Internship Training

At

DCDC Kidney Care, District Hospital Sultanpur,U.P

Project-: Patient waiting time calculation for dialysis

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Post-graduate Diploma in Hospital and Health Management

(2017-2019)

International Institute of Health Management Research, New Delhi

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TABLE OF CONTENTS

S.No.	Contents	Page No.
1.	Introduction – Organization Profile	1-3
2.	General findings on Observational Learning	4
3.	Key Learning	5
4.	Rationale of Study & Review of Literature	6
5.	Objectives Of Study & Methodology	7
6.	Observational analysis & Case Studies	8-9
7.	Observation & Gap Analysis	10-11
8.	Recommendations	12-13
9.	Conclusion	15-16
10.	References	17-18
11.	Annexure 1	19-21

LIST OF ABBREVIATIONS

CGHS-Central Govt. Health Scheme

PPP-Private public pattnership

DCDC-Deep chand dialysis center

WT-Waiting time

SRT- Senior technician

DMO- Duty medical officer

DU-Dialysis unit

ISW- Isolation ward

HIS- Hospital Information System

OPD-out patient department

DRU -dialyser reprocessing unit

WTP-Water treatment plant

NABH- National Accreditation Board for Hospitals and healthcare

OPD- Out Patient Department

DZ-Dialyzer

PCC-Patient care coordinator

KFT-Kidney function test

CKD-Chronic kidney diseases

UHID- Unique hospital identification

INTRODUCTION

As DCDC Kidney care provides dialysis care service on an Outpatient department basis. It is a growing organisation in the field of dialysis service provider. It needs to assess the level of satisfaction from the patient by Delivering dialysis services to them. Research can provide the organisation about the weakness and the strength so that the organisation can put its best efforts for corrective and preventive actions.

Waiting time : Waiting time refers to the **time** a patient waits in the clinic before being seen by one of the clinic medical staff.[2] Patient clinic **waiting time** is an important indicator of quality of services offered by **hospitals**. The amount of **time** a patient waits to be seen is one factor which affects utilization of **healthcare** .

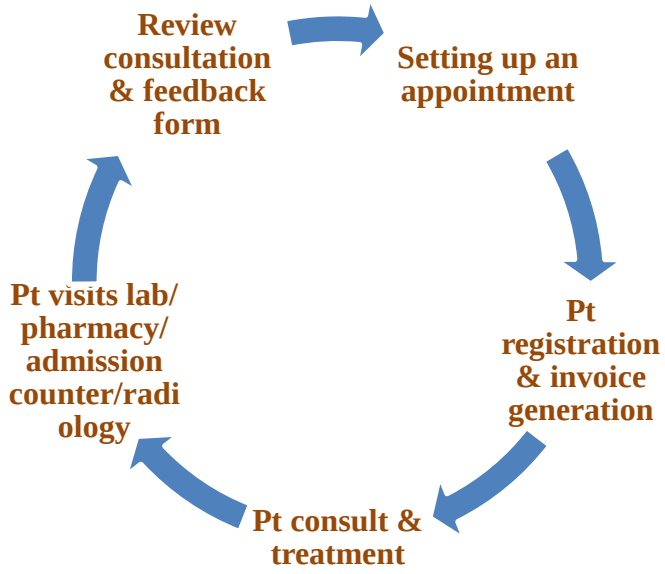
An outpatient department is the most important part of a hospital designed for the treatment of outpatients, people who have health problems and visit the hospital for treatment/Diagnosis but don't at that time require a bed or to be admitted for overnight care in Hospital. Modern outpatient departments provides a wide range of treatment services, diagnostic & investigation, imaging and minor surgical procedures**.**

As OPD being the first contact point between the hospital staff & patient, it should be start on time as it directly related to the patient's satisfaction Improper timings of the OPD contribute to patient's negative perception and attitude towards hospital and their consultants. In the rapid growing healthcare industry every hospital tries hard to gain the market share edge. So, it is important to meet with the patient's need and their satisfaction level to survive in the market..

Hospitalization can be traumatic so proper service delivery as well as service delivery on time could lessen the patient's agony and moreover, this could 'add value' to patient satisfaction.

