Decreasing the Unplanned Readmission Rate of Patients receiving Outpatient Antibiotic Therapy(OPAT)

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TEAM

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  Chief / Medical Service – Jan Patterson, MD
  Infectious Disease Fellow – Jose Cadena, MD

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- **PATIENTS**
- **PROVIDERS**
- **NURSING**
- **PHARMACY**
- **HOSPITAL ADMINISTRATION**

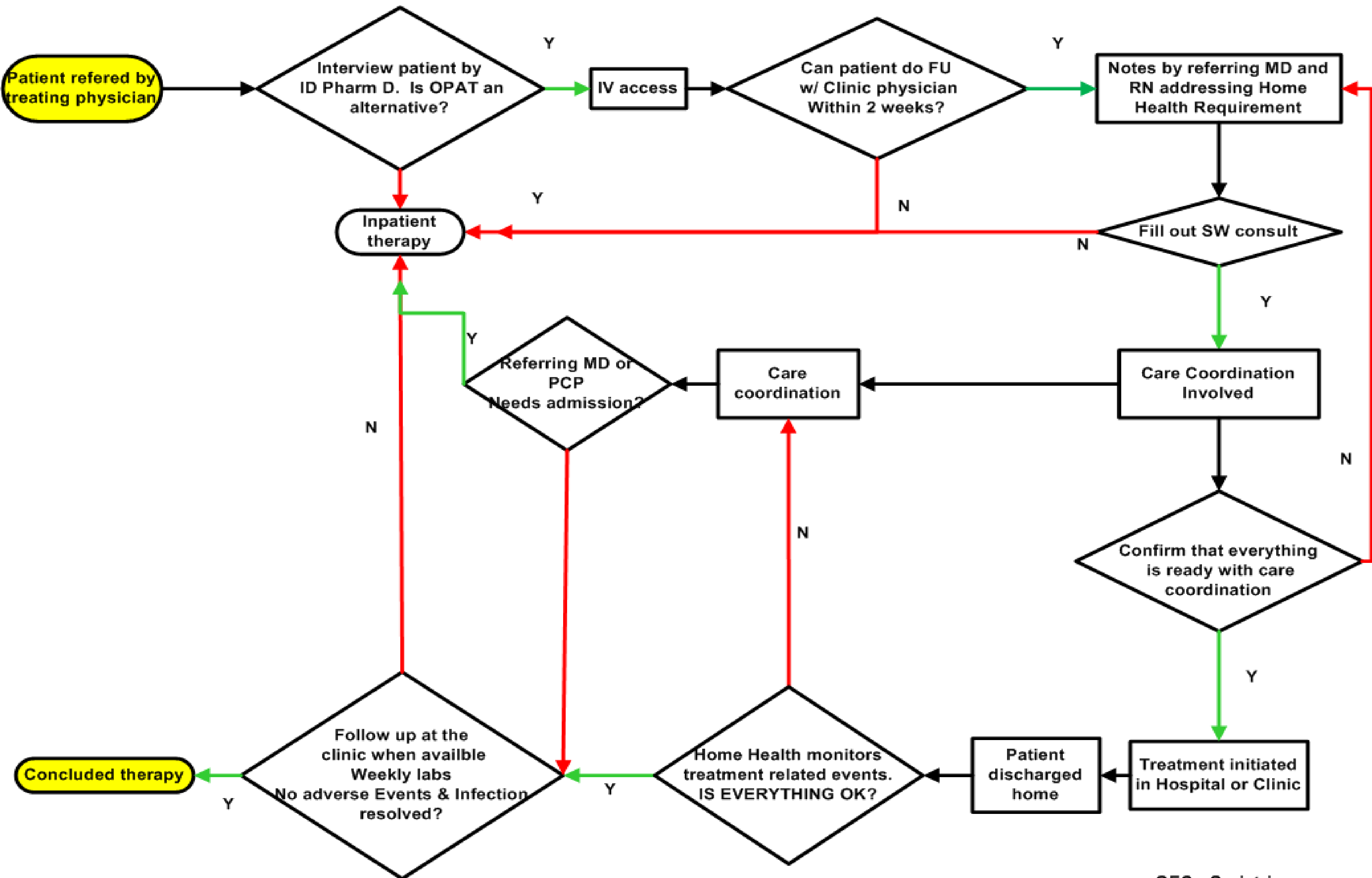
To decrease the unplanned readmission rate of patients receiving outpatient antibiotic therapy (OPAT) due to infection, line complications or adverse drug reactions by 30% by December 2008 at ALMVA hospital .

