

Public Private Partnership in Indian Dialysis Market: A Disruptive Force

By

Anita

*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2015-2017



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TO WHOMSOEVER MAY CONCERN

This is to certify that Anita student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at PricewaterhouseCoopers from 20th February 2017 to 12th May 2017.

The Candidate has successfully carried out the study designated to her during internship training and her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish her all success in all her future endeavors.



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The certificate is awarded to

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in recognition of having successfully completed her Internship in the department of

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and has successfully completed her Project on

Public Private Partnership in India Dialysis Market: A Disruptive Force

Date: 12th May 2017

Organization: PricewaterhouseCoopers Private Limited

She comes across as a committed, sincere & diligent person who has a strong drive & zeal for learning. We wish her all the best for future endeavors.

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Abstract

PUBLIC PRIVATE PARTNERSHIP IN INDIAN DIALYSIS MARKET: A DISRUPTIVE FORCE

Introduction:

In India, nearly 200,000 new patients require dialysis every year and it is estimated that less than 30% of patients are able to receive this life saving therapy most likely due to non-availability or affordability. On an average, the dialysis session cost ranges from Rs.500 (Subsidized charitable outlets) to about Rs.2000 in private organization and the compliance is low due to non-availability and affordability. This challenge needs to be addressed through a concerted effort of both public and private sectors by their agreeing on suitable public policy initiatives which incentivize financing and provision of healthcare, and thereby increase healthcare access to the people. Public private partnership plays a crucial role especially in dialysis sector. The government is moving towards this model because it will assure not only reach and affordability but also quality standards.

Rationale

Due to lack of access and capacity to pay for the dialysis, only 70% manage to get access to dialysis. As PPP model has been able to achieve success in other sectors like infrastructure, transport etc., and its implication in dialysis is also important. With the efforts of government to make the healthcare services available to the public, this sector is going to flourish. The purpose of this study is to understand the concept of public private partnership and its impact on dialysis market in near future.

Objectives of the Study

General Objective

To understand the concept, current status and future trend of Public Private Partnership (PPP) in Dialysis market in India.

Specific Objective

- To understand the concept of PPP model in dialysis market of India.
- To determine the future expansion trend in PPP model in India dialysis market.
- To point out the challenges and barriers of PPP project in dialysis market of India

METHODOLOGY

4.1 Study Design: It is a descriptive study in which both qualitative as well quantitative data are involved. It is a descriptive study in which both qualitative as well quantitative data are involved.

- a. Primary research: Semi-structured interviews with nephrologists and industry experts like equipment manufacturers were conducted to achieve the specific objectives of the study
- b. Internal and external secondary research
 - Internal data: Databases and past primary researches(PWC data)
 - External data: Government statistics and information from government agencies.
 - Different media such as articles from respected magazines and newspaper, reports from research centers.

5. Conclusion

After discussion with the industry experts and nephrologist, estimates were made about rate at which the machines will grow, the patients might grow, effect of PPP on market, funding status. In a Base Case Scenario, the number of machines is expected to increase at ~14% till 2025 due to expansion in PPP and Organised players sector. Prevalence of ESRD increases from its current level of 800 ppm to 1100 ppm, due to increased incidence of risk factors like hypertension. Diabetes, obesity, etc. Increased affordability and increased health insurance penetration further increases the demand for dialysis services. The number of machines grow at 15% annually till 2020 and then tapers down. Government initiatives in PPP sector

expand due to increased funding. Organised Player's growth further continues and it adopts advanced management practices. This will make a positive impact on the coverage of patient under dialysis. The availability and affordability might improve if accompanied by proper awareness and treatment regimen which will increase the compliance for dialysis thereby.

**PUBLIC PRIVATE PARTNERSHIP IN INDIAN DIALYSIS MARKET: A
DISRUPTIVE FORCE**

Submitted by

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ACKNOWLEDGEMENT

I am thankful to all the people who contributed in some way to my project described in this report.

First and foremost, I thank my academic guide, Dr. J.P Singh for guiding me throughout the project. During my training, he supported me by giving me intellectual flexibility in my work, supported me throughout the project.

I would like to thank the Management Consulting (Healthcare) team at PricewaterhouseCoopers without whom this project would not have been possible. The team helped me build my concepts through their immense knowledge.

I am also indebted to Dr. Ashok Kaushik and whole IIHMR faculty for their valuable time and guidance throughout my project.

Finally, I would like to appreciate my friends and family who supported me during my time here.

