

# Dialysis in Iran



قطب علمی آموزشی نفرولوژی مرکز تحقیقات نفرولوژی

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# Which country has the best dialysis patients?

Here are some of the best travel destinations where dialysis is plentiful, affordable, or both.

Rio de Janeiro, **Brazil**. ...

Dublin, **Ireland**. ...

Mexico City, **Mexico**. ...

Limpopo, South **Africa**. ...

Sydney, **Australia**. ...

Prague, **Czech Republic**. ...

Kuala Lumpur, **Malaysia**. ...

U.S. Virgin **Islands**.



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# Which country has the most CKD?



The greatest number of adults living with CKD were in

China (up to 159.8 million, 95% CI 146.6 to 174.1) &

India (up to 140.2 million, 95% CI 110.7 to 169.7), collectively having 69.1% of the total number of adults with CKD in the region.

# The Cost of Hemodialysis in Iran

Arefzadeh, Alireza; Lessanpezeseshki, Mahboub; Sei  
Sepideh

Saudi Journal of Kidney Diseases and Transplantation 20(2):p 307-311, Mar-Apr 2009.



The use of dialysis in patients with ESRD  
remains one of the **most expensive**  
therapeutic interventions.

Department of Nephrology at the **Imam  
Khomeini Hospital of TUMS**, Iran, between April 2006 and June 2007 •

# Costs included:



**Transportation plus absence from work, treatment instruments, drugs & other medical procedures, diet, staff salary, equipment and building support services, non-medical supplies, depreciation of installations and equipments, depreciation of RO & building rent.**

**63 patients** 47.7% were males & 52.3% were females, mean age 47 ± 12 years were studied.

-The estimated cost of each HD session was 74 US dollars

-Annual cost of \$11549 could be estimated for each patient.

-Transportation and work leaves (28.9%),

Staff costs and salaries (21.5%), &

-Treatment instruments (21.1%) were among the greatest expenses.

We conclude that the annual cost of dialysis in Iran is similar to other developing countries, but significantly less than the cost in developed countries.



# Burden of CKD in Iran A Screening Program is of Essential Need

Mohsen Nafar, Seyed Mohsen Mousavi, Mitra Mahdavi, Fatemeh Pour-Reza-Gholi, Ahmad Firoozan, Behzad Einollahi, Mahboob Lessan Pezeshki, Somayeh Asbaghi-Namini, Farhat Farrokhi

The latent nature of CKD in primary stages precludes early diagnosis.

This necessitates plans such as **screening**, but we should first introduce **CKD as a public health problem**. This study was designed to define the burden of CKD in Iran.



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# Materials and Methods

We calculated DALYs according to the WHO's practical guidelines for national burden of disease studies.

The sum of years of life lost and years lived with disability were estimated for CKD stages 1 to 4 and ESRD based on the national registry data and the published reports about CKD in Iran in 2004.