What was the VA working with?

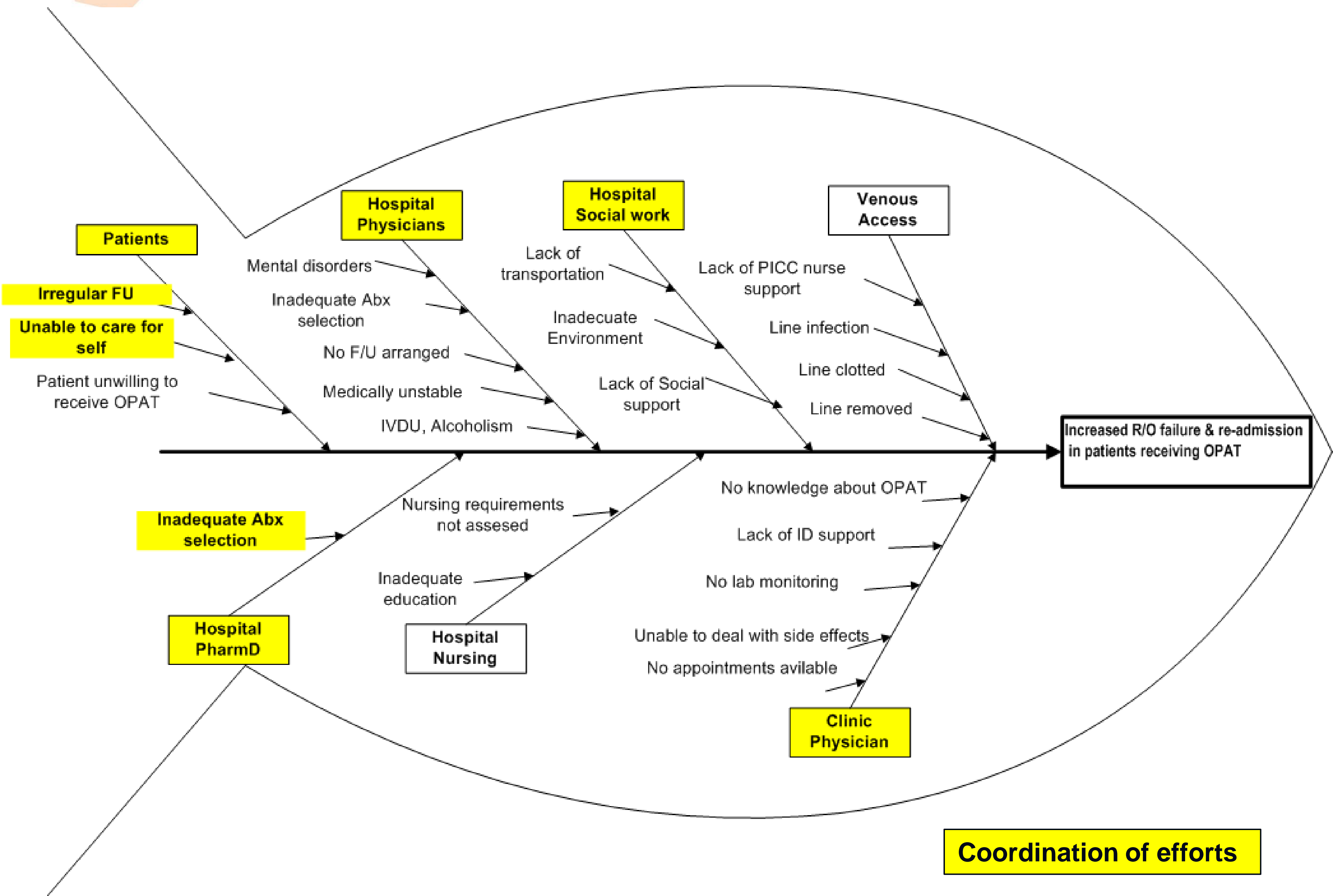
- We retrospectively evaluated the failures among patients receiving OPAT at the ALMVA over a 3 month period.