Lastly but not the least, I thank my family for all their constant love and encouragement. For my parents who raised me with a love for healthcare and supported me in all my pursuits.

Acronyms/Abbreviations

- ARPT: Average Revenue Per Treatment
- BOT: Built Operate and Transfer
- BPL: Below Poverty Line
- CAGR : Compound Annual Growth Rate
- CKD : Chronic Kidney Disease
- CVD : Countervailing Duty
- EBITDA : Earnings Before Interest, Taxes,
Depreciation and Amortization
- EPO : Erythropoietin
- ESRD : End Stage Renal Disease
- MoU : Memorandum of Understanding
- NDP : National Dialysis Program
- NHM : National Health Mission
- PD : Peritoneal Dialysis
- PMP : Per Million Population
- PPM : Patients Per Million
- PPP : Public Private Partnership
- RO : Reverse Osmosis
- SAD : Special Additional Duty
- USD : United State Dollar

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1. INTRODUCTION

Dialysis is vital for the patients suffering from End stage renal disease. Preliminary studies observed that the prevalence of chronic kidney disease which is precursor to ESRD is 0.8% in India. The major causes of CKD being Diabetes and high blood pressure are increasing at an alarming rate across the country.

In India, nearly 200,000 new patients require dialysis every year and it is estimated that less than 30% of patients are able to receive this life saving therapy most likely due to non-availability or affordability. On an average, the dialysis session cost ranges from Rs.500(Subsidized charitable outlets) to about Rs.2000 in private organization. As per nephrologists, an ESRD patient requires around 3 rounds of dialysis per week to remove the toxins from blood.

So making dialysis more affordable and accessible is essential to increase the frequency of sessions taken by patients and reduce noncompliance.

This challenge needs to be addressed through a concerted effort of both public and private sectors by their agreeing on suitable public policy initiatives which incentivize financing and provision of healthcare, and thereby increase healthcare access to the people.

Government has been putting its efforts for making healthcare accessible and affordable to all.

Public private partnership plays a crucial role especially in dialysis sector. The government is moving towards this model because it will assure not only reach and affordability but also quality standards.

2. Review of literature

According to NCBI report, the prevalence of ESRD is 0.08% out of which only 125,000 patients are able to undergo hemodialysis. As per Indian Council of Medical Research data, the diabetes prevalence in Indian population has increased to about 7.1%(degree of variation, 5.8% in Jharkhand to 13.5% in Chandigarh) and in urban population the prevalence is higher (28%). As these diseases are expected to increase the prevalence of CKD and ESRD is expected to rise. Several researchers undertook qualitative analysis of

PPP documents (Raman & Björkman,1996) and state specific case studies (Uttaranchal Mobile Hospital and Research Center, Uttaranchal, 2002).

2.1 Defining PPP

Healthcare PPP can be defined as a long term contract between a public sector and one or more private sector companies functioning as a legal entity. The government empowers private enterprise to innovate, build, maintain and manage delivery of agreed upon services over the term of contract.

2.2 TYPES OF PPP MODEL OPERATING IN DIALYSIS

MODEL	DESCRIPTION
Service contracts	A private company is hired by government to carry out task or service for a time period typically 1-3 years.
Management contracts	The services to be contracted out to include some or all of the management and operation of the public service.
Lease contracts	Under a lease contract, the private partner is responsible for the service in its entirety and undertakes accountability relating to quality and service standards.
BOT contracts	BOT and similar arrangements are a kind of specialized concession in which a private firm finances and develops a new infrastructure project or a major component according to performance standards set by the government.
Concessions	A concession makes the private sector operator (concessionaire) responsible for the full delivery of services in a specified area, including operation, maintenance, collection, management, and construction and rehabilitation of the system.

Table 1.

The major players in PPP model for dialysis (operating in more than 9 states) are:

- B.Braun
- DCDC
- Nephroplus
- Apollo
- Rahicare
- DaVita
- With announcement of National dialysis program in 2016, more than 400 proposals were received by the ministry for running dialysis center in district hospitals.

In most of the RFPs for PPP in dialysis the private partner is required to provide dialysis machines and other basic infrastructure while the government will provide, space water and electricity.

