

### The Hashemite Kingdom of Jordan Ministry of Health

### **Non-Communicable Diseases Directorate**

National Registry of End Stage Renal Disease

(ESRD)

### 11<sup>th</sup> Annual Report 2018

www.moh.gov.jo Tel: 5678197 Fax: 5656489 Jordan

### The Hashemite Kingdom of Jordan Ministry of Health

Non-Communicable Disease Directorate

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(ESRD)

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2018

**Prepared by:** 

Dr Nashaat Taani

Dr. Waddah W. Saleh

**Dr. Kamal Arqoub** 

#### Foreword

It is my pleasure to present to you the eleventh report of the Jordan National End Stage Renal Diseases Rigestry (ESRDR) for the year 2018, hopping that this report will assist health care providers, public health officers and NGO's in their work to prevent and control renal disease in Jordan.

The data presented in this report constitutes an organized and systematic data of ESRD registry, it provides prevelance, incidence and burden of ESRD in Jordan, and it will provide readers with information on the epidemiology of ESRD in Jordan and its distribution by age groups, gender and governorates. It also assists researchers, renal diseases experts and policy makers in identifying priorities for developing national startegies and programs for renal diseases early detection as well as prevention programs.

I express my greatfulness and appreciation to everyone who helped in the preparation and dissemination of this report, and assures all of you that the Ministry of Health will continue to support National End Stage Renal Diseases Registry by all available resources to make its mission ongoing and of greatest benefit.

**H.E Minister of Health** 

Dr. Saad Jaber

#### Acknowledgement

The National ESRD Registry operates under the umbrella of the Ministry of Health; however, it works in cooperation with a large number of hospitals from all health sectors, Nephrologists and Nurses working in dialysis units who provide the registry with valuable and vital data required for success.

We would like to thank all those who cooperate with us, report and facilitate our work, namely Nephrologists, Physicians, Nurses and staff of the Dialysis Units. The obvious support of focal points in all dialysis units is highly appreciated.

We would like to thank Mrs .Sajeda Abu Hamaidah for her effort in data entry of all ESRD Data to special designed software for the Registry.

Special thanks to our focal points-head of Renal unit in all governmental, private, military and university hospitals for the timely collection and submission of data to the registry. The interaction between the Registry and the Jordan Society of Nephrolog y is very positive and greatly appreciated. The dedicated hard work during the process of data collection and data entry of the staff in the registry is acknowledged.

Dr Nashat Taani

### Part one

#### **Back ground**

- The first kidney transplantation done in Jordan was on 18/05/1972 at the same main Military Hospital. It was the first to be done in the Middle East. 1981- The establishment of renal dialysis unit at Jordan university Hospital. The machine type was REDY "Sorbs system". It was portable, moving to Khaldi and Islamic Hospitals.

1982- The first renal dialysis Unit was established in private sector, it was at Al-Khaldi Hospital.

1984- The first kidney transplantation was done in private sector at Islamic Hospital, then at Al- Khaldi Hospital.

2009- The first kidney transplantation in Jordanian public hospital was done at Prince Hamza Hospital in October 2009 according to The Jordanian National Program Of Renal Transplantation of the JMOH.

So dialysis was introduced in Jordan in 1968. Ever since, there has been a continuous expansion of the dialysis centers in terms of the geographic coverage and capacity. The economic prosperity helped building the services all over the country.

Modern hemodialysis machines were installed in the vast majority of units, which allowed for the performance of bicarbonate dialysis, controlled ultra filtration, and sodium profile modeling. Also a wider choice of biocompatible dialyzers has become available during the last few years.

Recently, there has been an emerging concern about the projection of the increasing number of patients on dialysis and the future cost. Therefore, close observation of the development of dialysis has been a demand of the

Jordan center for organ transplantation. Preparing annual reports about all the modalities of RRT has become a demand activity.

National ESRD Registry, which is based on center and patient forms, is a useful tool to assess the quality of dialysis services and activities used to improve the adequacy of hemodialysis.

