A STUDY ON THE CATHETERIZATION LABORATORY PROCESS FLOW

Monali Ghosh (0443) MBA HM 21

Summer Intern at Narayana Institute of Cardiac Science, Bangalore

Under the guidance of

Dr. P.R Sodani (Training Dean IIHMR University, Jaipur), Mr. Karan Dave (Facility Director, NICS, Bangalore)

Introduction :

Narayana Health headquartered in Bangalore is one of India's largest and world's most economical healthcare service provider. Since its inception in 2000 by leading cardiac surgeon DR. Devi Prasad Shetty, as a 225 beds cardiac hospital "Narayana Hrudayalaya" in Bangalore. **Narayana Institute of Cardiac Sciences (NICS)** is a hospital in Bommasandra, Bangalore, India, operated by the Narayana Healthgroup. This superspeciality flagship cardiac hospital of Narayana Health is one of the largest in the world and is equipped with 23 dedicated Cardiac Operation Theatres and 6 Digital Cath Labs of which one is a Hybrid, capable of performing both interventional cardiac ,neuro , radiology procedures as well as complex heart surgeries.[1] It has been accredited by the Joint Commission International and theNABH.

Vision- To provide high quality health care with compassion at an affordable cost on large scale.

Cardiac Catheterization labs represent a significant capital investment for this hospitals. Realizing a return on this investment the hospital need to improve the management techniques of the process flow to improve throughput, maximize equipment utilization and increase efficiency.

Aim of the project-

1.Improve utilization of Cath Lab.

2. Reducing shift in & shift out timing of patients in Cath Lab.

3. Increasing the satisfaction level among staffs, patient and patient's relatives.

Objective:

1.To study the process flow of Cath lab.

2. Addressing the value added and non value added steps in a Cath lab day to day process flow.

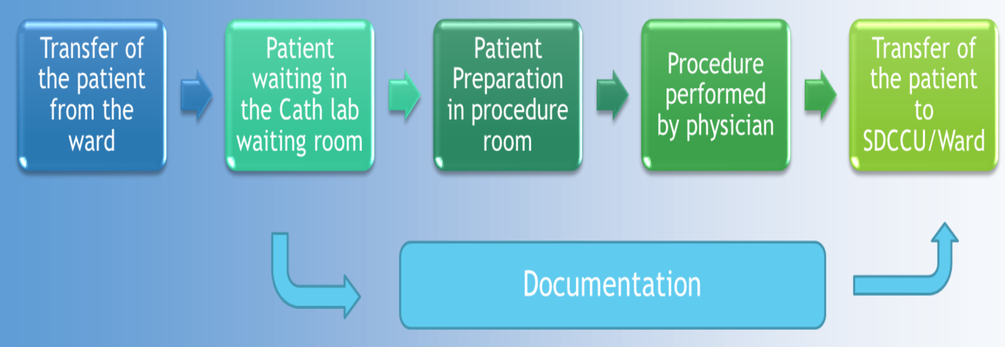
3.To identify time gaps between patient shift in & shift out in Cath lab if any.

4.To provide suitable cost effective recommendation to increase the utilization of the Cath lab if needed.

Methodology-

Methodology	Study Design : Observational - Prospective study
Study Site	Catheterization Laboratory Department of Narayana Institute of Cardiac Science
Sampling Unit	Patients recommended for Cardiac Cath lab Procedures
Sample size	140 (Overall stepwise process flow is observed of 5 patients each day)
Sampling technique	The technique used to collect data was simple Random sampling. **Inclusion Criteria**:– Inpatients who are recommended or cardiac procedures. . **Exclusion Criteria**:- emergency patients referred for cardiac procedures.
Types of Data	Primary Data

Process map for the cardiac catheterization procedure.:



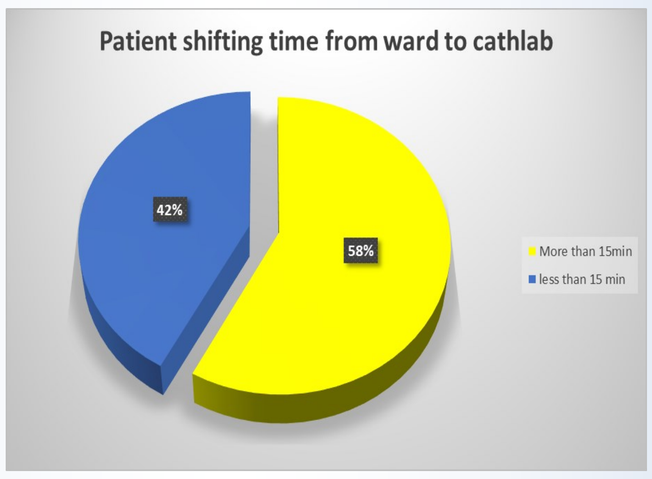
Findings of the Study :

Average time (minutes) taken in each step :

During the study period, 140 cardiac procedures patient's mean time taken for overall Cath Lab process is 146 minutes i,e around **2 hours 26minutes**.

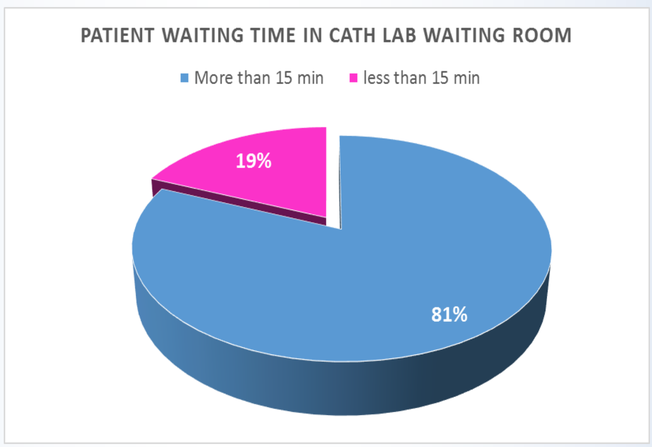
Considering 15 mins as the standard time, to be taken in shifting patient from the ward to Cath labs per hospital protocol-

Current status:



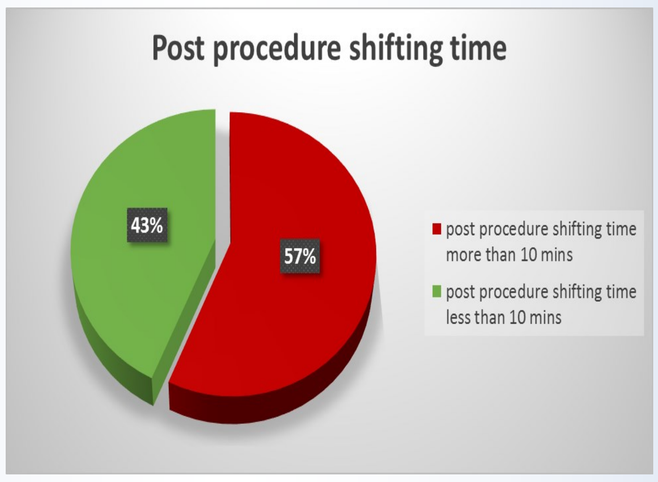
Considering 15 mins as maximum waiting time for the patient in the Cath lab waiting room as per the hospital protocol:

Current status:



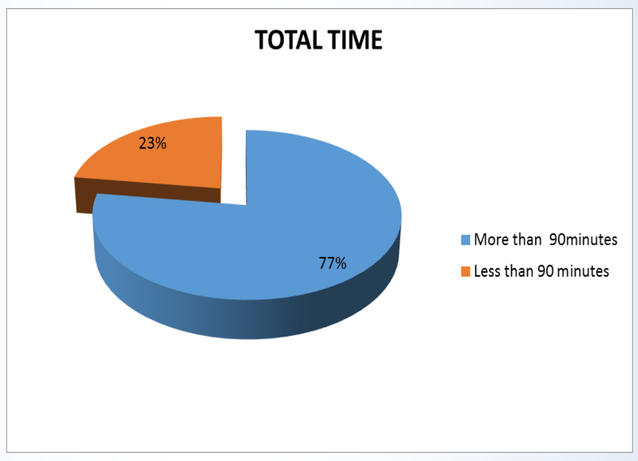
Considering 10 mins as the maximum standard time to be taken to shift the patient, post procedure as per the hospital protocol.