3. Rationale

With the rapid growing Indian economy and changing demographics and socioeconomic mix of the population, the Indian healthcare system is facing challenge in making the healthcare services affordable and accessible to the patients in need while simultaneously gearing up its capabilities to respond to changing disease incidence profiles. In renal disease cases, more than 2 lakh new cases of ESRD are present each year. But due to lack of access and capacity to pay for the dialysis, only 70% manage to get access. As PPP model has been able to achieve success in other sectors like infrastructure, transport etc., and its implication in dialysis is also important. With the efforts of government to make the healthcare services available to the public, this sector is going to flourish. The purpose of this study is to understand the concept of public private partnership and its impact on dialysis market in near future.

4. Objectives of the Study

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5. METHODOLOGY

5.1 Study Design:

It is a descriptive study in which both qualitative as well as quantitative data are involved.

Primary research: Semi-structured interviews with nephrologists and industry experts like equipment manufacturers were conducted to achieve the specific objectives of the study.

Secondary research

- Internal data: Databases and past primary researches(PWC data)
- External data: Government statistics and information from government agencies.
- Different media such as articles from respected magazines and newspaper, reports from research centers.

5.2 Study Setting: The data for the study has been collected PAN India through telephonic interviews as well as face to face interviews with the nephrologists, equipment manufacturers and dialysis center technicians. Instrument used for collecting information was semi structured.

5.3 Duration of Study: The study was conducted from 20th February, 2017 to 12th May, 2017 till the completion of the desired objectives.

5.4 Data Collection Instrument:

a. Semi structured questions

b. Secondary data

- Internal data: Databases and past primary researches done by PricewaterhouseCoopers.
- External data: Government statistics and information from government agencies.
- Different media such as articles from respected magazines and newspaper, reports from research centers.

5.5 Data Collection Procedure

5.5.1 Primary research:

- Interviews: The interviews were conducted PAN India for collecting the data on various key points like average price per sessions for dialysis patient compliance rate, issues related to dialysis, detail information related to major players, PPP model and factors responsible for its growth or decline, contracts for PPP with government for dialysis centers etc.
- Direct face to face interviews with nephrologists
- Telephonic interviews with equipment manufactures and dialysis technicians of the major players of dialysis market.

5.5.2 Secondary research: Review of government contracts, PWC data, and government websites.

6 KEY FINDINGS

6.1 Burden of disease

- a. **Prevalence of ESRD:** The prevalence of ESRD is 0.08 %(800 PMP).
- b. **Population getting dialysis:** Only 125,000 are able to get dialysis out of the total ESRD patients.
- c. **Price per session:** On an average, the cost to patient for a dialysis session ranges from about ₹ 500 in subsidized charitable outlets to about ₹ 2,000 in private institution.
- d. **Penetration rate of dialysis in India:**

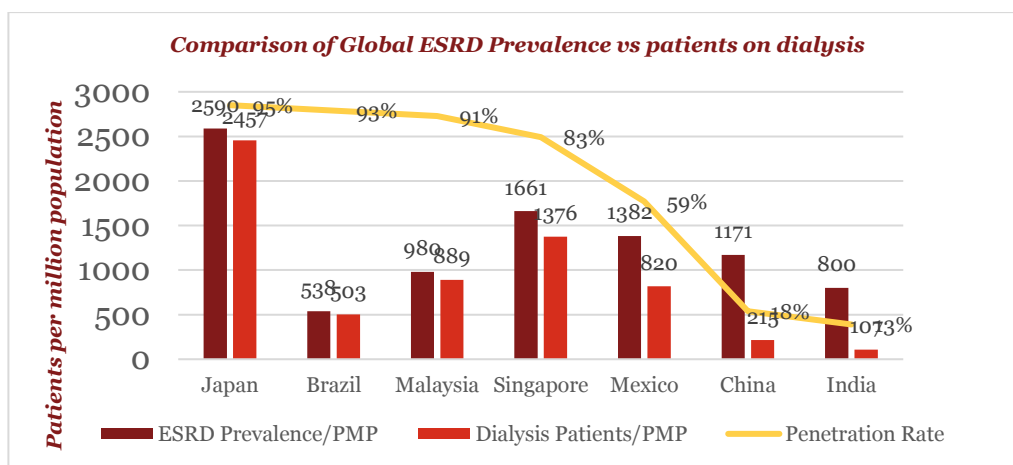


Figure 1 Global Comparison of Penetration Rate

With 13 % ESRD patients on dialysis (Figure 5.1.D), India has one of the lowest penetration rates; on the other hand, countries like Japan have a penetration rate of up to 95 % (includes patients on Haemodialysis and peritoneal dialysis).

