



Rotary Club of Thane Northend

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Dear All,

Reg : Project of Mobil Dialysis Van in Thane

We wish to introduce our Rotary Club of Thane Northend as one of the premier clubs of Thane. Rotary Club of Thane Northend was chartered on 29th April, 1992. The club has been a super performer since the inception. During these 28 years of journey our club has done remarkable projects in various field. Rotary Club of Thane Northend Charitable Trust was formed in the year 2000 and has done various projects. To name a few we have constructed more than 200 Check dams in Jawahar, Mokada, Wada area, Various Jaipur Foot camps benefiting more than 250 beneficiaries, Built and maintaining the only War Memorial in Civilian area in Thane, Human Milk Bank at Kalwa Hospital, Vocational Training Centre in Thane. Apart from these there have been numerous ongoing projects of health check-up camps and awareness, Environmental Projects, School up gradation and support to kids, Toilet block and wash stations in school and villages, etc.

During these pandemic times we have distribute more than 81,500 meals to the migrant works & the needy in the slums. We also donated Masks & Hand Sanitizers to the Thane Municipal Corporation, Thane Fire Brigade stations and Thane Police stations. We also donated Chawayanprash (immunity boosters) to all the police stations in Thane.

Rotary Club of Thane Northend has also built & donated Toilet blocks to more than 50 households staying on the outskirts on Thane in the Adivasi Villages. During the year 2019-2020 we also built a toilet block for an Adivasi school consisting of more than 250 students both boys & girls at Sonshiv village, Wada.

Our club was instrumental in providing Solar Water Heaters to 7 different Adivasi residential schools, were more than 500 students both boys & girls



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stay for the entire year. This water heating system enables these students to bath in hot water throughout the year, the total capacity of the system was 25,000 litres per day heated.

We have now envisaged on a very noble caused project of helping senior citizen and patients who are already in pain and have to go to hospitals on regular basis for procedures. The detailed project report and working model is attached.

Rotary Club of Thane Northend will execute this project through its trust and all the donations received in the trust will be eligible for IT benefits. We are regularly filing all IT returns and also the report to Charity Commission per mandatory requirements.

We look forward to your kind support in funding this project from your CSR budget and help us in this noble cause.

With Warm Regards,
Yours in Rotary Service,

Rtn. Rahul Khandelwal

President 2020 - 2021

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Mobile Dialysis Van Project

Summary

Haemodialysis is the most common and efficient treatment of kidney disease. Dialysis is essential for patients suffering from “End Stage Renal Disease (ESRD)” and it is observed from preliminary studies that the prevalence of Chronic Kidney Disease (CKD) the precursor to ESRD is 0.8% in India. The major contributing causes to CKD are diabetes and high blood pressure among others; these diseases are increasing at an alarming rate across the country. About 175,000 new people have kidney failure (stage V CKD) every year in India and require dialysis and/or kidney transplantation. It has also been estimated that about 60% to 70% of CKD cases are offshoots of diabetes and hypertension. CKD takes about 10 to 15 years to set in and therefore; it is imperative to take preventive measures at the earliest. Not doing so can lead to kidney failure, which can only be managed in two ways, dialysis and transplant, which many Indians cannot afford. Additionally, only about 3-4% get kidney transplant, which this the best treatment for kidney failure and additional 20% to 25% can afford dialysis, indicating that majority of patients do not receive the treatment of kidney failure either because of financial constraints or lack of facilities near their area.

Hemodialysis Treatment Process

For the past 50 years, Hemodialysis has been the most common method used to treat advanced and permanent kidney failure. 89% of patients with kidney failure – end stage kidney disease – need hemodialysis in order to clean the blood and remove excess fluids from the body [14]. Healthy kidneys clean your blood by removing excess fluid, minerals, and wastes, while producing hormones that keep your bones strong and your blood healthy. If the kidneys begin to fail, harmful waste starts to build, eventually poisoning the body. Blood pressure rises, the body retains excess fluids and the kidneys can no longer regenerate red bloods cells.

There are three main types of dialysis treatment, peritoneal, hemofiltration, and hemodialysis. Peritoneal dialysis is a more aggressive form of treatment for severe kidney failure.

Hemodialysis is much more common and preferred by patients, due to the effectiveness and efficiency of the treatment. Hemodialysis treatment is performed for three to five hours every other day – three to four times a week. Patients can also undergo nocturnal dialysis for a longer duration in order to adhere to a normal daily life. Treatment is provided for patients through treatment centers around the world that specialize in dialysis treatments. Hospitals are also equipped to treat patients with kidney failure, but there are often issues with lack of vacancy.

