

Manpower Analysis of the Technicians working in Cath Lab & Dialysis Department

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Introduction

Manpower Analysis and Audit basically aims to track down the daily routine and find out the main jobs and time spent on each job. One can find their productivity and then some benchmark can be kept to utilise them efficiently. Measuring productivity in service industry is bit harder due to intangible nature of the product involved.

Rationale of Study

- Right person should be employed at the right place and at the right time is vitally important for any organisation since multiple resources are utilised- finance being the major factor.

Objectives

- To calculate approximate productivity of the technicians
- To find out methods for better utilisation of the staff

Methodology & Formula

Study Area- Wockhardt Hospital, Nashik, Maharashtra

Study Population – Technicians of Cath lab & Dialysis

Study Design- Cross sectional analytical study

Number of observations- determined by the formula:

$$\sigma_P = \sqrt{\frac{pq}{n}}$$

$$n = \frac{pq}{\sigma_P^2}$$

σ_P = standard error of proportion

p = percentage of idle time

q = percentage of working time

n = number of observations

Data Collection- Primary data is collected through Time Motion Study

Data Analysis- Through statistical measures

Productivity= Input / Output

Input is the total number of hours the employee has actually worked

Output is the total number of hours the employee is expected to be on job

Data Collection & Observations

Process Flow

[process flow.docx](#)

Manpower Allotment

Cath Lab

- Cardiac Consultants (2)
- RMO (1)
- Technicians (2)
- Nurses (4)
- Cath Lab Coordinator (1)
- Store Incharge (1)
- Housekeeping (1)

Dialysis

- Consultants- 1 full time & 3 part time
- RMO (1)
- Technicians (10- including Incharge)
- Nurse (1)
- Housekeeping (1 per shift)
- Washer (1)

ROTA Analysis & Leave Structure

Cath Lab

- Technicians- General Shift (9:30am to 6:00pm)
- Cath Lab Coordinator- General Shift
- Nurses- (2) 8:00am to 4:30pm
(1) 10:00 am to 6:30pm
(1) 12 noon to 8:00pm

Dialysis

- Technician Incharge- General shift
- 1 technician - General shift
- 2+1 technicians in **morning** shift (6:30am-2:30pm)
- 2+1 technicians in **evening** shift (2:30pm-10:30pm)
- 1 technician in **night** shift (8:00pm-8:00am)
- 1 on week off/ evening shift (3:30pm-9:30pm)

Leave Structure- Each employee is entitled for 6 Casual leave, 12 Sick leave, 21 Earned Leave in a year.

Shifts of Dialysis Patients

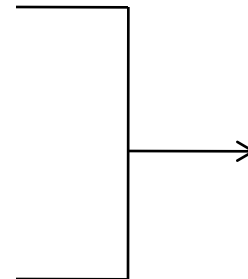
Dialysis department has four slots for dialysis patients (4 hours each). They include:

1st shift- 06:30am to 10:30pm

2nd shift- 12:00pm to 04:00pm

3rd shift- 05:30pm to 09:30pm

4th shift- 11:00pm to 03:00am



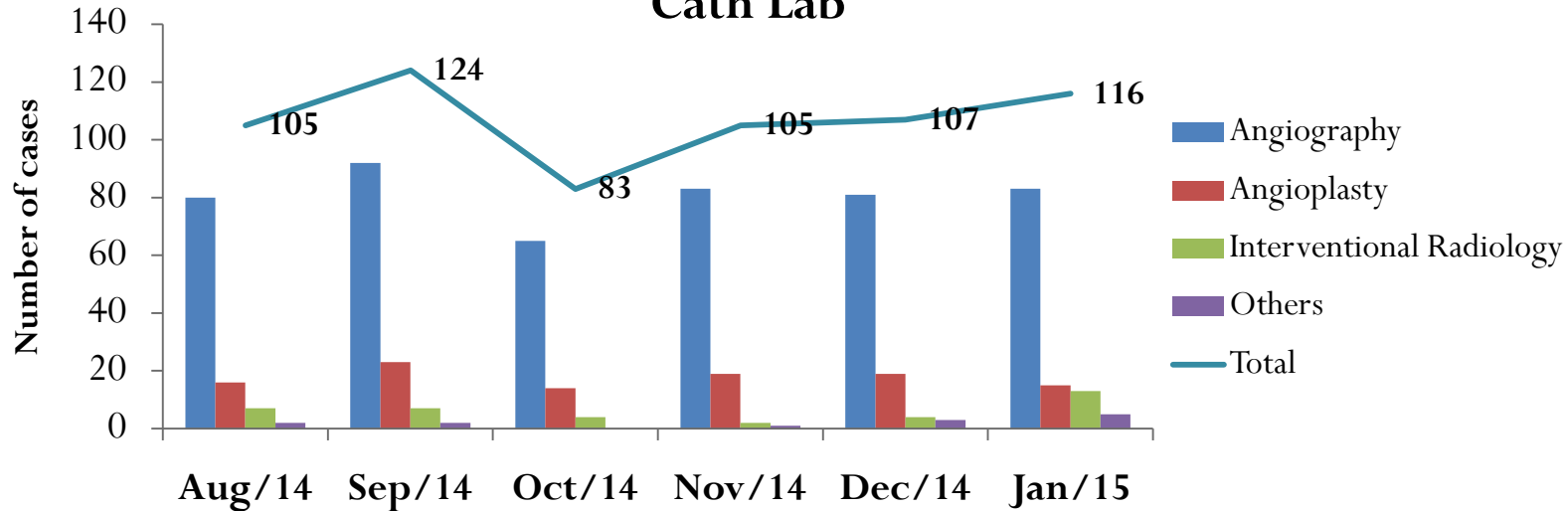
Each shift dialyses
minimum 10
patients

- 4th shift only on Level 1 (6 beds)