Rate of Adequate Follow up	32%
Rate of readmission	44% (*54% of which within 2 weeks*)
Rate of Central Line Complication	12%
Rate of Antibiotic Complications(rash, C difficile associated disease-CDAD, failure)	36%
Patients alive at end of therapy	84%
Patients with microbiological diagnosis	68%

PROCESS FLOW - Pre Intervention



CAUSE & EFFECT DIAGRAM



BACKGROUND

- Outpatient Antibiotic Therapy (**OPAT**) is an alternative to inpatient care. It is safe and effective when used properly.
- **Proper assessment** of the patients required: OPAT indication, social situation and comorbidities
- Ordering physician: Should be **aware** of the team work, communication, monitoring and outcome measurements!
- Patient should be **informed of his responsibilities** and plan to follow up.
- **Antibiotics**: Proper choice, dosing and monitoring. Initiated in hospital or clinic.

Tice et al. Clin Infect Dis 2004;38: 1651–72

PERTINENT POINTS FROM LITERATURE

- OPAT is a complex process. A Healthcare Failure Mode Effect Analysis has shown that OPAT may have 6 processes, 67 sub-processes and 217 possible failures.
- Our project was a first step to standardize and improve the process.

Gilchrist M et al. J Antimicrob Chemotherapy 2008; 62: 177–83.

Mandatory ID consultation for OPAT

- Infectious diseases consultation results in change in management of 88.6% patients considered candidates for OPAT
- Mandatory ID consultation decreases cost by $760 per patient.
- High success rate of therapy (97%)

Sharma R, Loomis W, Brown R. Am J Med Sci 2005;330:60–64.

But remember…..