6.2 India dialysis market:

6.2.1 Organized players:

	APEX KIDNEY CARE	NEPHROPLUS	DCDC KIDNEY CARE	B.BRAUN	DAVITA	SPARSH
Year Of Inception	2008	2009	2009	2009	2009	2010*
Overview	Founded by 5 nephrologists	Founded by Vikram Vuppala, S. GudiBanda and K. Shah	Founded by Aseem Garg	Equipment Manufacturer Company in PPP Model	Partnership between DaVita Inc. and NephroLife Care (India) Pvt. Ltd.	Founded by Gaurav Porwal and Saurav Panda
Number Of Centres	46	96	67	35	19	55
Sessions per month	27,000	52,000	14,000	24,000	12,500	18,000
Price per session (USD)	20-21	24	19	16	31	19-21
Dialysis machines	450	973	397	400	250	369

Table 2

6.2.2 Dialysis provider among hospitals:

	APOLLO HOSPITALS	COLUMBIA ASIA HOSPITAL	FORTIS HOSPITAL	MANIPAL HOSPITAL	MAX HEALTHCARE
Year of inception	1983	2005	2001	1991	1985
Current Bed Strength	~8,200	~1,000	~4,000	~2,000	~2,200
Dialysis cost (single use) in USD	44-66	36-49	32-49	23-38	32-52
Dialysis cost (reuse) in USD	24-39	25-39	25-40	19-28	24-27
Sessions per month	20,000	3,500	14,500	11,000	12,000
Number of machines	250	50	200	150	150

Table 3.

6.2.3 Players in PPP dialysis

Player	State of Operation	Number of centres	Number of machines	Average machines per centre	Year of award of PPP	Rate Per Treatment(USD)
B.Braun	Telangana	5	69	13	2012	15
	Bihar	17	160	9	2014	16
	Andhra Pradesh	13	171	14	2010	15
Nephroplus	Andhra Pradesh	12	118	10	2012	14
	Tamil Nadu	1	15	15	2014	19
	Karnataka	1	25	25	2016	11
	Telangana	2	37	18	2012	19
DCDC	Delhi	3	40	13	2013	16
	Madhya Pradesh	1	2	2	2016	7
Apollo	Tamil Nadu	1	9	9	2010	19
Rahicare	Uttarakhand	1	17	17	2010	15
Heritage Hospital	Uttar Pradesh	2	14	7	2015	DNA
Soni Hospital	Rajasthan	1	DNA	DNA	DNA	DNA

Table 4.

6.3 Compliance rate

	High prevalence	Low Diagnosis and Treatment Rate	Low Dialysis Penetration	Poor Compliance
Current trend	More than 13 million existing ESRD patients with ~200,000 added annually	Approx. 12-14% patients diagnosed and receive some form of treatment^	Only 10-12% patients undergo Dialysis. (16 dialysis machines ppm) ^	Only affluent and insured patients take 3 sessions per week
Future trend	Patient load expected to increase with increasing burden of ESRD risk factors (Diabetes Mellitus & Hypertension)	Treatment rate expected to rise with increasing healthcare affordability and accessibility	Penetration rate expected to improve further with expected growth in dialysis centers	Compliance is likely to improve with increasing affordability and inclusion of dialysis in some of the insurance plans

Table 5.

Average monthly per capita household out of pocket medical expenditure was ~146 INR in urban areas and ~95 INR in rural areas (2011-12 estimates, National Health Profile 2016).

6.4 Government initiatives

National dialysis program:

The government of India has allocated more than 22.7 MN. USD to 27 states/Union territories for setting up PPP dialysis centers. It is estimated that around 1500-18000 machines are likely going to additionally function under the National dialysis program.