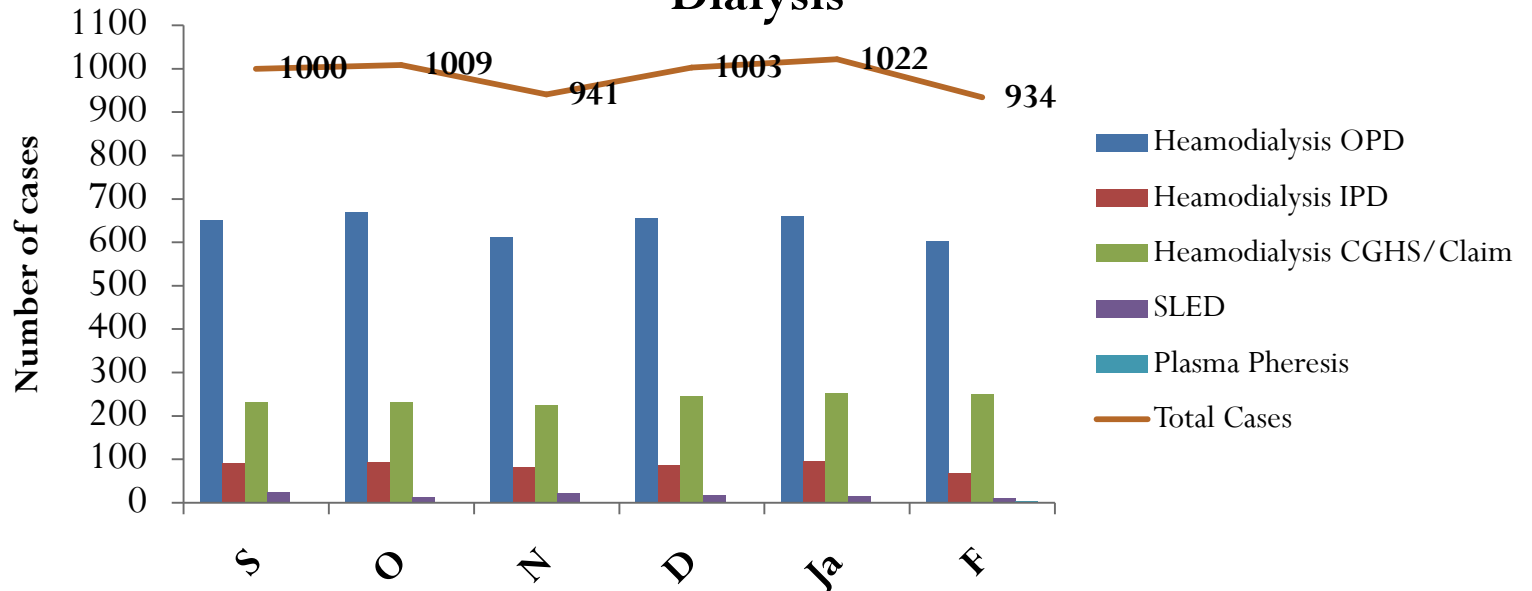
Analysis

Work Load & Procedures- past 6 months

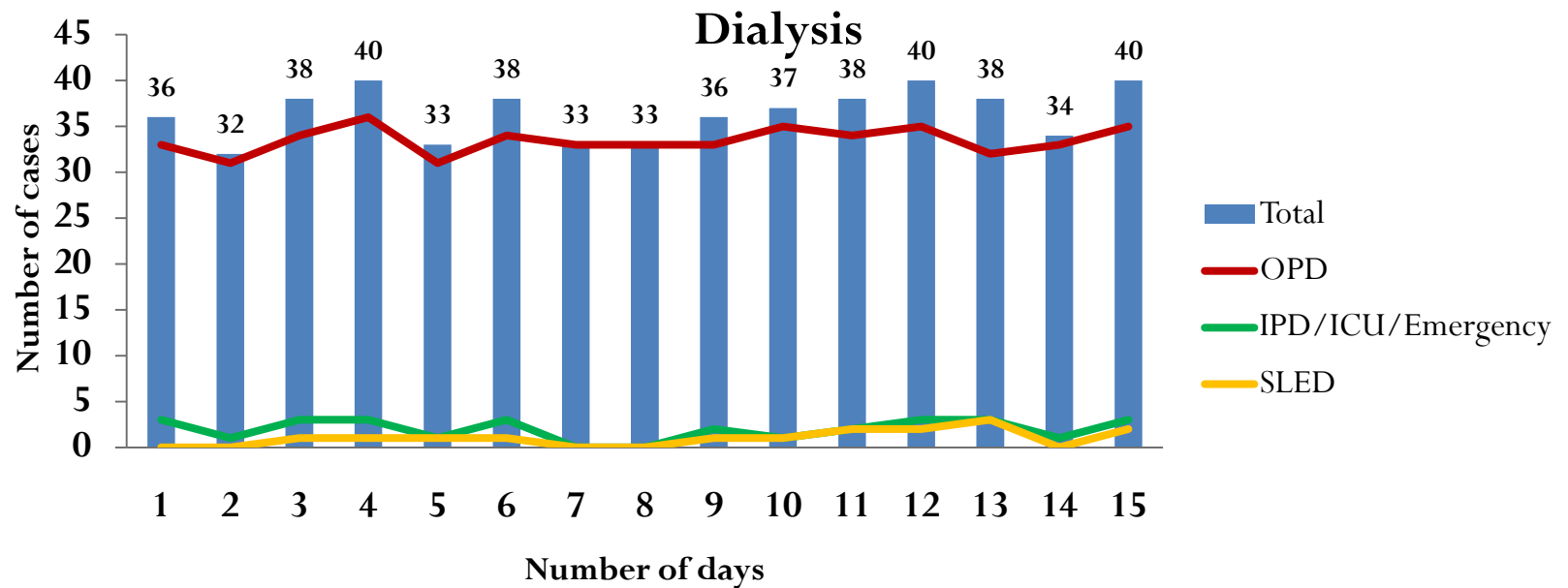
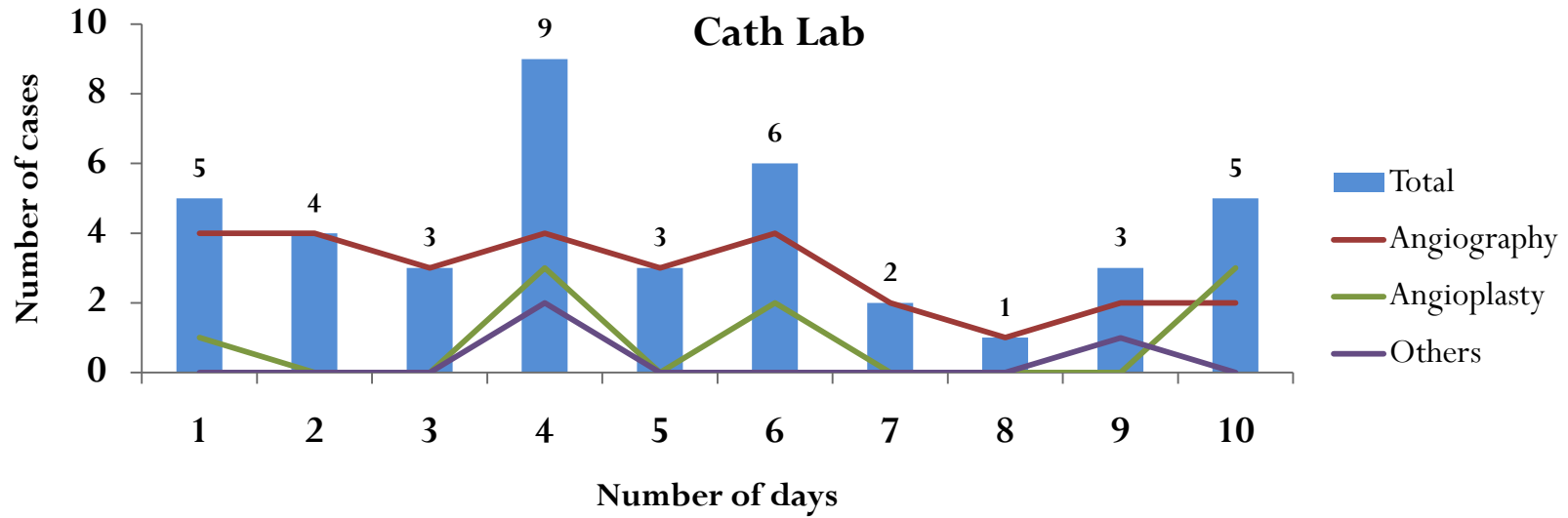
Cath Lab



