1 tab(s) orally every 6 hours x 30 days, Active, 120, 0
- **Ativan tablet 1 mg**: 1 tab(s) orally 2 times a day x 30 days, Active, 60, 1
- **acetaminophen-hydrocodone tablet 325 mg-10 mg**: 1 tab(s) orally every 6 hours, Active, 120, 6
- **3cc syringe and needles for depo IM injections**: 1 IM once a week, Active, 12, 3
- **Depo-Testosterone solution cypionate 200 mg/mL**: 1.5 mL intramuscularly every 2 weeks, Active, 1, 6
- **Viracept tablet 625 mg**: 2 tab(s) orally 2 times a day, Active, 120, 6
- **Truvada tablet 200 mg-300 mg**: 1 tab(s) orally once a day, Active, 30, 6

Medication Reconciliation:

Medications: Reviewed and updated based on chart & patient information.

Electronic Signatures:

Case

- 40-year-old man with HIV; well-controlled
- Presents for follow-up complaining of easy bruising and gum bleeding
- Physical examination was normal, including skin and gums
- Medication reconciliation conducted

- 4 months later, patient presents after a fall and minor trauma with severe ecchymosis to right knee, elbow and shoulder
- Patient reports taking aspirin 325 mg 8 tablets every night
- Aspirin was not listed on the reconciled list from previous clinic visit

Problem Identified

Haphazard application of medication reconciliation

- *Providers were not consistently conducting medication reconciliation*
- *The list of reconciled medication was not consistently given to the patient*