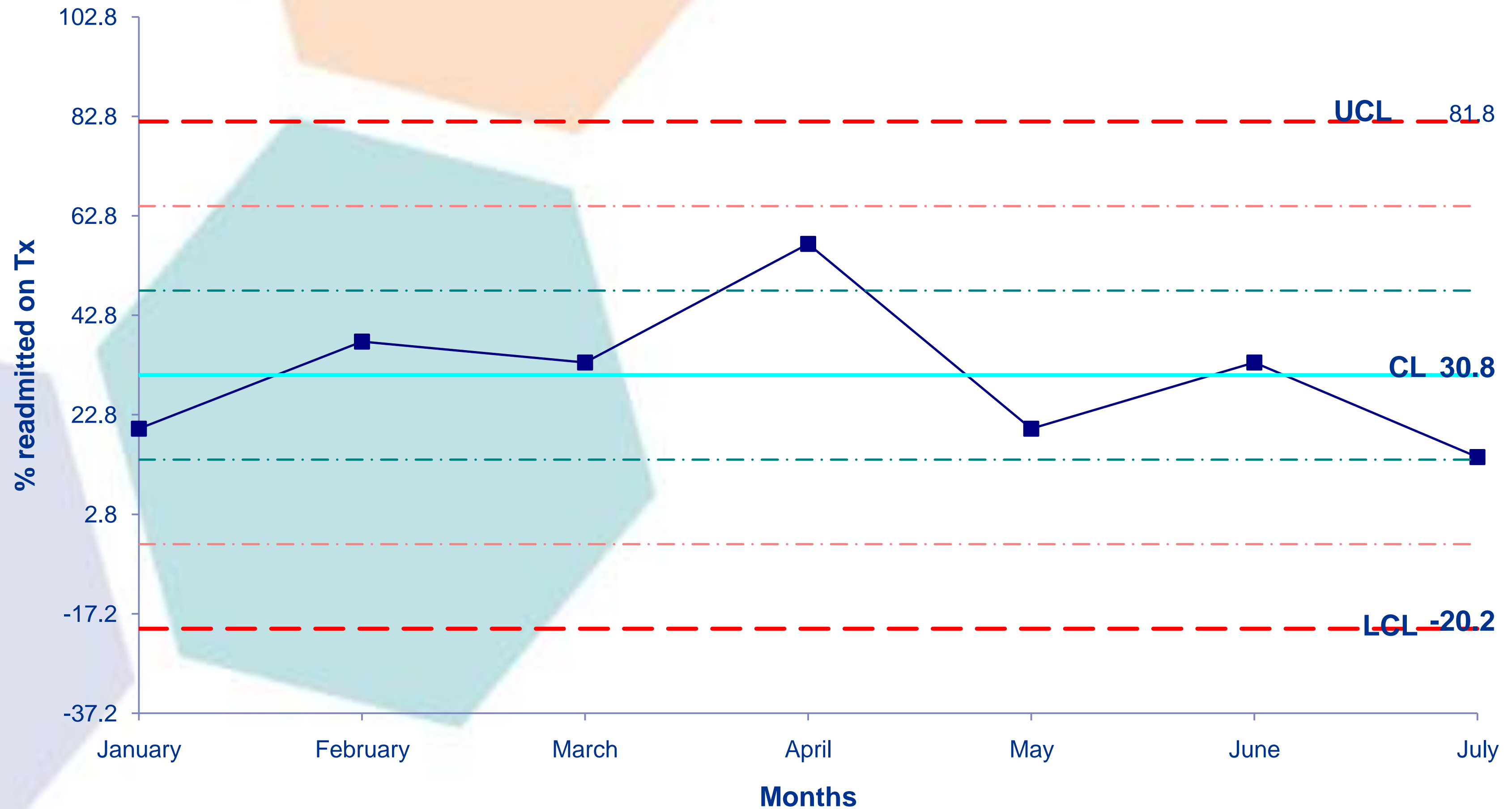
- OPAT may have 6 processes, 67 sub-processes and 217 possible failures.

Gilchrist M et al. J Antimicrob Chemotherapy 2008; 62: 177–83.