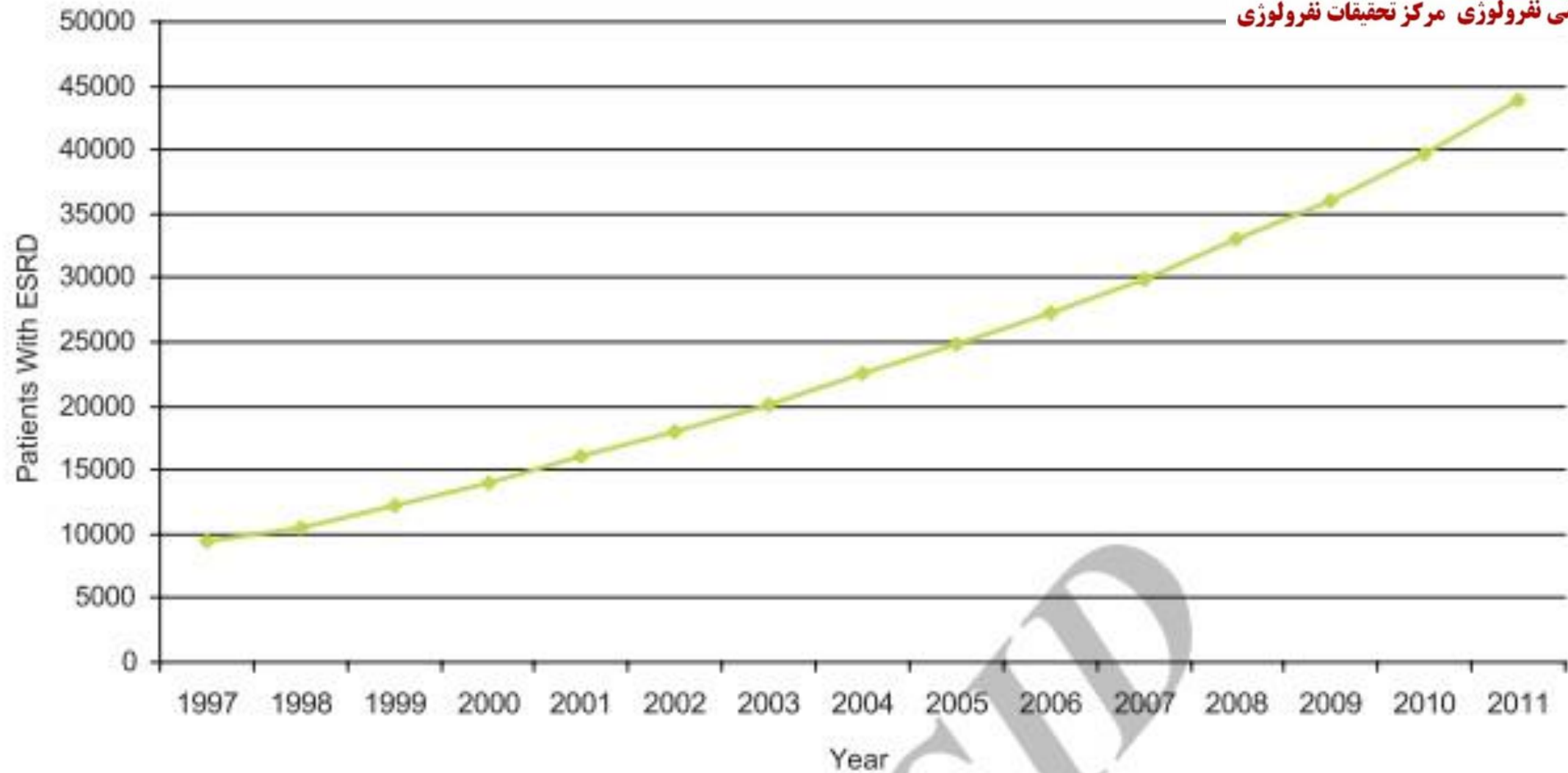
# Results



Over 700 000 people were estimated to have CKD in Iran in 2004 and 61 000 new cases of CKD were anticipated. The prevalence rate of CKD was estimated to be 1083 and its incidence rate was 173.5 per 100 000 population.

**CKD** was responsible for **1 145 654 DALYs**. The highest DALYs for stages 1 to 4 of CKD were due to **unknown** etiology, **DM**, and **HTN** (382 000 years, 347 400 years, and 311 800 years, respectively).

The **DALY** for **ESRD & CKD stages 1 to 4** were **21 490 years & 1 124 164 years**, respectively.



Trend and estimation of the number of patients with end-stage renal disease (ESRD) in Iran from 1997 to 2011 (with permission from the Transplantation Management Center of Ministry of Health, unpublished data).



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**Table 6.** Years Lost as a Result of Disability (YLD), Years of Life Lost (YLL), and Disability-Adjusted Life Year (DALY) of Chronic Kidney Disease in Iran\*

CKD Categories	YLD			YLL			DALY			DALY Per Case			DALY Per 100 000 Population		
	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total
CKD stages 1 to 4															
CKD due to diabetes mellitus	16 225	13 013	29 238	172 956	145 160	318 117	189 182	158 173	347 355	13	14	14	563	481	522
CKD due to hypertension	8405	6742	15 147	161 297	135 409	296 706	169 701	142 151	311 853	13	14	13	505	432	469
CKD due to glomerulonephritis	2767	2219	4986	0	0	0	2767	2219	4986	1	1	1	8	7	8
CKD due to ADPKD	1338	1074	2412	32 131	26 990	59 120	33 469	28 063	61 532	13	13	13	99	85	93
CKD due to uronephropathy	1981	1588	3569	0	0	0	1981	1588	3569	1	1	1	6	5	5
CKD due to genetic	287	229	516	6645	5610	12 255	6931	5839	12 771	13	14	13	21	18	19
CKD due to unknown cause	7970	6392	14 362	199 937	167 799	367 735	207 907	174 190	382 097	13	13	13	618	529	574
CKD stage 5															
ESRD with hemodialysis	1099	861	1960	6297	5153	11 449	7396	6013	13 409	3	3	3	22	18	20
ESRD with peritoneal dialysis	35	28	63	549	534	1083	583	562	1146	5	6	5	2	2	2
ESRD with transplantation	436	282	718	3757	2460	6218	4193	2743	6935	4	4	4	12	8	10
Total	40 542	32 428	72 970	583 568	489 115	1 072 683	624 110	521 543	1 145 654	...	...	...	1856	1585	1722

\*CKD indicates chronic kidney disease; ADPKD, autosomal dominant polycystic kidney disease; and ESRD, end-stage renal disease. Ellipses indicate not applicable.