Jordan has had a growing number of persons developing CKD leading to ESRD. It is important to have a national registry in order to define the cause of ESRD, and to be able to perform (Inter) National comparisons in renal epidemiology.

Such a registry will monitor the causes, incidence, and prevalence of ESRD and any emerging trend.

A national ESRD registry will allow the determination of the burden of disease as well as planning and policy formulation in the health care sector. As the Registry develops, data will become available for patients with ESRD, as is reported here.

Finally, it is a great achievement to establish the National ESRD Registry, a new achievement in renal events in Jordan.

#### National Registry of End Stage Renal Disease:

The National Registry of End Stage Renal Disease was created in May 3<sup>rd</sup>, 2007 under the jurisdiction of the Ministry of Health by the order of his Excellency the Minister of Health.

#### **Objectives of the National Registry of End Stage Renal Disease:**

- Establish a national database system about patients of ESRD.
- Determine the burden of that disease, on country basis.
- Determine governmental payment on dialysis.
- Provide data about patients and their suitability to be transplanted, on a basis of priority.
- Stimulate beginning studies and researches about ESRD.
- Improve facilities of diagnosis and treatment for ESRD patients. Moreover, train dialysis technicians and national registry employees.

#### **Methodology:**

The National Registry of End Stage Renal Disease was created in 2007 and supported by the Ministry of Health. It is a database-system that collects data and information about almost all patients undergoing Renal Replacement Therapy (RRT), i.e. either dialysis (hemodialysis and peritoneal dialysis) or Kidney transplantation.

This is the eleventh national ESRD Registry report. Data were received from all (87) dialysis units in Jordan. It is assumed that those undergoing treatment in these units are represent the number of all ESRD cases , because all cases are treated on the expense of the government and even the patients undergoing home peritoneal dialysis.

Data about all ESRD patients (all nationalities ) who are receiving treatment in all dialysis units in Jordan (governmental ,military ,private and university hospitals) (RRT) during the year 2018 from ist Jan -31 Dec -2018 were collected from all dialysis units in the hospitals and then analyzed using special software statistical analysis(SPSS), Epi Info 7 and Excel. Two questionnaires (forms) used for data collection from hospitals. The first one is for the dialysis units: including number of beds, type of insurance of patient, nationality (Annex1).

The second form is for the patients, this form consist of demographic data, clinical data, source of treating facility, follow up and vital status of the patients and all these data will entered on special software for ESRD patients (Annex2). Patients who are not on Renal Replacement Therapy (RRT) and those who only received urgent dialysis or died shortly afterwards (less than 90 days) were not included in this report.

#### Method of Data Collection:

Data was collected from all renal dialysis units in Jordan, through the following methods: two types of data collection methods were applied:

- **1-** Passive Data Collection: in this system forms filled by dialysis units technicians and send to national renal registry MOH/NCDs Directorate.
- 2- Active Data Collection: In this system the head of Renal Registry Unit visited the dialysis units and fills the forms on the unit and complete all the variables from medical record of those patients. This to ensure more complete and accurate data

All forms were reviewed at the Renal Registry Unit and filtered and checked for any duplication and also document follow up data if the patient still alive or dead cause of death dates of last dialysis.

Data entered to special software designed for data of renal patients, Data analysis was done by using statistical package for the social sciences SPSS version 17.0.

Incidence and prevalence calculations in this report are based on the population by Department of Statistics (DOS) 2018

Age group	Male	Female	Total
0-4	414744	394940	809684
5-9	448422	428388	876810
10-14	399812	376875	776687
15-19	380943	355891	736834
20-24	363853	332953	696806
25-29	291222	274046	565268
30-34	250431	253845	504276
35-39	230245	233417	463662
40-44	209067	211896	420963
45-49	185514	183623	369137
50-54	141208	140156	281364
55-59	98658	99538	198196
60-64	69833	68466	138299
65-69	55341	57824	113165
70-74	45289	40882	86171
74-79	28610	27571	56181
80+	21808	22688	44496
Total	3635000	3503000	7138000