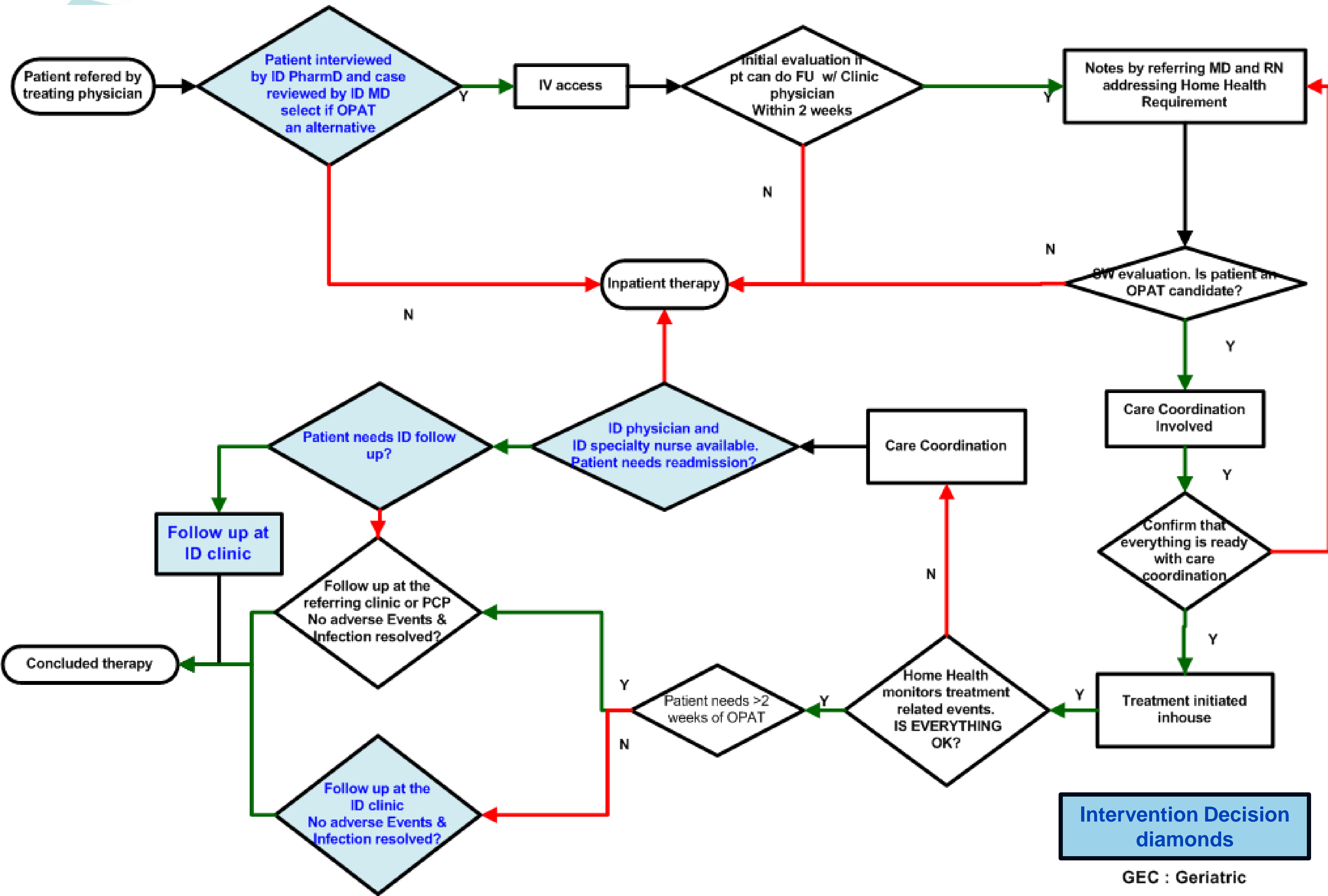
How

- Infectious Disease Physician and ID PharmD:
  - **Review cases** to make sure that therapy is appropriate
  - Ensure **ID clinic follow** up when appropriate
  - **Address** complications in the clinic
  - **Review the patient** to make sure they are able to care for themselves.
  - **Discuss** with team and patient goals and responsibilities of therapy.
- Constant **communication** between MD, Pharm D, RN and home health.