Figure 1. Process Analysis – Pre-Intervention Flow chart

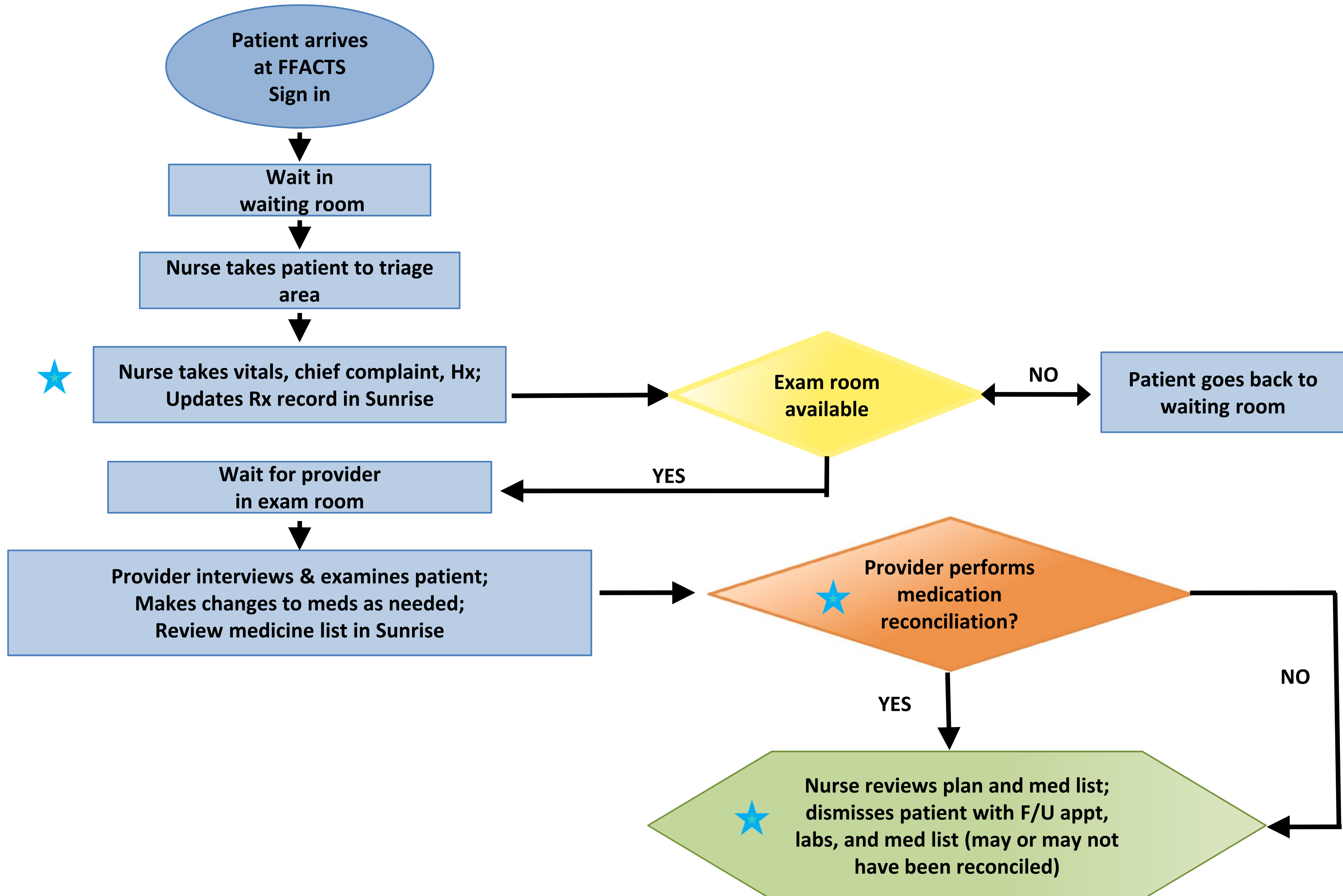
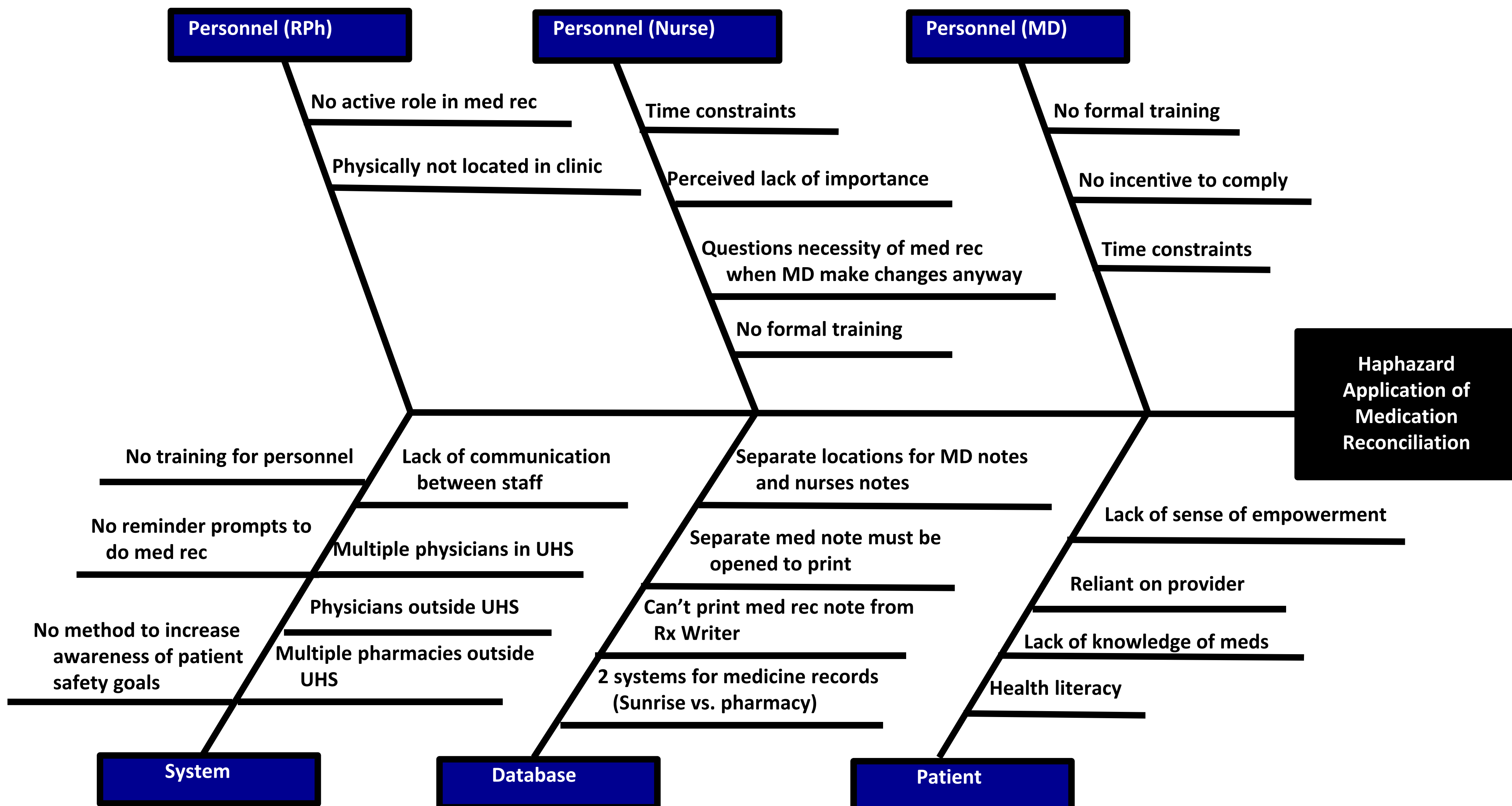