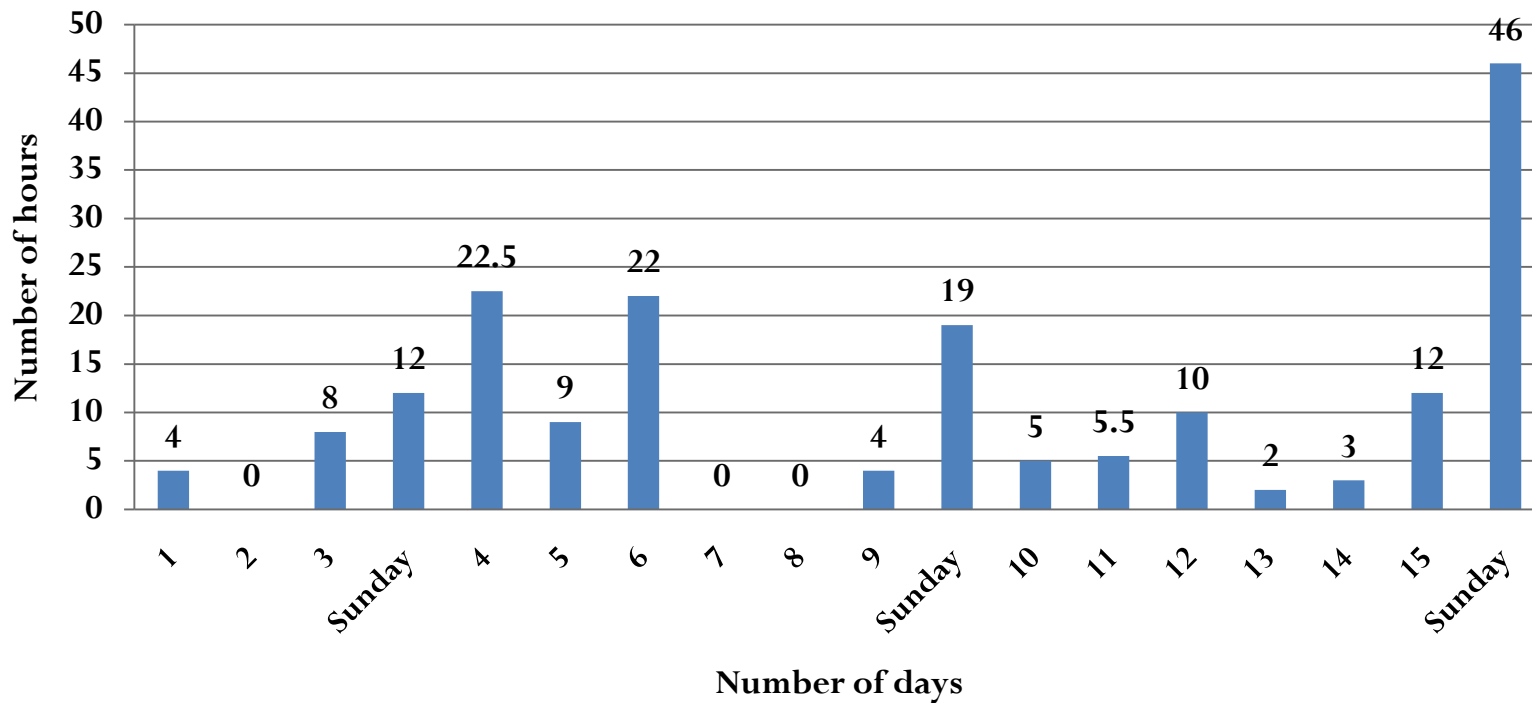
Dialysis



Day Wise Procedures



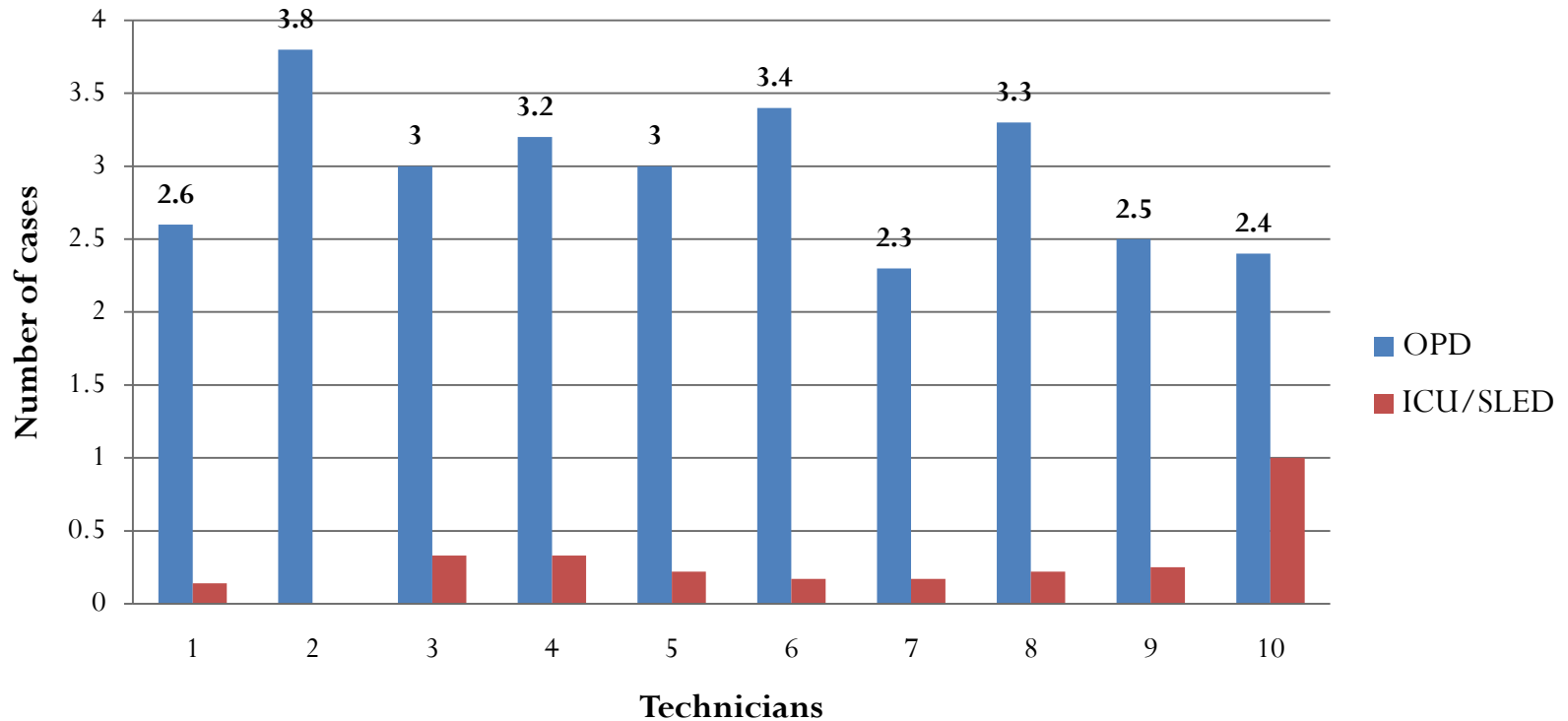
Overtime per day- Dialysis