Patient Care-:

The most important function of a hospital is to provide care of sick and injured patient and restoration of good health of Patients. Ethically, Care/service should be given to all patient without any prejudicial of social, economical or radical nature. The success with which a hospital contributes towards meeting the patient's need can be gauged by the management of the hospital. Outpatient is customer whom hospital provide Curative, Diagnostic, Therapeutic or preventive service through the hospitals facilities and who at the time is not admitted as an inpatient of the hospital.



Outpatient-:

Out Patient Care/Service are the foremost service given by the hospital as it provides services to a large number of Customer at affordable cost. The utilization of many of the other services provided by the hospital, often depend on how satisfied the patient is with the outpatient services provided. According to report 8-10 per cent of Out patients need hospitalization. A well organized and professionally run hospital, not only can such Out Patient Department help to avoid confusion, frustration and overspending by fearful patients but can also manage the flow of inpatients to the hospitals. An outpatient is a patient who is not admitted in hospital for stay in night but who visits a Hospital Out Patient Department. Out Patient Department is defined as a part of the hospital with provide physical and medical

facilities and other staff in required number, with regular scheduled hours, to provide care for patients who are not admitted as inpatients.

Waiting Time-:

Patients waiting time has been defined as "The time duration from when a patient enters the outpatient department to the time of the patient leaves the Out Patient Department''.

SERVICE PROVIDED BY THE ORGANISATION

- Hemo dialysis is a treatment to filter waste material and water from blood. Dialysis act as an artificial kidney .
- Hemo dialysis can be outpatient or inpatients therapy.
- DCDC kidney care provides dialysis on OPD basis, One patient require 3-4 hours to complete dialysis session so for that it is necessary to calculate waiting time of patients for dialysis and scheduling.
- Research can provide the organisation about the weakness and the strength so that the organisation can put its best efforts for corrective and preventive actions.

Review Of Literature-:

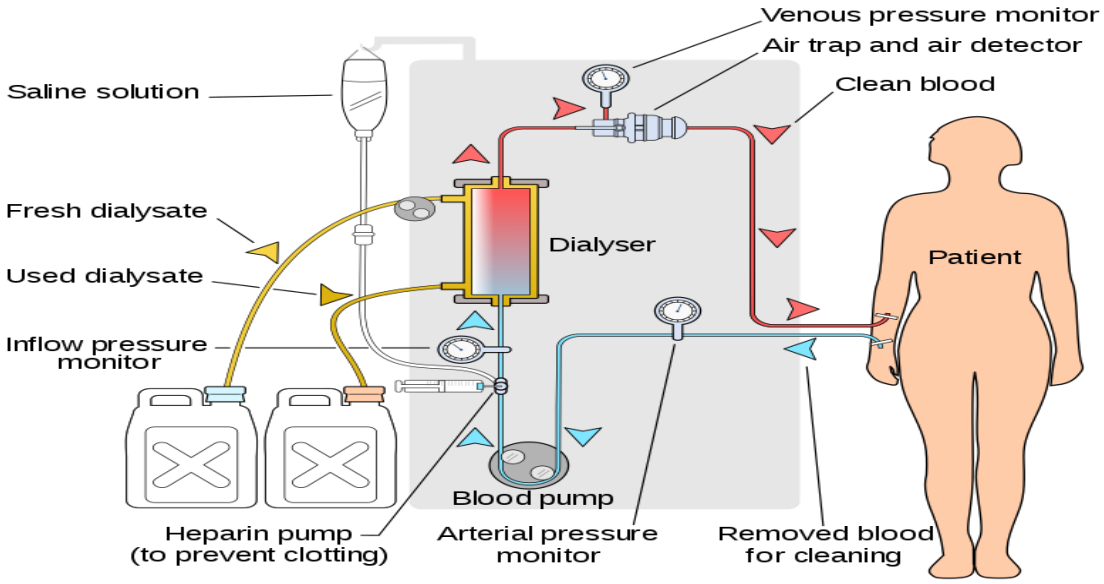
OPD is defined as the most important component of the hospital which have physical and medical facilities with diagnostic, imaging, health check up facilities and other staff in a required number, with regular scheduled hours, to provide care to the patients who are not admitted as in patients area. The OPD forms the façade of the hospital and is invariably one of the foremost services provided by the hospital. It witnesses maximum footfall daily when compared to any other department in the hospital. These facts simply highlight the importance of efficient and effective OPD management. If run effectively, the OPD can lessen the burden on the inpatient department dramatically. One of the major problem faced by the hospital waiting periods and overcrowding in a running Out patient department. The waiting time is one of the most important quality indicators OPD service. Thus a Long waiting time is directly reflects on the quality of service being provided in OPD. The patients spend essential time in the OPD and waiting for consulting by healthcare professionals. The degree to which patients are satisfy with the service received is strongly linked to the quality