There are three main jobs of a hemodialysis machine, to pump blood and monitor the flow rate for safety, to clean the waste from blood, and to watch blood pressure and the rate of fluid removal from the body. During treatment, two needles are used to draw the polluted blood from the body and return the cleansed blood to the patient. The blood is drawn from the body a few ounces at a time in order to protect the patient from severe blood loss if any complications should arise during the treatment. The polluted blood is passed through a special filter called a dialyzer, which emulates the filtering functions of a working kidney.

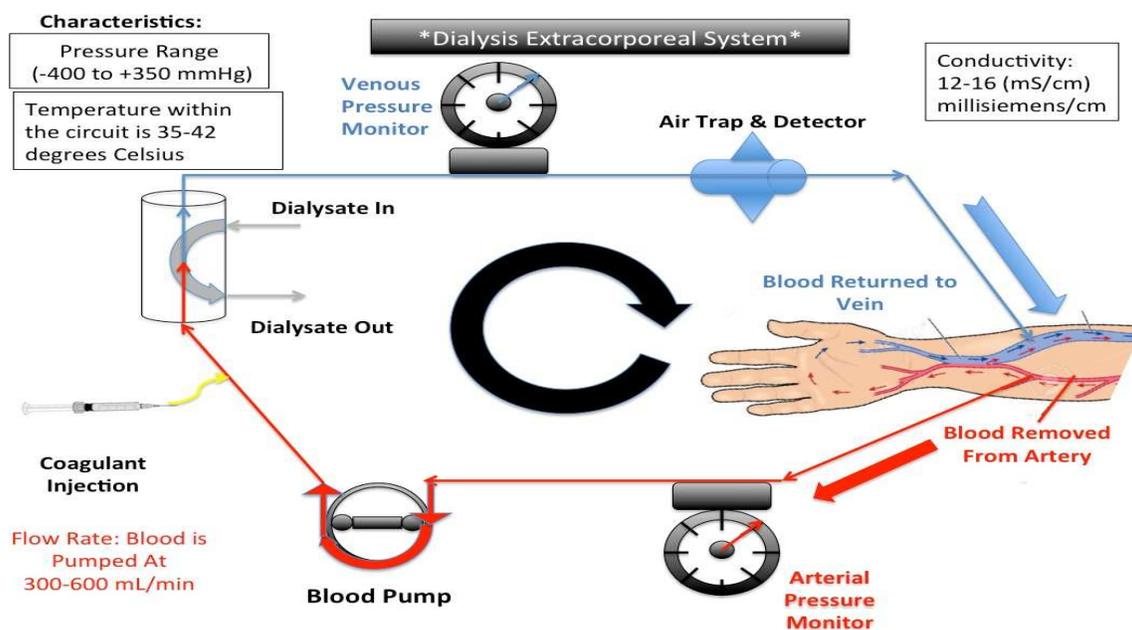
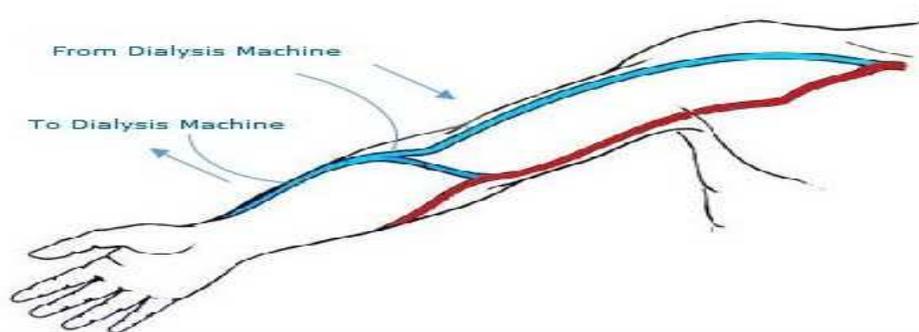


Figure above shows the typical path that the blood will take once outside the body. The unfiltered blood leaves the body from the AV fistula, located on the forearm. Arterial pressure is read by the machine and observed by the care provider to determine the flow rate of the blood. Heparin is then mixed with the blood to prevent clotting while in the extracorporeal system before the dialyzer cleans the blood using both a filter and dialysate mixture. This fluid flows in the opposite direction to the blood. The machine also monitors the venous pressure of the blood after passing through the dialyzer. An air trap ensures that there are no air bubbles in the blood returning to the body to prevent embolisms from occurring.