Overtime in last 18 days (including Sunday) is around 184 hours.

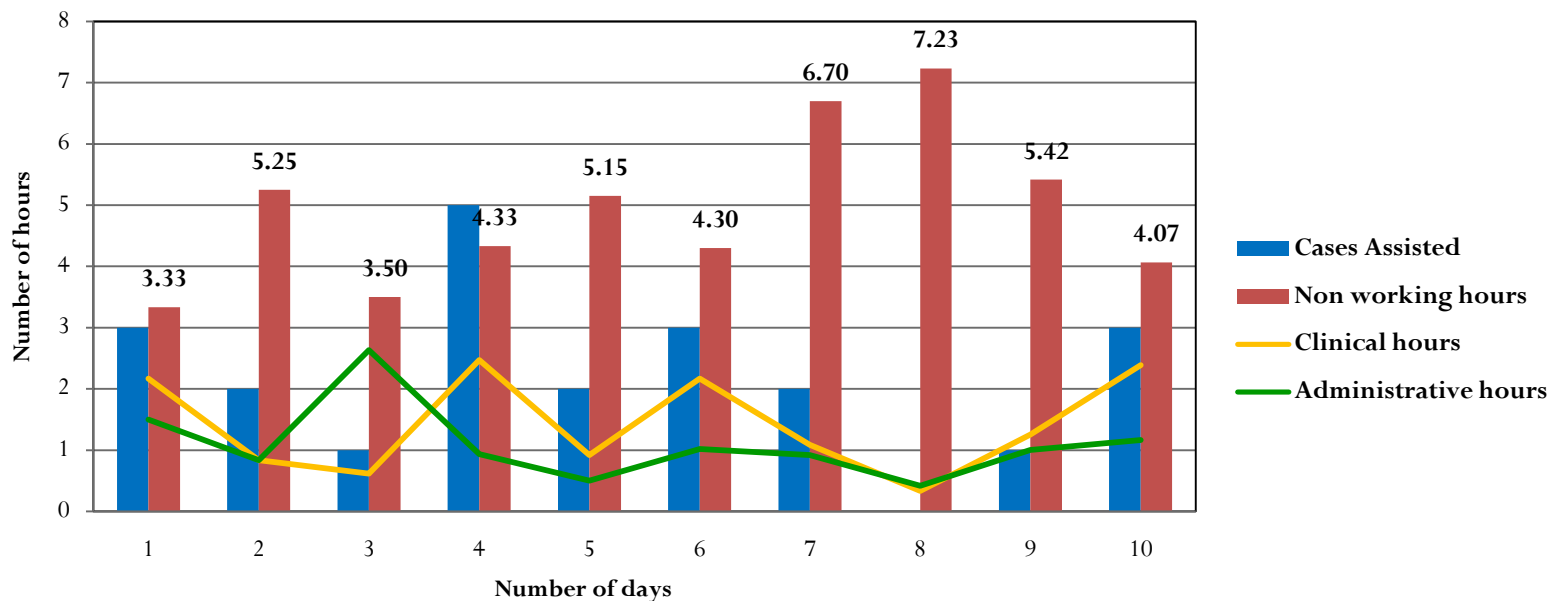
Utilising our 10th technician in a better way will give his 144 hours