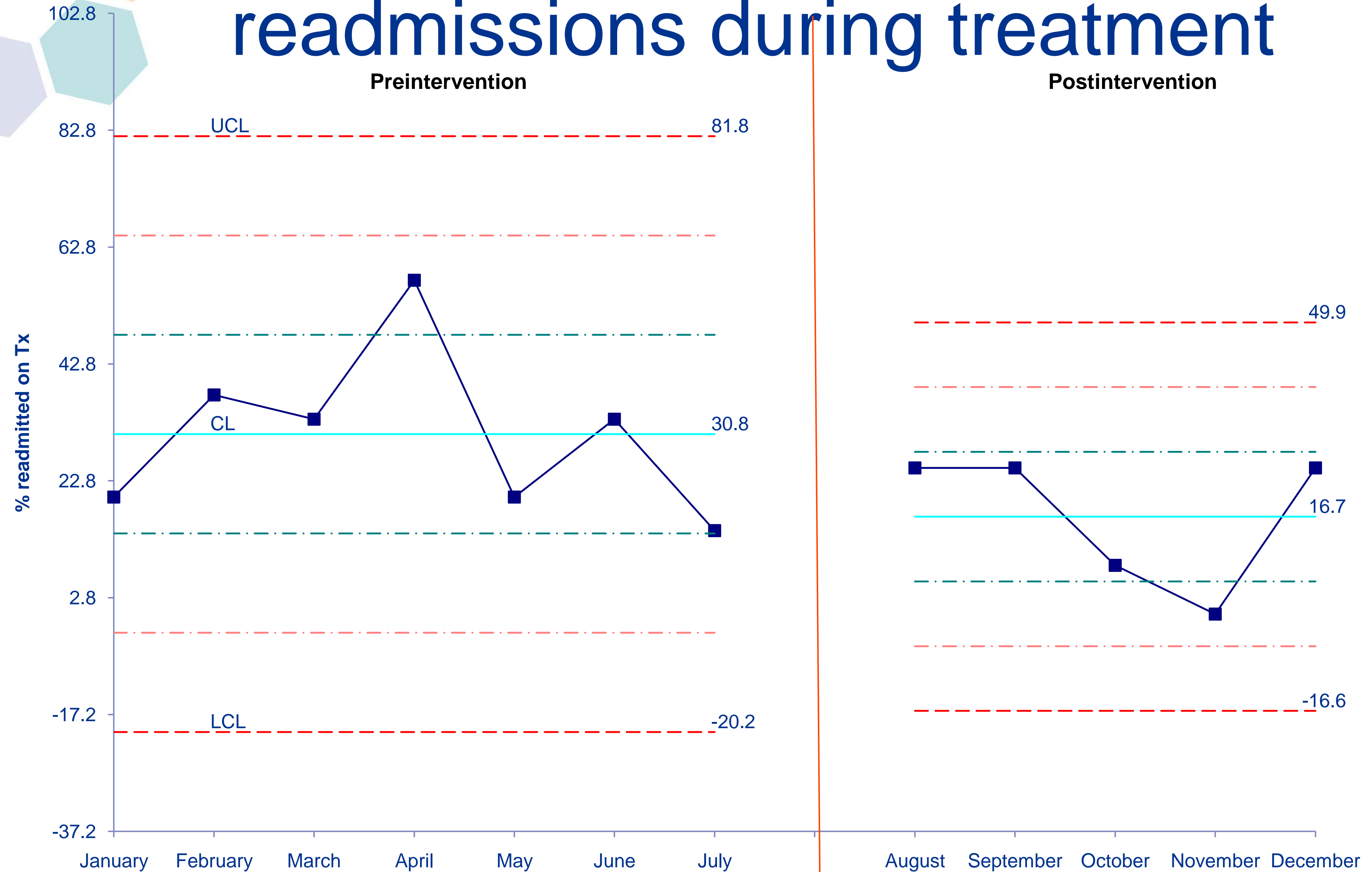
Preintervention data of readmissions during treatment