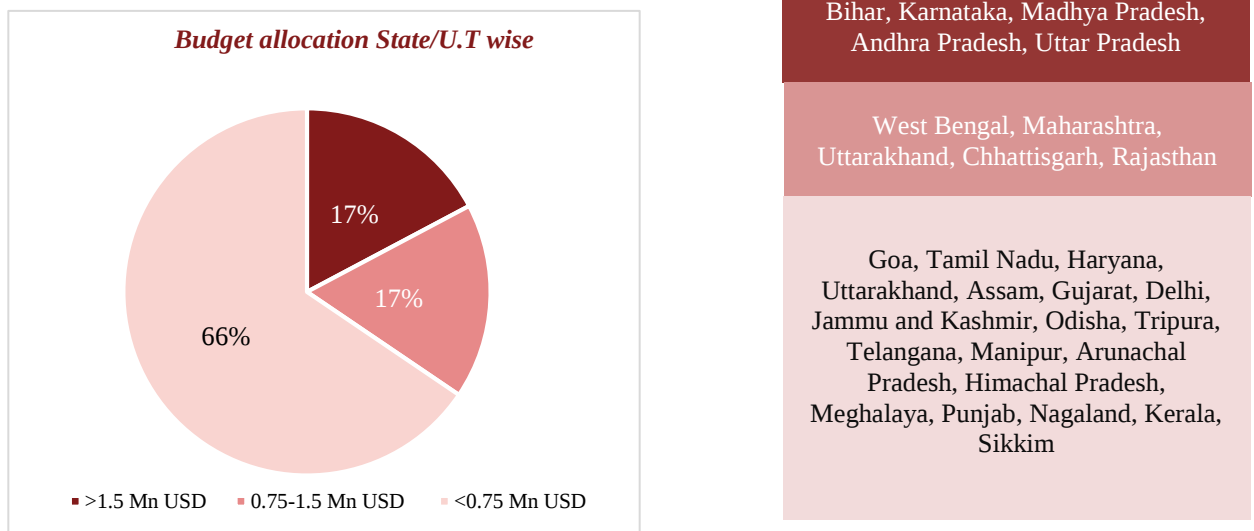


Figure 2 Budget allocation state-wise (NDP)

The guidelines have been set by the government according to which the private partner is to provide human resource for medical care, dialysis machine along with RO water plant infrastructure, dialyzer and consumables. On the other hand government will provide space, electricity and water supply within the district hospitals.

6.5 PPP as a growth driver for dialysis market

6.5.a Current Indian dialysis market value: Current Indian Dialysis Market (2016) is valued at ~414 Mn USD with Haemodialysis having ~90% market share.

6.5.b. EBIDTA for PPP FY 17: For PPP centers, EBITDA margin % has reduced significantly in FY17 (Dec 16) due to increase in Staff Cost and Other Indirect Expenses % as many new centers have been added in FY1

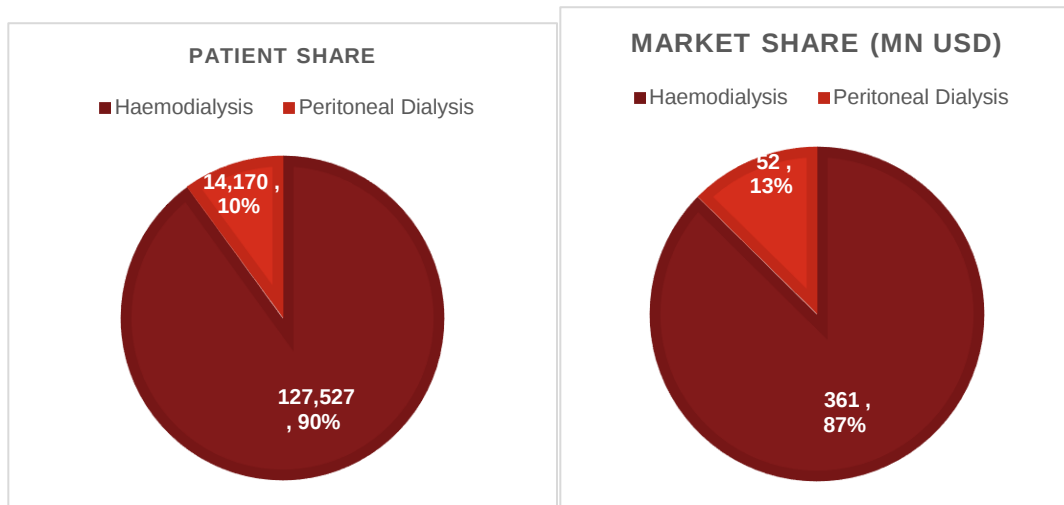


Figure 3 Dialysis market in India: Patient share and revenue

- The sales for hemodialysis in terms of patient number for the year 2016 were 127,527(90%) whereas for peritoneal it was very low with sales of 14,170 (10%)(Figure 5.5.1)
- The sales in terms of revenue in MN USD for hemodialysis was 361MN USD(87%) whereas for peritoneal dialysis it was low with revenue of 52 MN USD (13%)(Figure 5.5.2)

6.5.c Future projections:

After discussion with the industry experts and nephrologists and among the PWC healthcare advisory team, values for base case were derived.