Patient-Technician Ratio- Dialysis

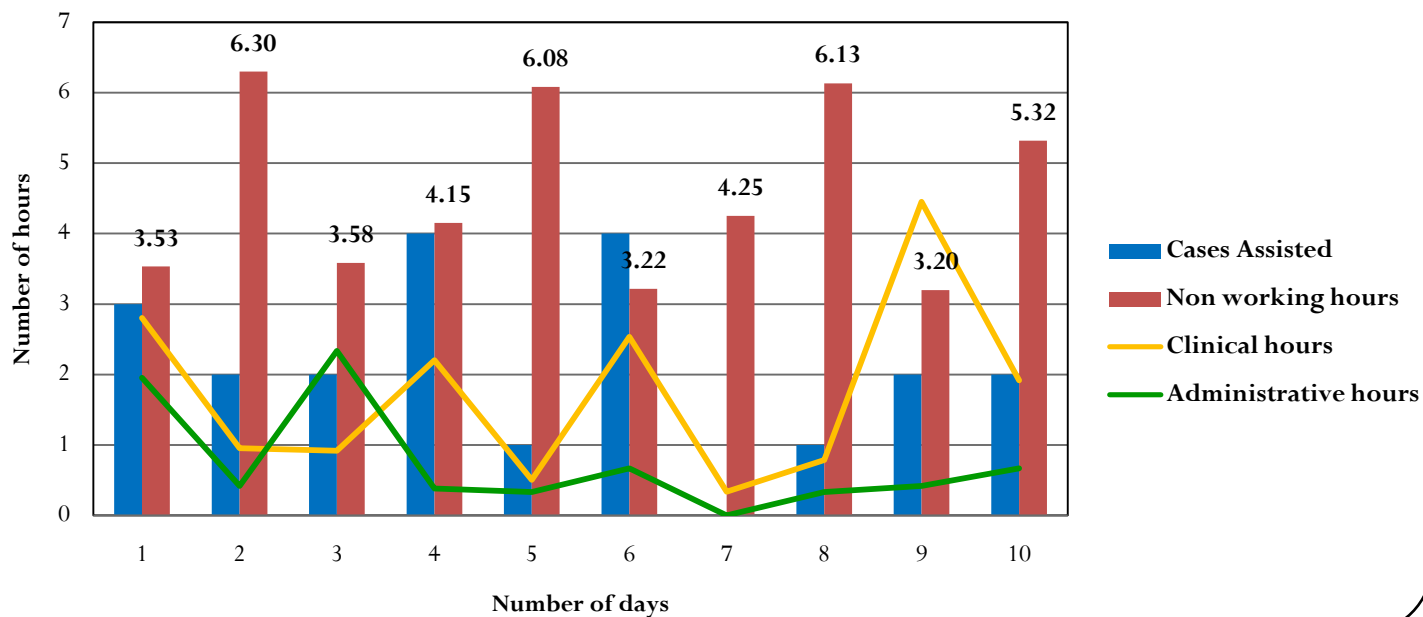


Industry Standards- 3:1 ratio per shift

Technician 1- Comparison of various activities: Cath Lab



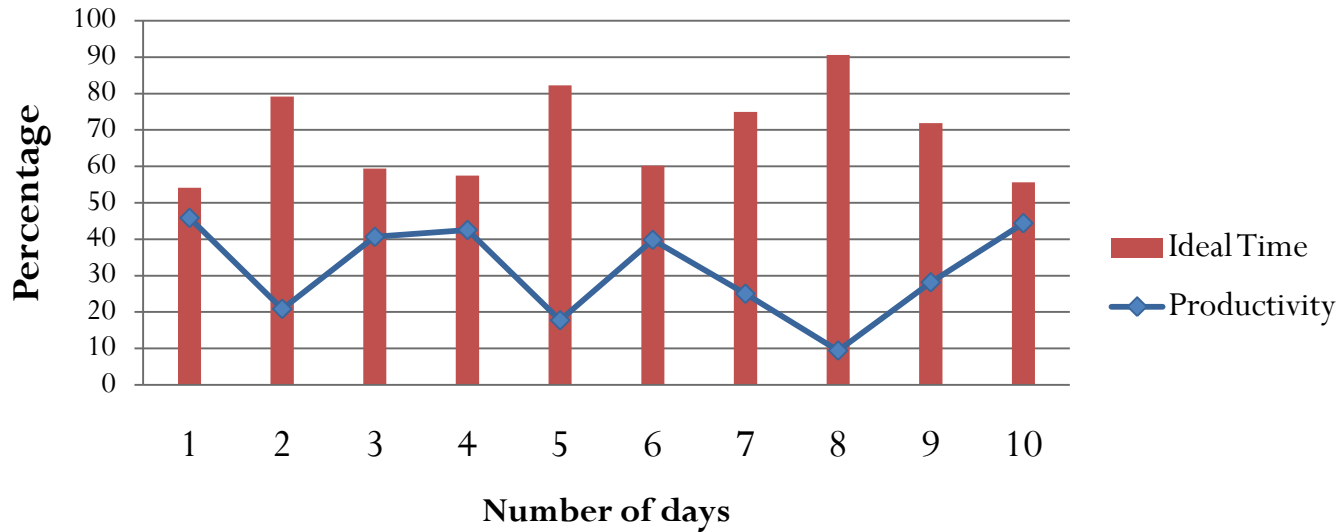
Technician 2- Comparison of various activities: Cath Lab