of the waiting experience. Healthcare organizations are make great effort to achieve to deliver quality services must effectively manage their OPD waiting time. The amount of time a patient waits to be seen is one factor which affects utilization of healthcare services. If patients waits unnecessarily can be lead to stress for both patient and doctor and Floor manager. Waiting time is a tangible aspect of practice that patients will use to judge health personnel, even more than their knowledge. It is the total time unnesseserly spend in sending the patient from one chamber to another. These include the time spent for registration, for attending the physician, for giving of samples for investigations and for collecting drugs including receiving instructions for their use. Patient's waiting depends on many factors including efficiency, sincerity and punctuality managing capability of the hospitals as well as the existing facilities of the Hospital. Dialysis works on the principles of the diffusion of solutes and ultrafiltration of fluid across a semi-permeable membrane. Diffusion is a property of substances in water; substances in water tend to move from an area of high concentration to an area of low concentration.[7]Blood flows by one side of a semi-permeable membrane, and a dialysate, or special dialysis fluid, flows by the opposite side. A semipermeable membrane is a thin layer of material that contains holes of various sizes, or pores. Smaller solutes and fluid pass through the membrane, but the membrane blocks the passage of larger substances (for example, red blood cells, large proteins). This replicates the filtering process that takes place in the kidneys when the blood enters the kidneys and the larger substances are separated from the smaller ones in the glomerulus.

Osmosis diffusion ultrafiltration and dialysis

The two main types of dialysis, hemodialysis and peritoneal dialysis, remove wastes and excess water from the blood in different ways.[1]Hemodialysis removes wastes and water by circulating blood outside the body through an external filter, called a dialyzer, that contains a semipermeable membrane. The blood flows in one direction and the dialysate flows in the opposite. The counter-current flow of the bloodand dialysate maximizes the concentration gradient of solutes between the blood and dialysate, which helps to remove more urea and creatinine from the blood. The concentrations of solutes normally found in the urine (for example potassium, phosphorus and urea) are undesirably high in the blood, but low or absent in the dialysis solution, and constant replacement of the dialysate ensures that the concentration of undesired solutes is kept low on this side of the membrane. The dialysis solution has levels of minerals like potassium and calcium that are similar to their natural

concentration in healthy blood. For another solute, bicarbonate, dialysis solution level is set at a slightly higher level than in normal blood, to encourage diffusion of bicarbonate into the blood, to act as a pH buffer to neutralize the metabolic acidosis that is often present in these patients. The levels of the components of dialysate are typically prescribed by a nephrologist according to the needs of the individual patient.



Indications

The decision to initiate dialysis or hemofiltration in patients with kidney failure depends on several factors. These can be divided into acute or chronic indications.

Acute indication

Indications for dialysis in a patient with acute kidney injury are summarized with the vowel mnemonic of "AEIOU".

1. Acidemia from metabolic acidosis in situations in which correction with sodium bicarbonate is impractical or may result in fluid overload.
2. Electrolyte abnormality, such as severe hyperkalemia, especially when combined with AKI.
3. Intoxication, that is, acute poisoning with a dialyzable substance. These substances can be represented by the mnemonic SLIME: salicylic acid, lithium, isopropanol, magnesium-containing laxatives and ethylene glycol.
4. Overload of fluid not expected to respond to treatment with diuretics

5. Uremia complications, such as pericarditis, encephalopathy, or gastrointestinal bleeding.

Chronic indications

Chronic dialysis may be indicated when a patient has symptomatic kidney failure and low glomerular filtration rate (GFR < 15 mL/mins[18] Between 1996 and 2008, there was a trend to initiate dialysis at progressively higher estimated GFR, eGFR. A review of the evidence shows no benefit or potential harm with early dialysis initiation, which has been defined by start of dialysis at an estimated GFR of greater than 10ml/min/1.73^2. Observational data from large registries of dialysis patients suggests that early start of dialysis may be harmful The most recent published guidelines from Canada, for when to initiate dialysis, recommend an intent to defer dialysis until a patient has definite kidney failure symptoms, which may occur at an estimated GFR of 5-9ml/min/1.73^2.