Current status:

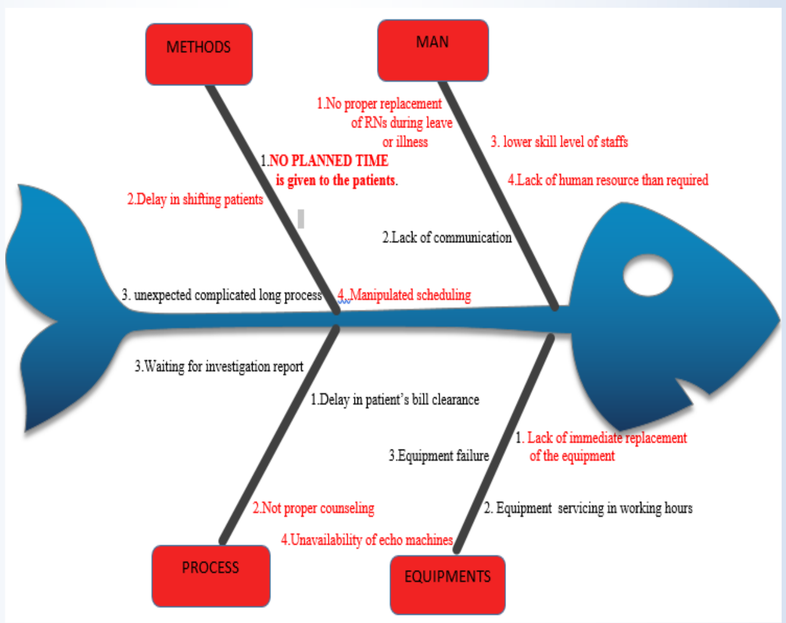


Considering 90 minutes as the standard time for the over all Cath lab Process flow of Diagnostic cases

Current status:



Fish bone analysis of delay reasons of the Cath Lab Process Flow



Results:

- **According to the collected data 58% cases take more than 15 mins, and 42% cases take less than 15 mins to shift patient from ward to Cath lab.**
- **According to the collected data 64% of the patients wait more than 15 min and 36% of the patients wait less than 15 min in the waiting room of**
- **According to the collected data 43% of the cases took less than 10mins and 57% of the cases took more than 10mins to shift the patient from Cath lab to SDCCU or ward.**
- **According to the collected data 70 % of the Diagnostic cases took more than 90 minutes and 30% cases took less than 90% to complete the overall process.**

Recommendations

Giving a planned timing to each of the patients (Inpatients) for performing the procedure can be included in the CCL SYSTEM of NH.

Ground floor Cardiac Cath Lab 1, which currently performs the EP and PPI procedures can be allocated as the Pediatric Cardiac Lab.
4th floor Cath lab 5 which currently performs the Pediatric cases can allocated for the EP & PPI procedure for the adult patients.

1.Required number of the nurses should be appointed to make the process flow efficient.
2.Replacement of the resigned staffs must be done promptly with in the 30 days notice period.

Staff needs continuous training and performance appraisal.

There must be a echo machine available for the ground floor Cath lab exclusively.

A recovery area can the constructed in the ground floor for the stable patients who r currently shifted to the wards directly after the procedures, which is causing long shifting time and shortage of shifting staffs leading to delays in the further procedures.

1.Trainee doctor's scheduling can be avoided on the days with heavy patients load.
2.Admission for the Cath lab procedure should be done at least 2hrs prior to the respected doctor's slot timing.

Nurses must be trained enough to maintain the documentation on time.

Conclusion:

The incorporation of the recommendations may bring in a new approach to Cardiac Catheterization Laboratory function and a new dimension to Cardiac Catheterization Laboratory staff's view of the system. A plan is also proposed to the process owner of the Cardiac Catheterization Laboratory to ensure successful implementation of the recommendations.