Total Hours Worked- Cath Lab

Day	Technician 1		Working hours	Technician 2		Working hours
	In-time	Out-time		In-time	Out-time	
1	10:02:57	20:46:00	10:43:43	10:03:02	20:50:38	10:47:36
2	10:33:18	18:34:09	08:00:91	09:52:05	18:34:13	08:82:08
3	10:16:56	17:22:52	07:05:96	10:05:32	17:22:55	07:17:23
4	09:59:06	19:04:21	09:45:15	10:01:04	19:04:13	09:03:09
5	10:07:54	18:16:43	08:08:89	10:35:03	18:10:38	07:75:35
6	10:03:46	19:27:30	09:23:84	10:18:05	19:27:44	09:09:39
7	09:56:31	18:08:25	08:51:95	13:06:37	19:33:59	06:27:22
8	10:10:52	17:14:36	07:03:84	10:13:15	19:27:30	09:14:15
9	09:30:55	18:30:14	08:99:59	09:21:02	18:30:18	09:09:16
10	10:22:26	18:35:56	08:13:30	12:34:17	20:05:05	07:70:88

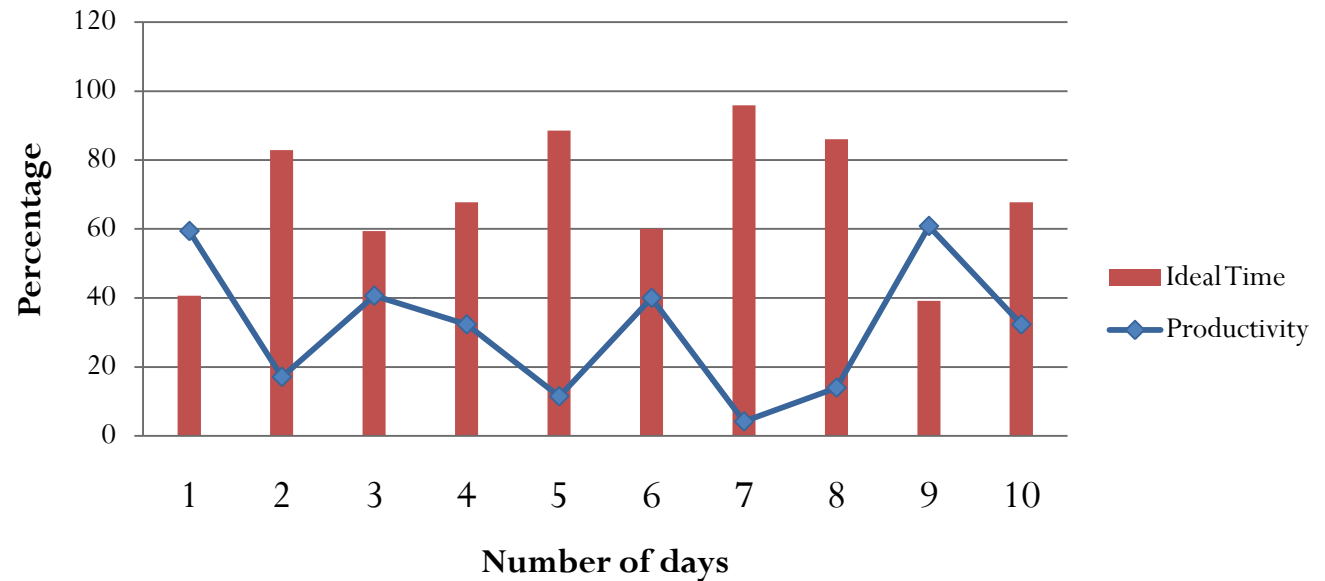
Technician 1- Productivity versus Idle time: Cath Lab