Figure 2. Process Analysis - Fishbone



Rapid Cycle PDCA:
Plan-Do-Check-Act

PDCA: "Plan"

Table 2. Process Improvement Plan

Metric	percentage of medication reconciliation conducted by providers per month pre- and post-intervention
Interventions Planned	Communication, verbal & written (group, individual) Reminders
Monitoring period	3 months (October, November, December 2010)
Method	each month, 10 unique medical records from each provider were randomly selected and reviewed for compliance; 100 medical records total per month
Outcome	individual and group compliance were measured
Decision analysis tools	Pareto diagram (individual data) Run chart (individual and average data)

Brainstorming and Planning the Project

PDCA: "Do"

Table 3. Interventions in October and November

	Interventions	10/2010	11/2010
1.	Medication reconciliation responsibility delegated to providers	√	
2.	Improved clinician and staff awareness of medication reconciliation through written education (letter sent via email)	√	√
3.	Medical Director met with individual physicians	√	√
4.	Medical Director met with the staff (nurses, case managers)	√	
5.	Medical Director met with individual staff		√
6.	Worked with IT to add a new field in Sunrise to document medication reconciliation ("checkbox")	√	
7.	Developed reminder posters for providers; posted in exam rooms		√
8.	Developed staff/ patient awareness posters; posted in patient waiting and nurses areas		√