Input Assumptions for future projections

Parameter	Current	Base case
ESRD prevalence	0.08%	0.11%
Current Market Growth Rate	15%	
Growth Rate for Number of Machines	Till 2020	15.0%
	From 2020 to 2025	12.5%
	From 2025 to 2030	10%
	From 2030 to 2036	7.5%

Table 6.

Input Assumptions for future projections:

Parameter		Current (2017)	Base Case
Share of machines 2025	PPP sector	4%	15%
	Private sector	69%	55%
	Government sector	18%	8%
	Organized player sector	9%	22%

Annual price increase	PPP sector	1080	3%
	Private sector	1800	5%
	Government sector	600	3%
	Organized player sector	1500	5%

Table 7.

- a. India is likely to have more than 1.8 Million ESRD patients on dialysis by 2036 (figure 4)

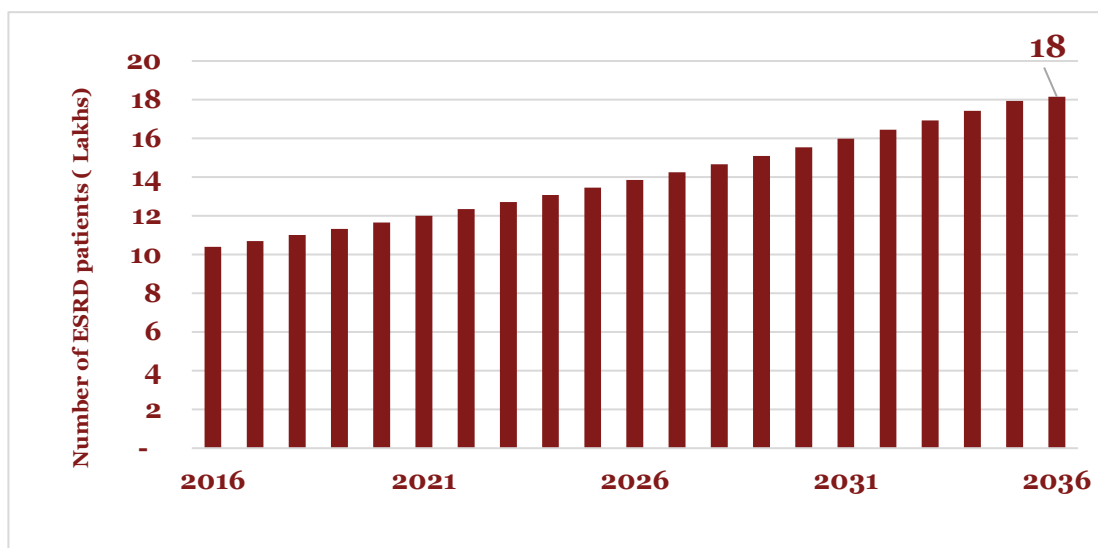


Figure 4 Growth of ESRD Patients over years till 2036

- b. The number of machines are expected to reach ~165,000 by then (CAGR ~11%)

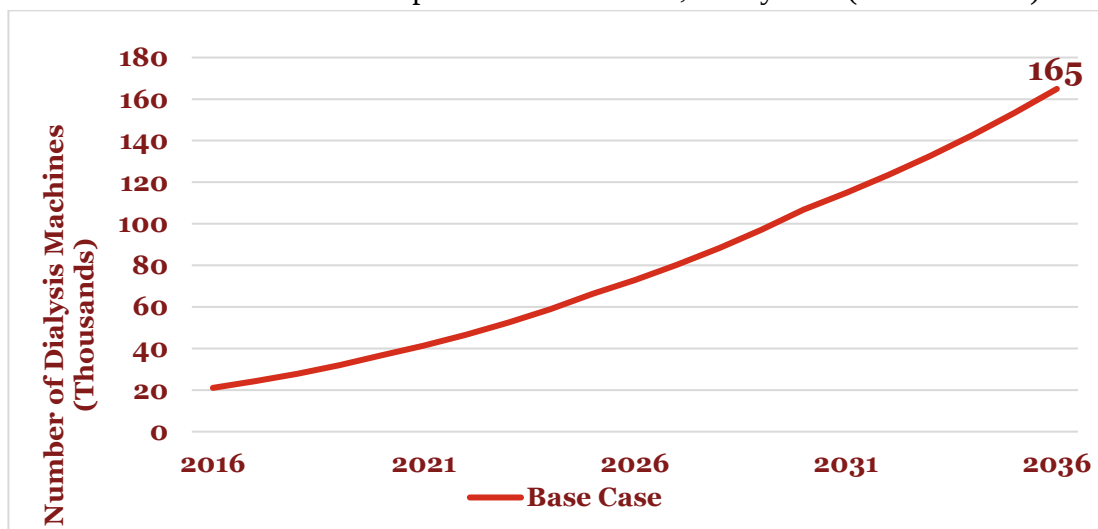


Figure 5 Growth of number of Dialysis machines by 2036

- c. Given the current market expansion and the expected government push in PPP sector, dialysis penetration rate in overall market to increase to 60% in next twenty years