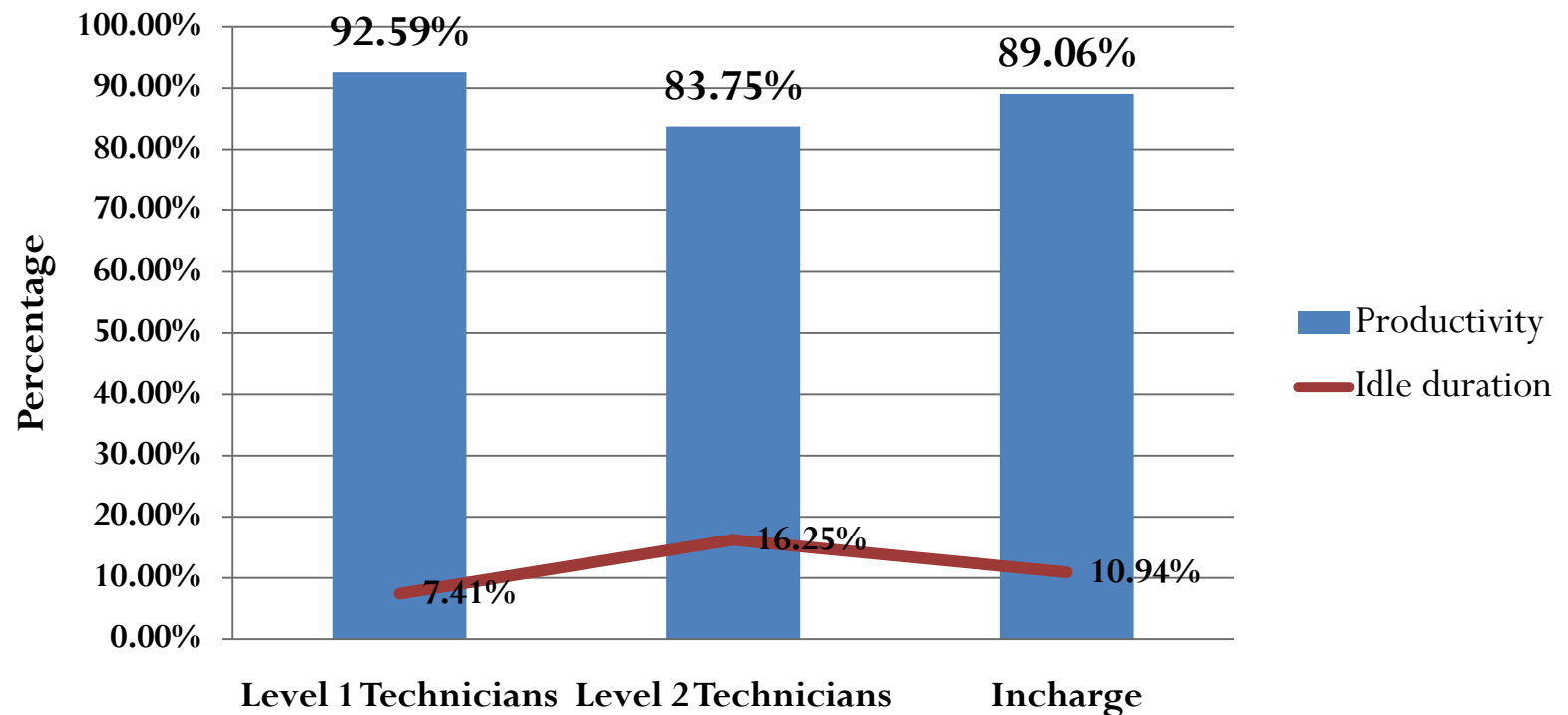
**Productivity is
31.42%
Idle time is
5.18 hours**

**Productivity is
31.21%
Idle time is
5.35 hours**

Technician 2- Productivity versus Idle time: Cath Lab



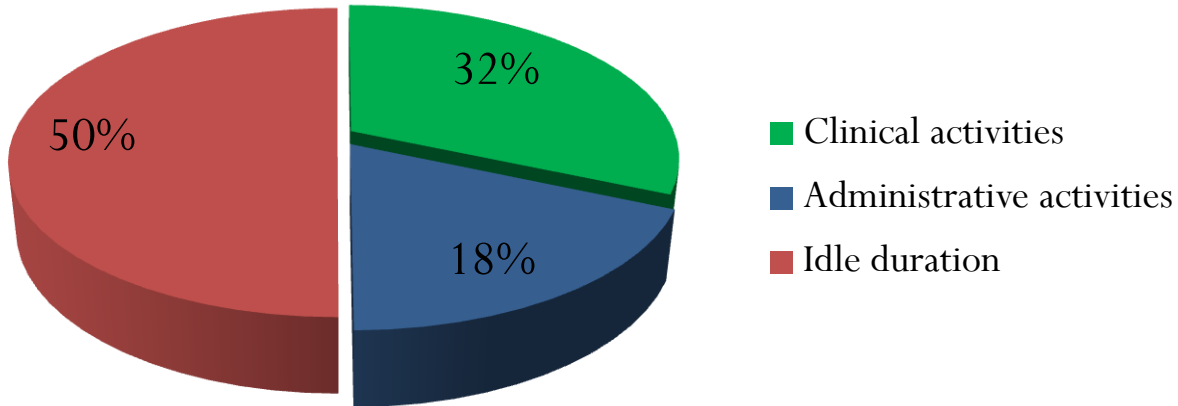
Productivity versus Idle Time- Dialysis



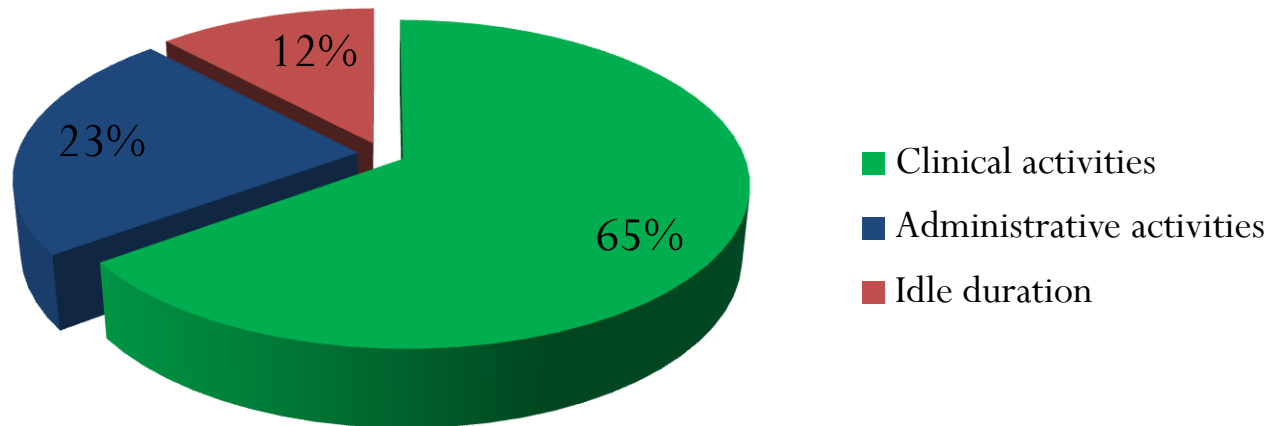
Productivity- 88.4%
Idle time- 52.1 minutes