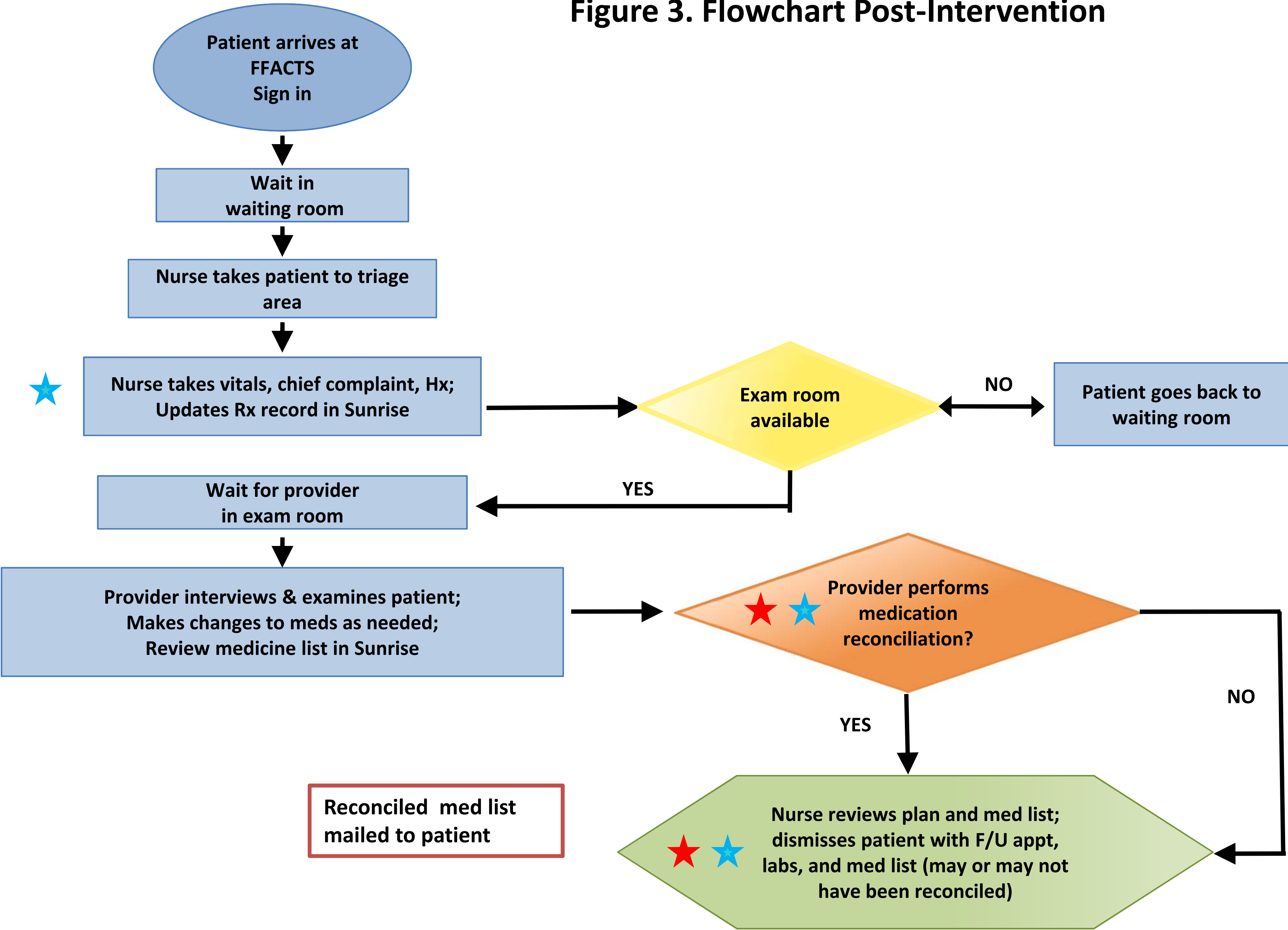


Figure 3. Flowchart Post-Intervention

Figure 4. “Check Box” in Sunrise

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Plans

☑
1. Low alt diet, exercise 30 minutes daily
2. Stop amlodipine
3. Add atenolol 50 mg daily
4, Add enalapril 5 mg daily
5. Return to clinic in 4 months with pre-clinic Chem 10

☐

☑ Discharged: ☑ Pre-clinic lab slip given ☑ Prescriptions given ☑ Nurse please mail f/u appointment slip

☐ Nursing Dismissal: ☐ Needed

☑ Medication Reconcilliation: ☑ Done

☑ Advance Directive: ☑ Done

☑ Medical Power of Attorney: ☑ Done

Figure 5. Reminder Poster

ATTENTION

Do you know your medicines?

ASK about
your medicines
at EVERY clinic visit

Figure 6. Reminder Poster

ATTENTION

Do you know your medicines?