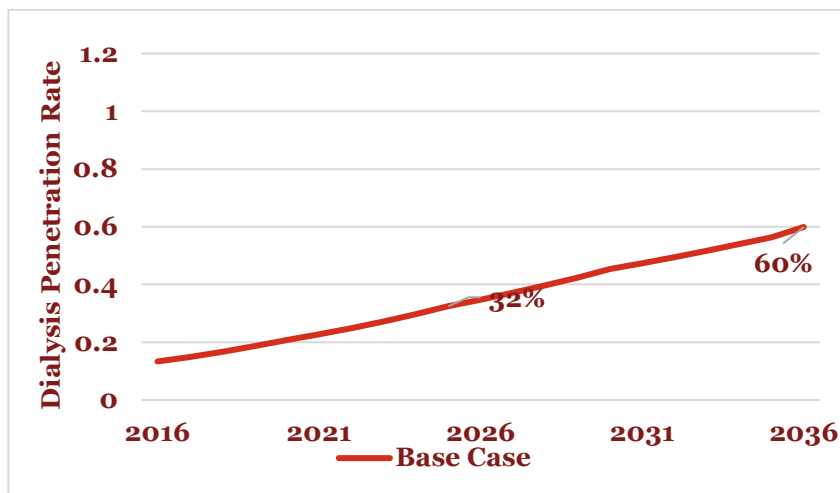


Figure 6 Dialysis Penetration Rate: 2036

- d. Future Indian Dialysis Market is expected to be ~2.1 Bn USD in 2025 (Base Case) with a CAGR of 20% and up to 3 Bn USD in high case with a CAGR Of 24%

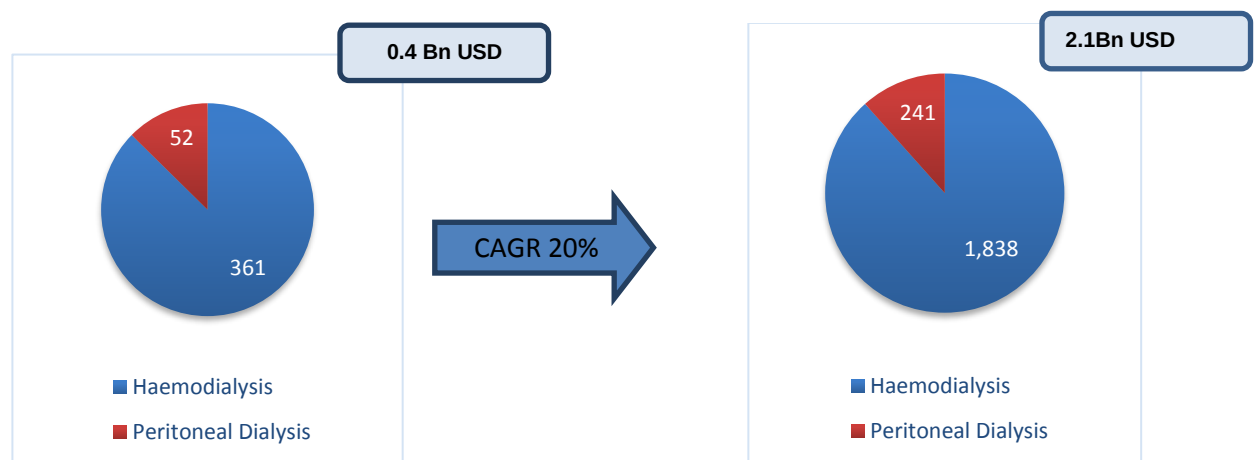


Figure 7 Current and future dialysis market

- a. Indian haemodialysis market is expected to be ~1.8 Bn USD market by 2025 (Base Case), at a CAGR of 20% with maximum growth expected in the PPP segment