# How much does dialysis cost in Iran?

Results. Annual average cost of

HD is \$**13477**

PD is \$**12865**, &

Transplantation is \$**16450**.

The Tx arm gained 9.43 QALY compared with PD & HD with 6.95 & 6.04 QALY respectively.

Economic evaluation of End Stage Renal Disease treatments in Iran



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## Middle East

Population **261.1 million** & income per capita **US\$9500**.

**ESRD in the Middle East is almost 100000**, the mean prevalence being **430 pmp**.





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- The first implementation of intermittent PD in Middle East occurred in Turkey in 1968.
- CAPD started in Saudi Arabia, Turkey, and Kuwait in the 1980s;
- APD, in Turkey in 1998.

The total active PD patients in the region number approximately 8170.

With patients,

- Turkey ranks first, with 5750

- Iran & Saudi Arabia with 1150 and 771 patients respectively.

- PD/ESRD 7.5%, &

- PD/dialysis 10.2%.



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-Dialysis rate in the region, 312 pmp



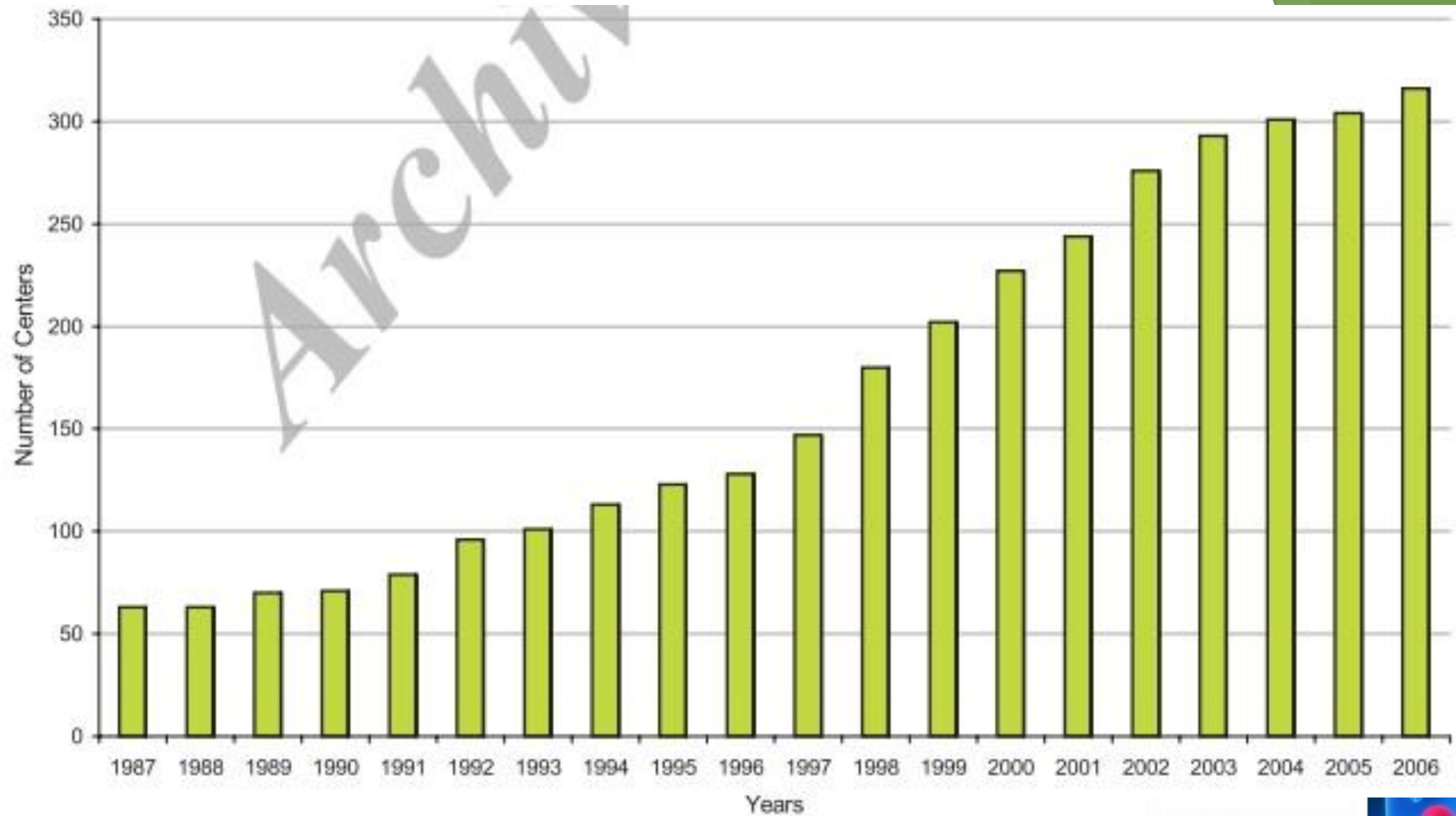
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-Almost half the European number of 581 pmp,