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Figure 7. Reminder Poster

Check that Box in Sunrise

Medication Reconciliation

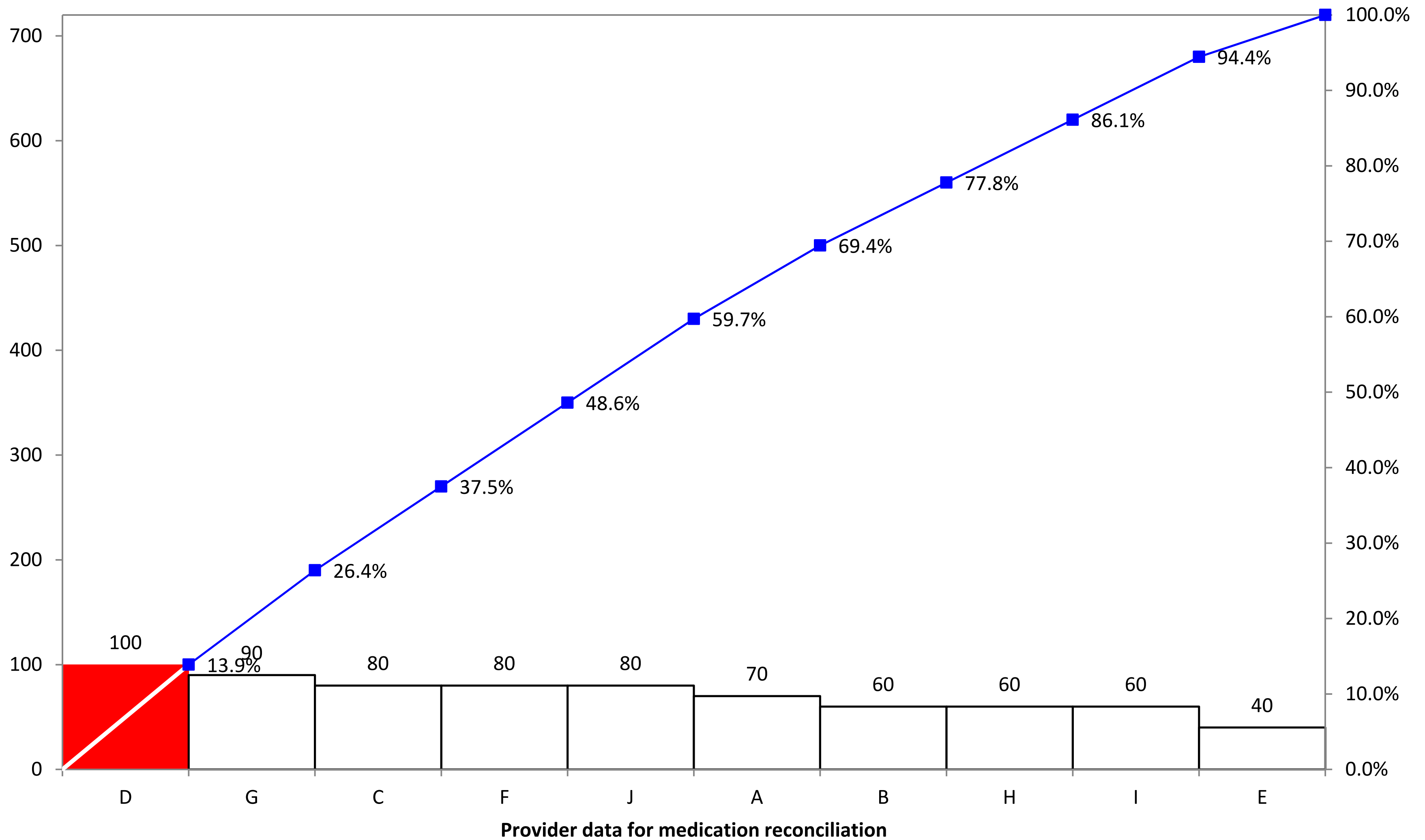
DONE!

Implementation Issues

- Coordinating providers and staff
- Understanding the importance of med rec
- Getting “buy-in”
- Collecting data required multi-steps; time-consuming

PDCA: “Check”

Figure 8. Baseline data of percentage of medication reconciliation conducted by providers at the UHS Immunosuppression Clinic (Jul-Sept %)