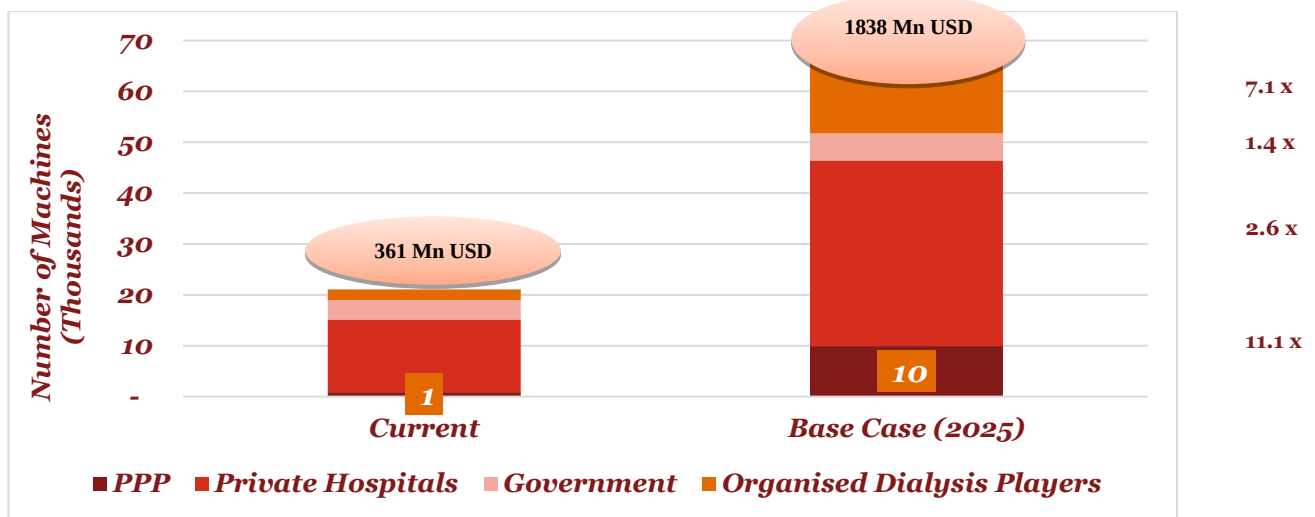


Figure 8 Number of machines by 2025

7 Barriers and drivers for PPP model in dialysis

Industry Insights

- “40% of current demand is coming from PPP sector”
- Saturation of PPP in Andhra Pradesh. No further growth expected”
- “Orissa is contemplating PPP but is unsure on how exactly to pursue”
- “Bihar copied PPP model from some other state. Doesn’t know how to operate. Other players scared to be takeover”

➤ 7.1 DRIVERS:

- Government Initiatives
- Government to gradually move from a provider to payor for dialysis
- National Dialysis Services Programme (Announced in the Union Budget 2016-2017)

- Funds will be made available under the National Health Mission, to provide dialysis services in all district hospitals
- Certain parts of dialysis equipment have been exempted from basic customs duty (CVD and SAD)

7.2 BARRIERS:

- Low realization and payment risk
- Low average realization per treatment
- Payment risk. Inordinate delays up to 12 months
- Service provider can only raise invoice only after a minimum of 12 cycles
- Certain equipment manufacturers vary of current PPP mode.

8 Conclusion

A complete dialysis market analysis with special focus on PPP in dialysis was done. Over 50+ centers operate under PPP model in dialysis all over India. Although PPP business has lesser Revenue Per Treatment, its EBITDA margins have been consistently higher than other centre types. With the announcement of national dialysis program this number is going to increase as 400 proposals for starting the centers under PPP model have been submitted. A total of 22.8 Mn USD has been allocated for 29 States & UT's.

After discussion with the industry experts and nephrologists, estimates were made about rate at which the machines will grow, the patients might grow, effect of PPP on market, funding status. In a Base Case Scenario, the number of machines is expected to increase at A~14% till 2025 due to expansion in PPP and Organised players sector. Prevalence of ESRD increases from its current level of 800 ppm to 1100 ppm, due to increased incidence of risk factors like hypertension. Diabetes, obesity, etc. Increased affordability and increased health insurance penetration further increases the demand for dialysis services.

The number of machines grow at 15% annually till 2020 and then tapers down.

Government initiatives in PPP sector expand due to increased funding. Organised Player's growth further continues and it adopts advanced management practices. This will make a positive impact on the coverage of patient under dialysis. The availability and affordability might improve if accompanied by proper awareness and treatment regimen which will increase the compliance for dialysis thereby.

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