Complications

Fluid shifts

Hemodialysis often involves fluid removal (through ultrafiltration), because most patients with renal failure pass little or no urine. Side effects caused by removing too much fluid and/or removing fluid too rapidly include low blood pressure, fatigue, chest pains, leg-cramps, nausea and headaches. These symptoms can occur during the treatment and can persist post treatment; they are sometimes collectively referred to as the dialysis hangover or dialysis washout. The severity of these symptoms is usually proportionate to the amount and speed of fluid removal. However, the impact of a given amount or rate of fluid removal can vary greatly from person to person and day to day. These side effects can be avoided and/or their severity lessened by limiting fluid intake between treatments or increasing the dose of dialysis e.g. dialyzing more often or longer per treatment than the standard three times a week, 3–4 hours per treatment schedule.

Access-related

Since hemodialysis requires access to the circulatory system, patients undergoing hemodialysis may expose their circulatory system to microbes, which can lead to bacteremia, an infection affecting the heart valves (endocarditis) or an infection affecting the bones (osteomyelitis). The risk of infection varies depending on the type of access used (see below).

Bleeding may also occur, again the risk varies depending on the type of access used. Infections can be minimized by strictly adhering to infection control best practices.

Anticoagulation-related

Heparin is the most commonly used anticoagulant in hemodialysis, as it is generally well tolerated and can be quickly reversed with protamine sulfate. Heparin allergy can infrequently be a problem and can cause a low platelet count. In such patients, alternative anticoagulants can be used. In patients at high risk of bleeding, dialysis can be done without anticoagulation.

First-use syndrom

First-use syndrome is a rare but severe anaphylactic reaction to the artificial kidney. Its symptoms include sneezing, wheezing, shortness of breath, back pain, chest pain, or sudden death. It can be caused by residual sterilant in the artificial kidney or the material of the membrane itself. In recent years, the incidence of first-use Syndrome has decreased, due to an increased use of gamma irradiation, steam sterilization, or electron-beam radiation instead of chemical sterilants, and the development of new semipermeable membranes of higher biocompatibility. New methods of processing previously acceptable components of dialysis must always be considered. For example, in 2008, a series of first-use type of reactions, including deaths, occurred due to heparin contaminated during the manufacturing process with oversulfated chondroitin sulfate.[3]

Cardiovascular

Longterm complications of hemodialysis include hemodialysis-associated amyloidosis, neuropathy and various forms of heart disease. Increasing the frequency and length of treatments have been shown to improve fluid overload and enlargement of the heart that is commonly seen in such patients.[4][5] Due to these complications, the prevalence of complementary and alternative medicine use is high among patients undergoing hemodialysis.

Vitamin Deficiency

Folate deficiency can occur in some patients having hemodialysis.

Semipermeable membrane

The principle of hemodialysis is the same as other methods of dialysis; it involves diffusion of solutes across a semipermeable membrane. Hemodialysis utilizes counter current flow, where the dialysate is flowing in the opposite direction to blood flow in the extracorporeal circuit. Counter-current flow maintains the concentration gradient across the membrane at a maximum and increases the efficiency of the dialysis.

Fluid removal (ultrafiltration) is achieved by altering the hydrostatic pressure of the dialysate compartment, causing free water and some dissolved solutes to move across the membrane along a created pressure gradient.

The dialysis solution that is used may be a sterilized solution of mineral ions. Urea and other waste products, potassium, and phosphatediffuse into the dialysis solution. However, concentrations of sodium and chloride are similar to those of normal plasma to prevent loss. Sodium bicarbonate is added in a higher concentration than plasma to correct blood acidity. A small amount of glucose is also commonly used.

Note that this is a different process to the related technique of hemofiltration.

Access

Main article: Vascular access

Three primary methods are used to gain access to the blood for hemodialysis: an intravenous catheter, an arteriovenous fistula (AV) and a synthetic graft. The type of access is influenced by factors such as the expected time course of a patient's renal failure and the condition of his or her vasculature. Patients may have multiple access procedures, usually because an AV fistula or graft is maturing and a catheter is still being used. The placement of a catheter is usually done under light sedation, while fistulas and grafts require an operation.