Through the extracorporeal circuit described above, the flow rate of the blood fluctuates from 200 to 600 mL/min. The pressure varies from -400 mmHg to 350 mmHg and the temperature range is between 35 and 42 degrees Celsius to ensure the blood remains physiologically similar to normal body temperature. The dialyzer contains a filter that is selectively permeable, meaning that it allows fluids and waste, such as uremic toxins, to pass through. The dialyzer also prevents the exchange of blood components, such as microorganisms and endotoxins.

There are three major access points for connecting the dialysis machine to the body, including the arteriovenous grafts on the upper arm, venous catheters located near the collarbone, and the arteriovenous fistula located near the wrist as shown in Figure below



Arteriovenous Fistula



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The safest access point is the AV fistula compared with grafts or venous catheters. The grafts and venous catheters have a high risk of infection, as well as a large chance of disconnection during treatment.

The Project

This project focuses on operating a mobile dialysis unit for the convenience of **dialysis to senior citizen and also to patients having mobility issues**. Benefits of Mobile dialysis unit are as below:

- Patients often cannot drive themselves to and from a dialysis facility, as the process can be physically uncomfortable and draining. If this is the case, a two-way ambulance transport may be the only way for the patients to get to a facility, and this drives up the already high cost of treatment. The development of a mobile dialysis vehicle is therefore very beneficial, as it is able to drive to a patient's location to administer dialysis potentially right in their driveway.
- Full time work schedule is affected of attending family member. This can be eliminated with mobile dialysis unit
- Waiting at the hospital is always taxing but with the mobile dialysis unit, the visit to the hospital is totally ruled out.

Market Assessment

The exact number of persons requiring dialysis in the country is still not known authoritatively. The Indian Society of Nephrology has established a Chronic Kidney Disease (CKD) registry and this is expected to provide useful epidemiological data in future.

In the prevention study done in Chennai, the prevalence at the community level is 8600 per million population (pmp) in the study group and 13900 pmp in the control group. The second study based in Delhi revealed a prevalence of CKD (serum creatinine more than 1.8 mg %) at 7852 pmp. The third study from Bhopal revealed an incidence of 151



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pmp suffering from end stage renal disease (ESRD).

AIIMS, New Delhi conducted two studies, the first study covering a population of 4712 subjects in New Delhi who participated in a blood biochemistry test. Mean age was 42.38 ± 12.54 years, 56.16% were male. Thirty-seven were found to have chronic renal failure (prevalence rate of 0.78%). If these data are applied to India's 1 billion population there are ~7.85 million CRF patients in India. Aetiologically, diabetes (41%), hypertension (22%), chronic glomerular nephritis (16%), chronic interstitial disease (5.4%), ischaemic nephropathy (5.4%), obstructive uropathy (2.7%), miscellaneous (2.7%) and unknown cause (5.4%) constituted the spectrum.

In the second study by AIIMS 48 centers were distributed all over India. Data were based on prospective investigations conducted over a period of one month (33 hospitals) to three months (15 hospitals) comprising 4145 CKD patients. It showed the following aetiological pattern: diabetes (29.7%), chronic glomerulonephritis (19.3%), hypertension (14%), chronic interstitial disease and vesico-ureteral reflux (12.6%), obstruction and calculus (9.3%), ADPKD and Alport Syndrome (8.4%), undiagnosed (6.2%). This study shows that the prevalence of CRF in India is ~0.8%. If we combine the two, diabetes has emerged as the most frequent cause (30–40%) followed by hypertension (14–22%), CGN (16–20%), CIN (5.4–12.7%), hereditary disease (8.4%), obstruction including calculus (2.9%). The two studies, which are different in some ways, perhaps explain the wide range in incidence, suggesting regional influences.



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Based on the above surveys following assumption is considered for arriving at the requirement.