Percentage Distribution of Broad Activities

Cath Lab



Dialysis



Percentage of Time Spent on Various Activities

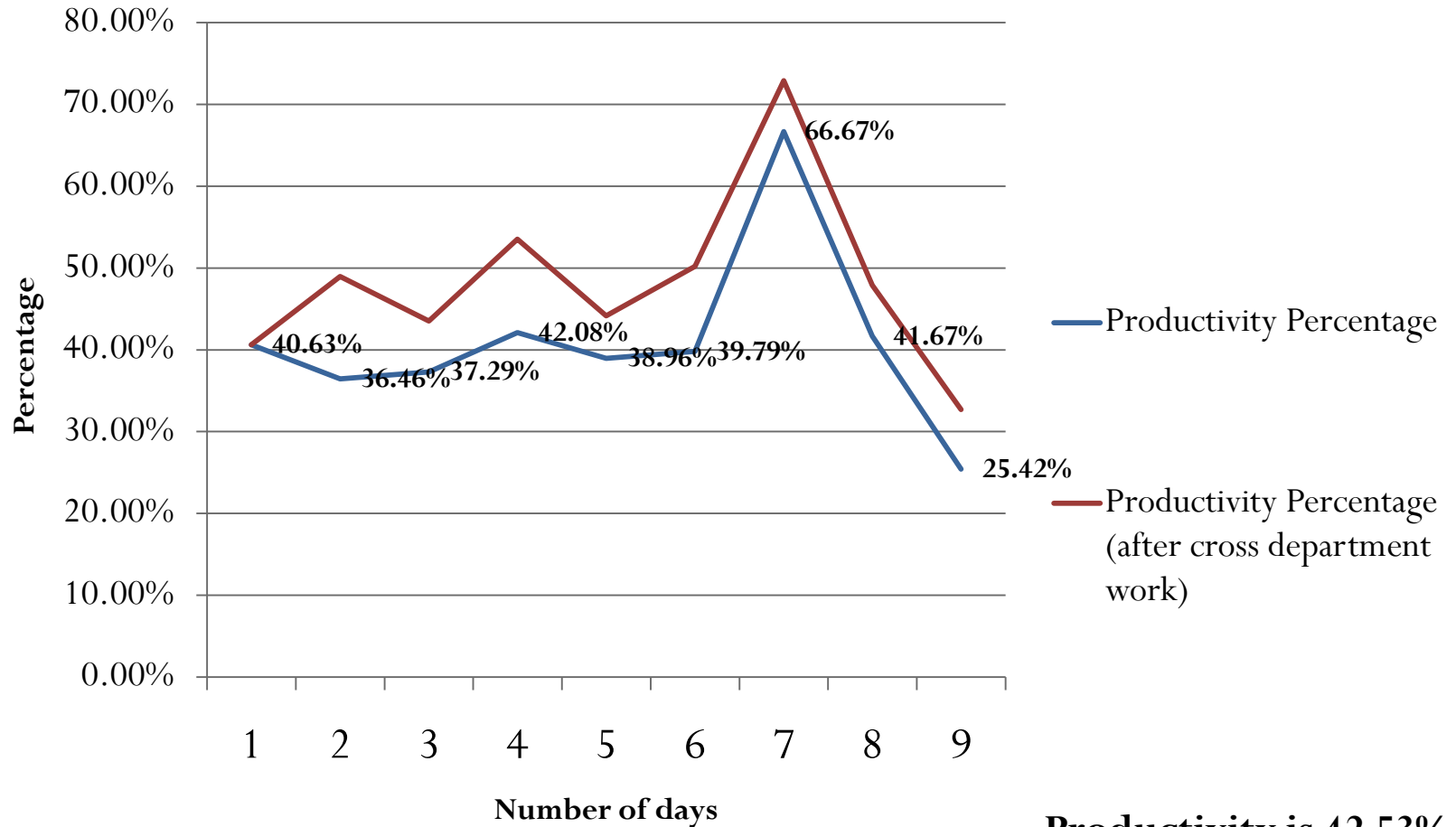
Cath Lab

- Chatting- 33.01%
- In procedure room- 12.04%
- Lunch & tea breaks- 9.62%
- Sitting alone- 8.39%
- Absence from department- 6.77%

Dialysis

- Part preparation to start of dialysis- 13.97%
- Terminating the process- 10.18%
- Setting the machine- 8.98%
- Responding to patient complications- 8.05%
- Monitoring of patients- 7.14%

Productivity Analysis- Customer Care Cath Lab



Productivity is 42.53%
Idle time is 3.35 hours

Recommendations

Cath Lab

- Change in ROTA of technicians from 10am to 7pm.
- Analysis of their job descriptions- Technicians can be utilised in doing computer tasks, report making & preparation of patients.
- Productivity of Customer Care Coordinator was also analyzed to be approximately 41%. We can utilise her in departments with increased work flow
- While calculating the extra time worked, consideration to calculate the under time worked shall also be calculated accordingly.
- By making a more accurate estimation of the procedural duration.
- One phone line into the procedure room itself is recommended

Dialysis

- 1 technician- change in ROTA
- Deploying the technicians in night shift with changes in work off of each to reduce overtime on Sundays.
- Technician going to ICU for HD or SLED is occupied only for monitoring the machine-nursing staff can be send for monitoring the cases
- Beds for each technician can be fixed- evenly distributing the work & responsibility.
- 1 machine for positive cases to avoid Positive patients (of HCV) are being dialysed on machines specified for negative cases.

**THANK
YOU**