-PD prevalence of 32 pmp (range: 0 - 81 pmp).

The number of **active PD** patients has risen dramatically in the main countries since the end of the 1990s:

Turkey, to 5750 from 1030; Saudi Arabia, to 771 from 132; & Iran to 1150 from 0.



**Figure 1.** The number of hemodialysis centers in Iran from 1987 to 2006.



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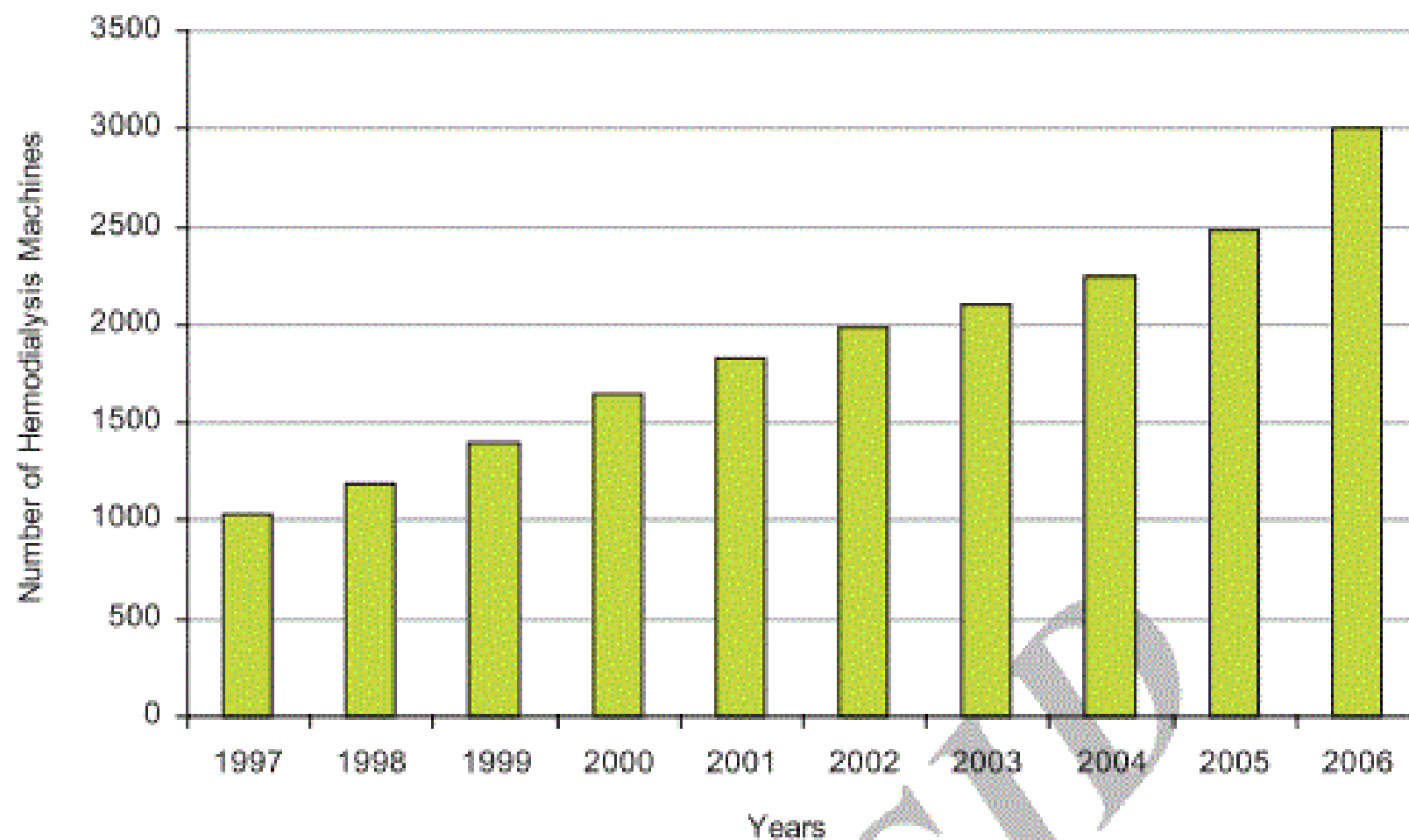
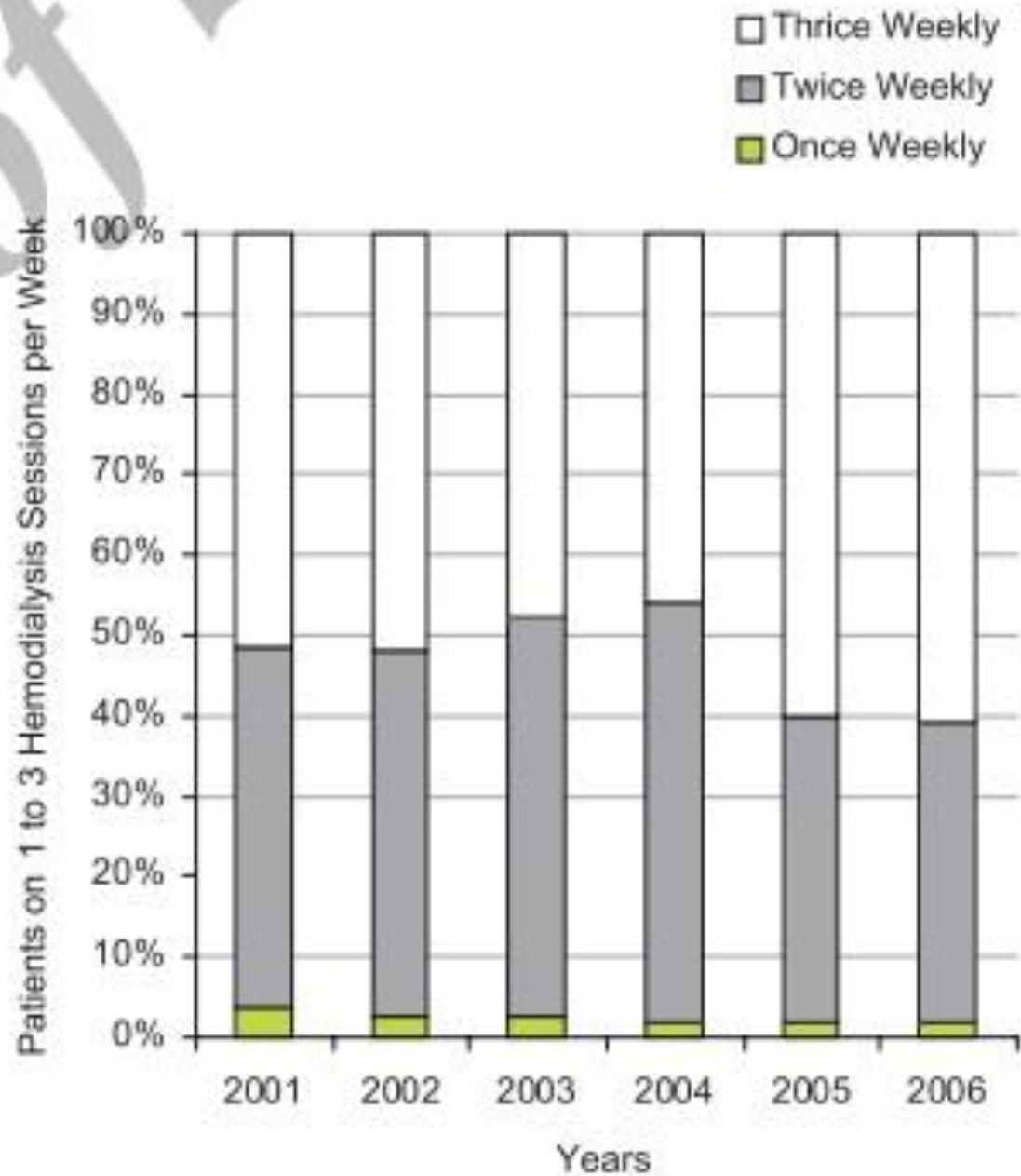


Figure 2. The number of hemodialysis machines in Iran.