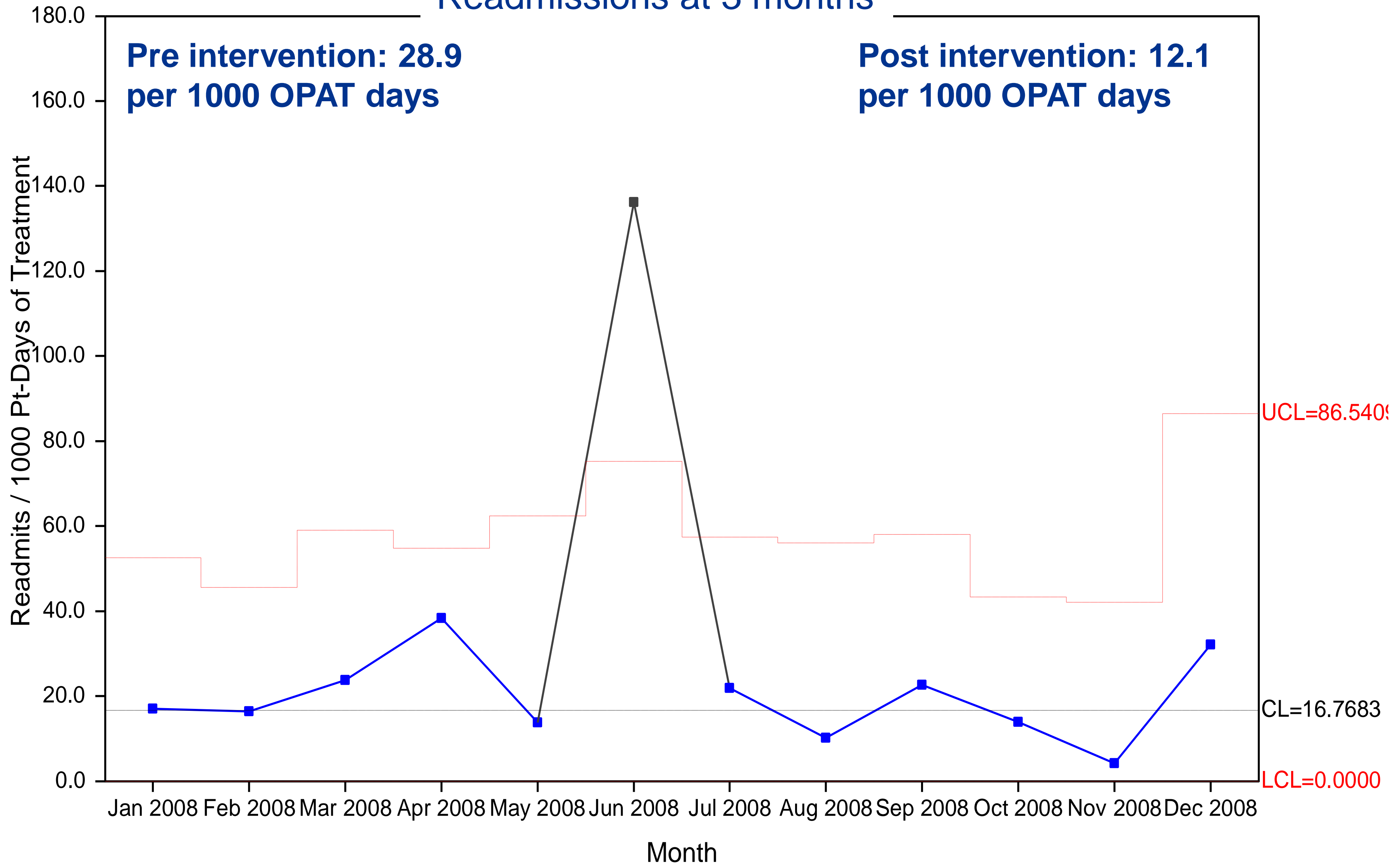
PROCESS FLOW - Post Intervention



Postintervention data of readmissions during treatment



Readmissions at 3 months



Pre intervention OPAT days 693

Post intervention OPAT days 663

	Preintervention	Postintervention
Total Number	47	37
Completed Treatment	26 (55%)	30 (81%)
Did not complete	21 (45%)	7 (19%)

p=0.04

Postintervention rate of completion of parental therapy was better

Complications Requiring Readmissions

	Pre intervention N: 47	Post intervention N: 37
CHF/Volume overload	3	0
ARF, electrolyte disturbance	3	0
PICC line Infection/removal	4 (2/2)	0
Amputations	4	1
Worsening Infection	8	1
SJS/Severe rash/toxicity	2	1
All-Cause Mortality	2	2
Total	17 (36%)	4 (13%)