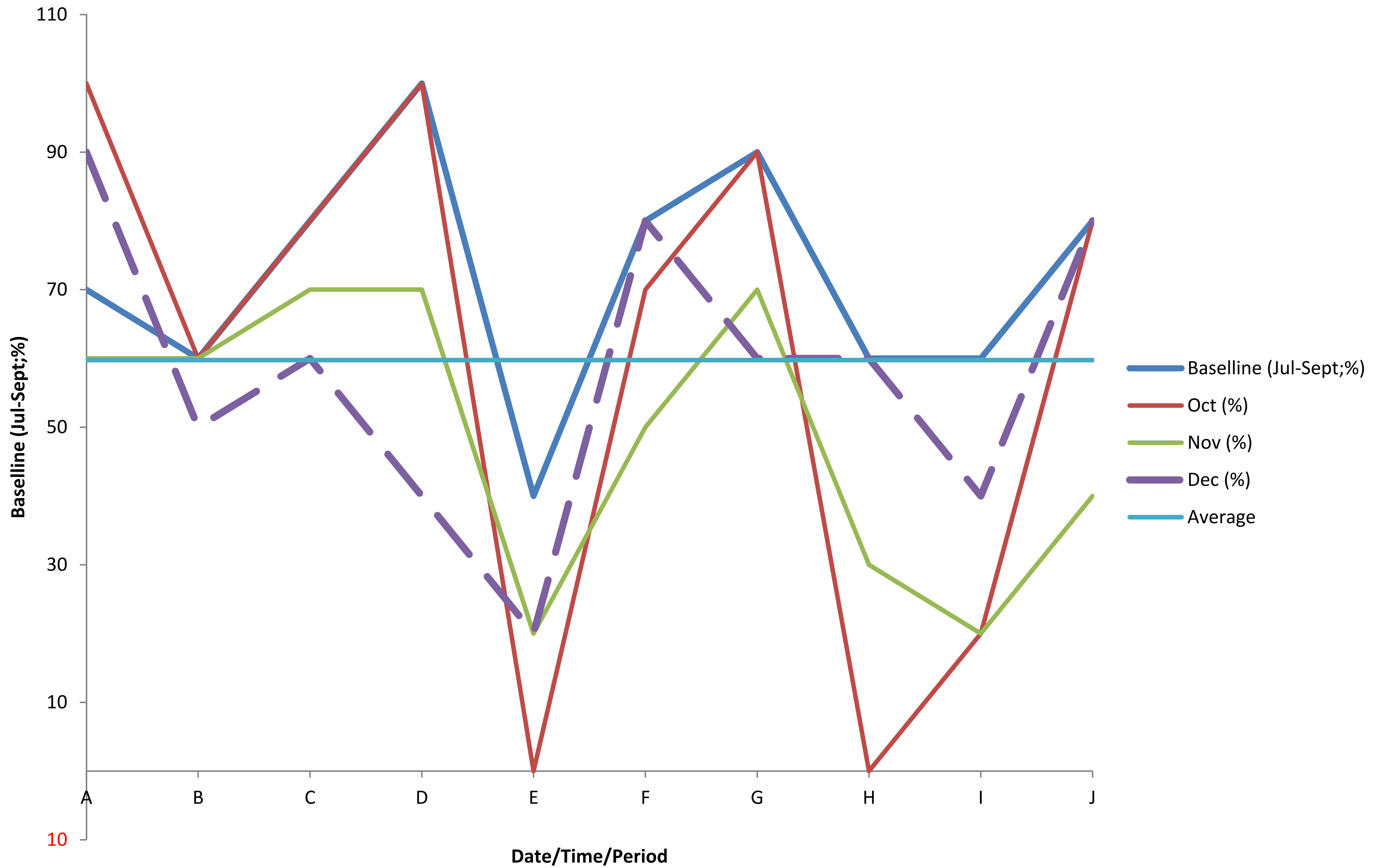
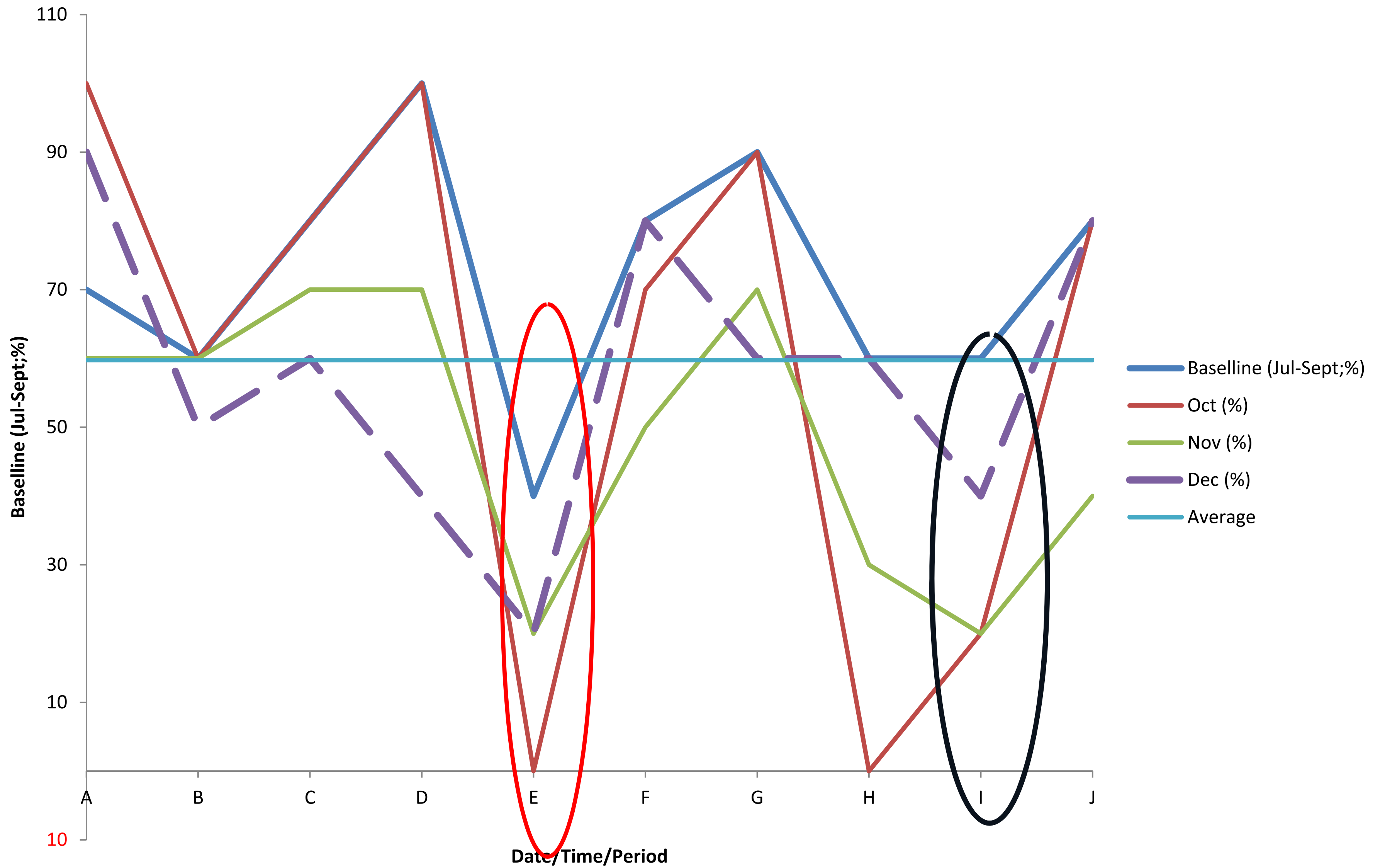