Water system

A hemodialysis unit's dialysate solution tanks

An extensive water purification system is absolutely critical for hemodialysis. Since dialysis patients are exposed to vast quantities of water, which is mixed with dialysate concentrate to form the dialysate, even trace mineral contaminants or bacterial endotoxins can filter into the patient's blood. Because the damaged kidneys cannot perform their intended function of removing impurities, ions introduced into the bloodstream via water can build up to hazardous levels, causing numerous symptoms or death. Aluminum, chloramine, fluoride,

copper, and zinc, as well as bacterial fragments and endotoxins, have all caused problems in this regard.

For this reason, water used in hemodialysis is carefully purified before use. Initially it is filtered and temperature-adjusted and its pH is corrected by adding an acid or base. Then it is softened. Next the water is run through a tank containing activated charcoal to adsorb organic contaminants. Primary purification is then done by forcing water through a membrane with very tiny pores, a so-called reverse osmosis membrane. This lets the water pass, but holds back even very small solutes such as electrolytes. Final removal of leftover electrolytes is done by passing the water through a tank with ion-exchange resins, which remove any leftover anions or cations and replace them with hydroxyl and hydrogen ions, respectively, leaving ultrapure water.

Even this degree of water purification may be insufficient. The trend lately is to pass this final purified water (after mixing with dialysate concentrate) through a dialyzer membrane. This provides another layer of protection by removing impurities, especially those of bacterial origin, that may have accumulated in the water after its passage through the original water purification system.

Once purified water is mixed with dialysate concentrate, its conductivity increases, since water that contains charged ions conducts electricity. During dialysis, the conductivity of dialysis solution is continuously monitored to ensure that the water and dialysate concentrate are being mixed in the proper proportions. Both excessively concentrated dialysis solution and excessively dilute solution can cause severe clinical problems.

Dialyzer

The dialyzer is the piece of equipment that actually filters the blood. Almost all dialyzers in use today are of the hollow-fiber variety. A cylindrical bundle of hollow fibers, whose walls are composed of semi-permeable membrane, is anchored at each end into potting compound (a sort of glue). This assembly is then put into a clear plastic cylindrical shell with four openings. One opening or blood port at each end of the cylinder communicates with each end of the bundle of hollow fibers. This forms the "blood compartment" of the dialyzer. Two other ports are cut into the side of the cylinder. These communicate with the space around the hollow fibers, the "dialysate compartment." Blood is pumped via the blood ports through this bundle of very thin capillary-like tubes, and the dialysate is pumped through the space

surrounding the fibers. Pressure gradients are applied when necessary to move fluid from the blood to the dialysate compartment.

OBJECTIVE OF STUDY

GENERAL OBJECTIVE

- To study the average Waiting Time Calculation at DCDC kidney care, District Hospital, Sultanpur UP

SPECIFIC OBJECTIVE

- 1. To determine the flow of patient and the average time spent In Dialysis centre
- 2. To identify the factors those are responsible for high waiting time in DCDC kidney care
- 3. To recommend appropriate suggestions to optimize the waiting time in Dialysis centre