Number of patients with serious complications requiring readmission reduced in the post intervention period

Complications (overall)

	N:47	N:37
Acute Renal Failure	3 (6%)	2 (5%)
Congestive Heart Failure	3 (6%)	0
PICC problems	4 (9%)	2 (5%)
Amputations	4 (9%)	1 (3%)
Unrelated readmissions	6 (12%)	5 (14%)
Worsening Infection	8 (17%)	1 (3%)
SJS/Severe rash/toxicity	2 (4%)	1 (3%)
All-Cause Mortality	2 (4%)	2 (5%)
Total	32	14

Follow up and readmissions

	Pre intervention	**Post intervention**	**P value**
Follow up at 7 days (labs)*	21/39 (54%)	21/36 (62%)	0.7
Follow up within 2 weeks (MD) *	22/36 (61%)	26/35 (74%)	0.2
Readmitted during treatment	15/47 (32%)	5/37 (14%)	**0.049**
Readmitted within 3 months	20/47 (43%)	8/37 (22%)	**0.043**

*Denominator: eligible patients.

RETURN ON INVESTMENT

	% Patients Readmitted	Admissions / Month*	Average LOS
Pre intervention	43%	3.2	14 days
Post intervention	22%	1.7	

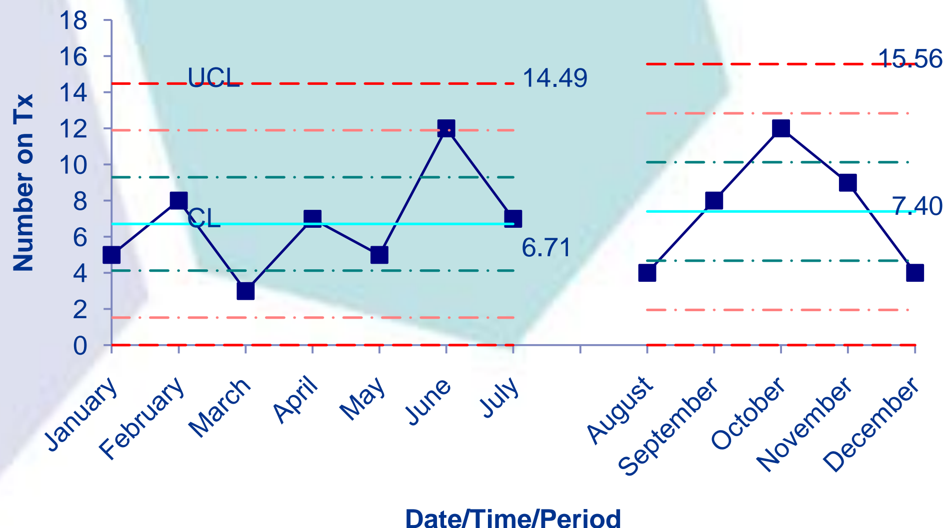
Cost - Physician FTE (2/8)	($43,849)
Potential Admissions Avoided / Yr	18
Potential Admission Days Avoided / Yr**	252
Cost Savings (if only regular bed days avoided – would be higher for higher level of care)	$428,400
Cost savings – cost physician	$384,551
Return on investment	89%

*Assume 90 patients per year
** Hospital day cost 1700$

WHERE ARE WE GOING?

Program was transiently discontinued pending resolution of funding issues.
There was a proposal to create a position for an ID physician to supervise the process and was submitted to the hospital directives

April 2009: Approved position. Recruitment completed. Plan to restart program in July 2009.



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CONCLUSIONS

- ID physician direction
  - Decreased complications and readmission
  - Cost-effective and cost-saving
  - Improved quality and patient safety

- Most complications could be managed as outpatient

- Process was initially labor intensive but rewarding

- Further improvement is required for patients with less prolonged hospital stay.

QUESTIONS?

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