Figure 9. Percentage of medication reconciliation conducted by provider by months
110
90
70
50
30
10
10
Baselline (Jul-Sept;%)
A
B
C
D
E
F
G
H
I
J
Date/Time/Period
Baselline (Jul-Sept;%)
Oct (%)
Nov (%)
Dec (%)
Average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Baselline (Jul-Sept;%)
Baselline (Jul-Sept;%)
Oct (%)
Nov (%)
Dec (%)
Average

Table 4. Percent Medication Reconciliation Conducted

Provider	Baseline(%)[1]	Oct (%)	Nov (%)	Dec (%)	AVG% provider
A	70	100	60	90	80
B	60	60	60	50	58
C	80	80	70	60	73
D	100	100	70	40	78
E	40	0	20	20	20
F	80	70	50	80	70
G	90	90	70	60	78
H	60	0	30	60	38
I	60	20	20	40	35
J	80	80	40	80	70
AVG% (month)	72	60	49	58	

1. Baseline: data from July/Aug/Sept 2010

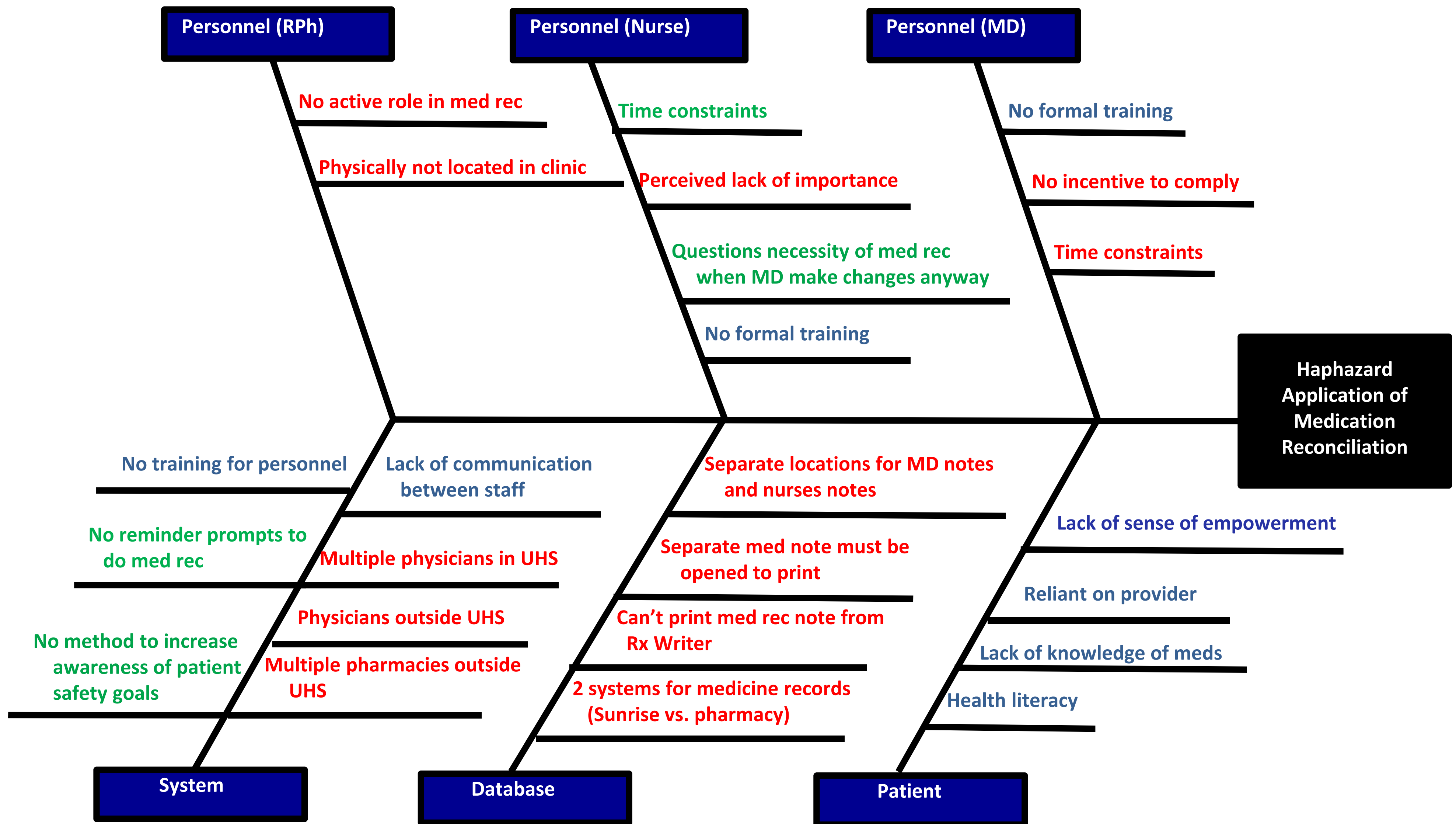
PDCA: "Check" (cont.)

- Poster reminders appear to be affecting changes in patients' behavior
  - Prompted patients to ask more questions about their medicines

PDCA: "Act"

- Continue this quality improvement project
- Re-evaluate intervention methods
- Obtain feedback from providers and staff
- Revise metric to collect data: separate providers and nurses

Figure 10. Re-evaluation of the cause-and-effect diagram



Return on Investment

- ROI has not been evaluated at this time
- Evidence: model for calculating ROI for med rec in the in-patient setting
- Need for a model in the out-patient setting
- Variables:
  - Project errors that could result from unreconciled med list
  - Project cost associated with different types of med errors
  - Project savings resulting from med errors prevented

Conclusion

- To completely and accurately reconcile medications is an important patient safety goal
- Consistency requires a team-approach
- Future plans to continue this process improvement project
  - Feedback from providers and staff
  - Re-evaluate interventions
  - Re-define metric to measure compliance

Acknowledgements

The team of providers and staff at the FFACTS Clinic

Thank you

and

Questions