1. CRF prevalence rate 0.8% of the population
2. Population dependant on Government System for Dialysis – 50%
3. Population dependant on charitable organisation for Rajiv Gandhi scheme & concessional dialysis - 20 %.
4. Dialysis requirement per patient – One/Two per week
5. Annual population growth rate – 1.87% (Average annual growth rate in the past 10 years)
6. Number of cycles per machine per day - 3
7. Operating efficiency of the dialysis machine – 95% (95% of the time the machine is up and running during working hours)

		2018	2019	2020	2021	2022	2023
Thane City Population (in million)		1.93	1.96	2.00	2.04	2.07	2.11
PERSON Requiring Dialysis in Thane City	0.8% of Population	15,440	15,718	16,001	16,289	16,582	16,881
Person taking Government System for Dialysis	50%	7,720	7,859	8,000	8,144	8,291	8,440
Population dependent on charitable Organisation for concessional dialysis	20%	3,088	3,144	3,200	3,258	3,316	3,376
Number of person going to Private Hospital	30%	4,632	4,715	4,800	4,887	4,975	5,064
Considering 2% opting for mobile dialysis	2% of 30%	93	94	96	98	99	101
Number of Cycles required per patient per week		2	2	2	2	2	2
Total Cycles required per Week		185	189	192	195	199	203
No of M/c required assuming 3 cycles per m/c per day		62	63	64	65	66	68



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There is no Mobile dialysis unit in Thane and this will be a unique first of its kind pilot project for many more mobile dialysis units. The figures above are very conservative and it's very sure that the mobile unit will never be without any bookings

Description of the Project

Rotary Club of Thane Northend is planning to provide 1 mobile dialysis unit with 2 dialysis machines to be attached with the Dialysis center of Lions Club of Thane North at Khopat, Thane. This center of Lions Club is operational for last 10 years and have 8 dialysis machines along with other pathology, X Ray, Sonography, ENT, Ophthalmic & Dental facilities. They have Doctors and all experienced staff at the center.

This Mobile Dialysis Van service will be mainly for people going for dialysis at private hospitals. With more than 800 Rotarian and almost equal number of Lions in Thane city, the demand of mobile unit will be always there. The present reception person at the dialysis unit will take bookings and payment be collected in advance by electronic medium to avoid unwarranted cancellations. The surety to have the van always book will be undertaken by Rotary Club of Thane Northend

We will earmark some slots for the real needy person who cannot afford and has genuine mobility problem to visit the centre. This will be at a much discounted price. The recommendation for subsidised charge will be totally handled by RCTNE.

Components of the project

For setting up of a dialysis center, we do not require much infrastructure as its being attached to an existing operational dialysis center. Following are the requirements

1. Mobile Dialysis Unit with 2 Dialysis machines.
2. Driver cum attendant



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3. Doctor
4. Technician

Project Financials

Cost Estimation

The Hemodialysis equipment include the core dialysis equipment required for delivering the service.

MOBILE DIALYSIS VAN

Sr. No.	Category*	Description	Supplier	Cost in local currency
1	TATA LP 410/36 BS-6 BUS CHASSIS with power steering & ABS	Tata Vehicle	Tata Motors	13,35,000.00
2	Dialysis unit – 2 Nos	Hemodialysis Machine		12,00,000.00
3	DIALYSIS VAN BODY FABRICATION COST		Samson Motors	11,25,000.00
4	5.5kVA Silent Petrol Generator		Honda	2,08,500.00
5	1 Ton Split Air- Condition		LG	50,000.00
6	Inverter 850 VA (Microtek) & Battery 8500 (150Ah-12V)		Exide	24,000.00
7	Working Capital for 12 months			4,80,000.00
Total budget:				44,22,500.00

Operational Cost

Cost of Dialysis (per cycle for Mobile Unit)

Sr. No.	Description	Cost INR
1	Consumables	400
2	Doctors cost	250
3	Staff Salaries including Driver	700
4	Miscellaneous	50
5	Vehicle Running & Maintenance	150
6	AMC Cost	100
Total Rs.		1650



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Based on above, we will charge Rs. 2000 per person and the excess will be used for providing subsidised service to needy patients

Statutory and Legal Framework

The Lions Club of Thane North is already managing a Dialysis center and is well versed with all statutory and legal framework. Full compliance will be ensured by Lions club of Thane North.

Social Impacts

- The project will enable timely Dialysis to Senior citizen who otherwise have to depend on some other family member for commuting to Dialysis center.
- The subsidised slots will help needy patients get the service.
- It will Improved availability of medical treatment
- Increased awareness among the public which will indirectly lead to lowering of hypertension, diabetes cases
- Society will get the best of public and private services at one place i.e. private sectors quality and efficiency at public rates thus reducing their economic cost of availing the healthcare services.
- Enhanced patient satisfaction and diminished strain
- Employment generation for the trained manpower required for operating the Van