METHODOLOGY

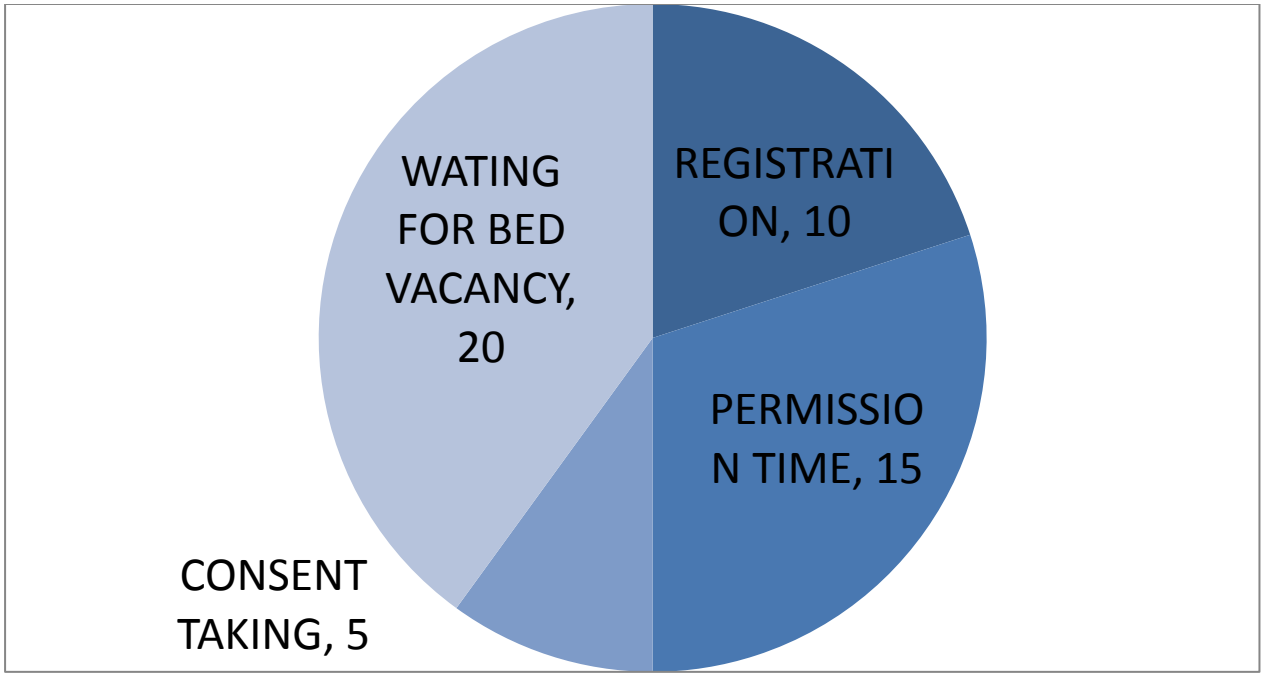
- Duration of Study: 3 MONTHS
- Place of Study: DCDC Kidney care, DISTRICT HOSPITAL SULTANPUR, UP
- Study Population: 100 Dialysis Patients
- Study Design: Descriptive Cross Sectional study
- Sampling Technique: Convenient sampling (Non Probability Sampling)