**Figure 3.** The proportion of patients with end-stage renal disease who receive hemodialysis once, twice, and thrice weekly.



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# The Non-adherence with Treatment in Dialysis Patients in Iran, A Systematic Review.

Iranian Journal of Kidney Diseases . Nov2019, Vol. 13 Issue 6, p347-361. 15p.

Tayebi, Ali; Einollahi, Behzad; Rahimi, Abolfazl; Sirati-Nir, Masoud



**Non-adherence with treatment is a common problem among HD patients & was considered as a reliable factor in**

- Patients deteriorating,**
- Increasing admission chance and**
- Inappropriate responding to HD treatment.**

# The main reasons for Non-adherence in dialysis patients included:

## Patient related factors,

- Socioeconomic factors,
- Psychological factors,
- Health care related factors,
- Therapy related factors and
- Disease-related Factors.

**Treatment for improving adherence** is so important and can play a very significant role to improve the health in patients on dialysis.



# Epidemiology of ESRD in Iran

## A Review Article

Mousavi, Seyed Seifollah<sup>1</sup>; Soleimani, Alireza<sup>2</sup>; Mousavi, Marzieh Beladi<sup>3</sup>



The prevalence & incidence of ESRD are increasing in developed & developing countries, & this will place an enormous financial burden for health-care systems. The exact reasons of the rising prevalence of ESRD patients are unknown, but it can be attributed to an increase in the prevalence of DM & HTN as the most common causes of ESRD.



However, in contrast to the developed countries, the etiology of ESRD in the significant percent of patients with ESRD in **Iran is unknown**.

In **Iran**, the patients with **CKD** present themselves to the hospital only when they have **severe symptoms of uremia**, and, at this time, **determining the primary cause of ESRD is often not possible**.



# HD in Iran 1402/2023

تعداد کل مراکز  
دیالیز کشور:  
667 مرکز

نوع-بیمارستان	تعداد مراکز
دانشگاهی	467
خصوصی	104
خیریه	55
تامین اجتماعی	22
وزارت دفاع	9
شرکت نفت	7
شاهد	2
بانک	1



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## نسبت بیمار به تخت در مراکز دیالیز دانشگاهی

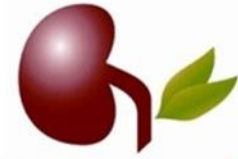
تعداد بیمار	23206
تعداد تخت فعال	5853
نسبت بیمار به تخت	4

## نسبت بیمار به تخت در مراکز کل کشور

تعداد بیمار	37611
تعداد تخت فعال	9048
نسبت بیمار به تخت	4.2



# دستگاه RO



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803	تعداد دستگاه RO مراکز دیالیز کل کشور
566	تعداد دستگاه RO مراکز دیالیز دانشگاهی

# آمار دستگاه دیالیز تولید داخل (ATF) و وارداتی



## تعداد دستگاههای دیالیز تولید داخل (ATF)

930	تعداد کل دستگاه دیالیز ATF
734	تعداد کل دستگاه دیالیز ATF مستقر در مراکز دانشگاهی
196	تعداد کل دستگاه دیالیز ATF مستقر در مراکز غیر دانشگاهی

## دستگاههای دیالیز به تفکیک تولید داخل یا وارداتی

9048	تعداد کل دستگاههای دیالیز
930	تعداد دستگاههای دیالیز تولید داخل (ATF)
8118	تعداد دستگاههای دیالیز وارداتی

# تعداد دستگاه با کارکرد بالای 35000 ساعت



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732	تعداد دستگاه مراکز درمانی دانشگاهی
276	تعداد دستگاه مراکز درمانی غیر دانشگاهی

آمار دستگاههای از دور خارج شده  
از اداره کل تجهیزات پزشکی  
سازمان غذا و دارو قابل استعلام می باشد

# دیالیز صفاقی



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64	تعداد بخش دیالیز صفاقی
804	تعداد بیماران دیالیز صفاقی



# وضعیت موجودی محلول دیالیز



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تامین	محلول ماشین دیالیز
تامین به جز محلول اکسترانیل	محلول دیالیز صفاقی