CASE STUDY-1

All patients came for dialysis

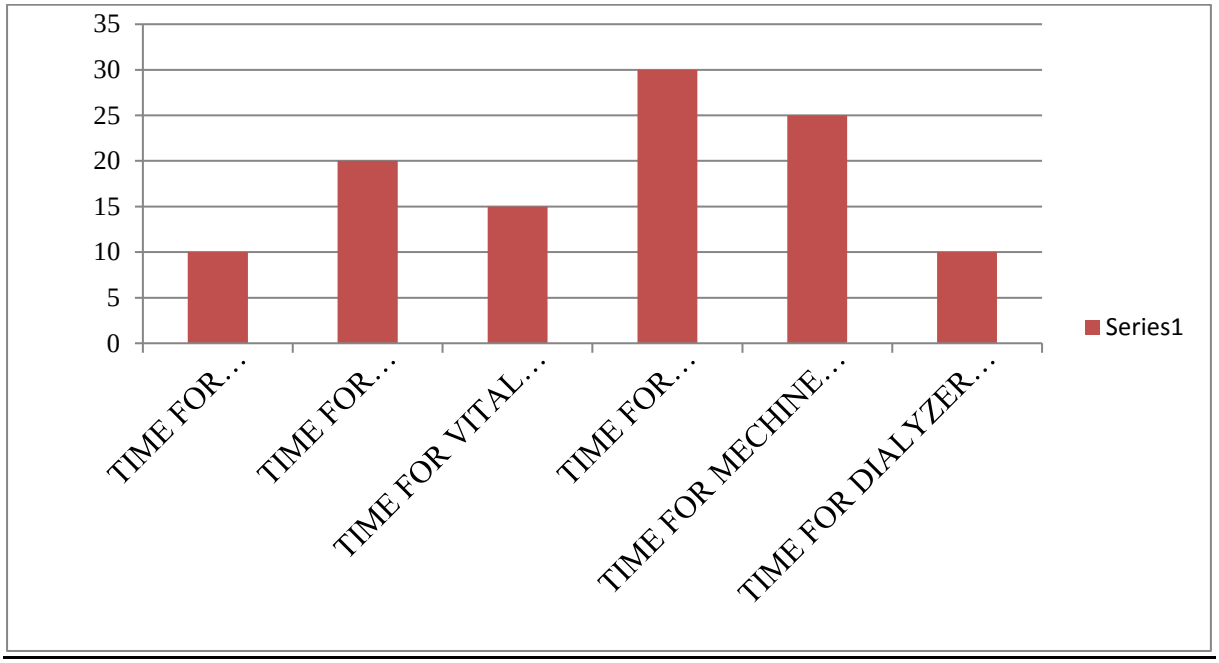
MINIMUM TIME SPENT AT EACH ACTIVITY

- Registration time-10 mins
- Permission time -15mins
- Consent taking-5mins
- Waiting for bed vacancy-20mins



AVERAGE TIME REQUIRED FOR FOLLOWING ACTIONS

ACTIONS	TIME IN MINUTE
TIME FOR REGISTRATION	10
TIME FOR CONSULATION	20
TIME FOR VITAL CHECK UPS	15
TIME FOR PERMISSION ISSUE	30
TIME FOR MECHINE DISINFECTION	25
TIME FOR DIALYZER PRIMING	10



RESULT

- As per daily observation data shows that most of patients are having waiting time of more than 1 hour .the average waiting time is 50mins.
- The major cause for long waiting time is dialysis machine disinfection process, dialyzer wash time and high bed occupancy rate.
- There are lots of gaps which need to analyse for waiting time consumption.
- shortage of staffs ,lack of appointment systems , one way billing system are the predisposing factors ,which has been observed by routine observation and patient opinion.

GAP ANALYSIS

- Shortage of staff
- Shortage of machine
- Single counter billing process
- Lack of appointment system

- Inadequate training of staffs
- Single machine use for dialyzer wash
- Congestion due to poor infrastructure
- Consultant doctors are not following their time
- Patient attendant are not present during the time of consent taking

SUGESTION AND RECOMENDATION

- Increase number of staff
- Provide more bed
- Introduce appointment system
- Should provide one swipe machine for billing
- Proper training of staff should be provided More machine should be installed for dialyzer wash
- Proper infrastructure planning of dialysis unit
- Strengthening patient scheduling system sift wise for time consumption both for staff and patient
- Proper time for duty doctor
- Early disinfection should be carried out to reduce waiting time

CONCLUSION

- Study shows that average waiting time of patient coming to HEMODIALYSIS each day walk in is more in comparison to the appointment patient.
- Patient also comes on scheduled appointment time sometimes getting delayed.
- Television facilities required at the waiting hall to make patient feel good. The objective was to determine the various causes of increased waiting time in the OPD and do a root cause analysis of the same, thus reducing the bottlenecks in the entire process. The two major bottlenecks were found to be waiting time for consultation and waiting time for billing.

- Patient attending the hospitals are responsible for brand and image of the hospital and hospital management has equal responsible to take care of the patients..
- During the period of 2.5 months of dissertation I learnt a lot about the functional flow OPD department.
- The waiting time of the patient should be consumed by providing them some consultation package with minimal charges which can add to the benefit of both patient and hospital.
- As per the daily observations carried out by me it was found that the departments are working in a proper order.
- Some loopholes are always found in a practical system and the same exists in this hospital too. But these loopholes are minimal and when ever found they can be eliminated at the earliest.
- Patients also come sometime delay, not come by as per schedule.

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Annnexure-1

DISTRICT HOSPITAL SULTANPUR,U.P

OPERATED BY

DCDC KIDNEY CARE

Name of PatientAge/Sex,

Contact no- Patient ID.

In our efforts sere you better, your feedback is very important to us and we welcome your comments about the care you receive at DCDC Kidney Care. Here this is to inform you that these forms are being shared with you for taking feedbacks for the purpose to conduct a study on patient satisfaction rate at DCDC kidney care.

I have read the foregoing information or it has been read to me .I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a part of this study

Patient signature.....

Statement by researcher

I confirm that the participant was given an opportunity to ask question about the study and all the questions asked by the participant have been answered correctly and to the best of my ability .I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

Signature of Researcher.....

Name of Researcher.....