#### Table (1) Population of Jordan 2018

Figure (2) Population Pyramid – Jordan 2018



Governorate	Male	Female	Total
Amman	1395900	1356500	2752400
Balqa	216600	211000	427600
Zarqa	509700	485300	995000
Madaba	86200	82700	168900
Central region	2208400	2135500	4343900
Irbid	724900	693500	1418400
Mafraq	173300	165100	338400
Jarash	92700	88000	180700
Ajloun	86200	83100	169300
North region	1077100	1029700	2106800
Karak	147900	145600	293500
Tafirla	49600	47500	97100
Maan	77100	74100	151200
Aqba	74900	70600	145500
South region	349500	337800	687300
Total	3635000	3503000	7138000

### Table (2) Population distribution by Governorate and Gender,2018

#### **Part Two**

#### **Dialysis Units in Jordan**

There were 87 working Dialysis Units distributed all over the country. 37 units (43%) administered by Ministry of Health (MOH), 12 units (14%) administered by Royal Medical Services (RMS), 2 units (2%) administered by university hospitals: one administered by Jordan University Hospital, one by King Abdullah University Hospital (KAUH) and 36 units (41%) administered by Private Sector (PS), (Figure 3).

#### Figure (3) Distribution of dialysis units by health sector, Jordan 2018



#### Distribution of Dialysis Machines by Health Sector, Jordan 2018.

The total number of dialysis machines (932) in all units was distributed as followed: 435 (46.7%) machines in MOH units, 84(9.0%) machines in RMS, 34(3.6%) machines in universities hospitals and 379 (40.6%) machines in private sector hospitals, (Figure 4).



Figure (4) Distribution of Dialysis Machines by Health Sector, 2018

The focal points in all 87 Dialysis Units filled the special form of data collection and send it to National ESRD Registry located in the Ministry of Health. (Annex1), data about ESRD patients was received from all hospitals.

#### **Part three**

**ESRD** patients in Jordan

#### Prevalence of ESRD patients in Jordan (2018)

The total numbers of patients treated and registered in the Jordan Renal Registry by the end of 2018 was 5657 patients; of them 5318 were Jordanians (94 % ) and 339 were non Jordanians (6 % ). This part of the report only includes Jordanian patient –prevalence 2018 The number of Jordanian patients that registered in ESRD and treated in hospitals for the year 2018 was 5318 patients, while the number of new cases of ESRD for the year 2018 was 649 patients , out of them 624 patients (96 %) were Jordanians , 25 (4 %) were non Jordanians. . Figure (5) Number of prevalent ESRD and deaths patients in Jordan during (2008-2018)



#### **Prevalence of ESRD Patients in Jordan, 2018**

The total number of ESRD patients during the year 2018 was 5318 patients who are receiving hemodialysis or peritoneal dialysis in the hospitals from all sectors.

## Distribution of ESRD patients according to age groups and gender, 2018

Table (4) shows the distribution of ESRD patients according to the age groups and gender,. The median age of patients was (59) years, (58 years for males and 61 years for females).

Table (4) also shows the distribution of ESRD cases by prevalence rate per million populations (PPM), the overall prevalence per Million Populations in Jordan was (745/1,000,000).

	Male		F	emale	Total		
Agegroup	No	PPM	No	PPM	No	PPM	%
0-10	49	13.48	38	11.11691	87	12.19	1.64
10_20	93	25.58	87	25.5	180	25.22	3.38
20-30	162	44.57	151	44.2	313	43.85	5.89
30-40	279	76.75	147	43.0	426	59.68	8.01
40-50	631	173.59	297	86.9	928	130.01	17.45
50-60	744	204.68	265	77.5	1009	141.36	18.97
60-70	455	125.17	491	143.6	946	132.53	17.79
>70	659	181.29	508	148.6	1167	163.49	21.94
Missing	139	38.24	123	36.0	262	36.70	4.93
Total	3211	883.36	2107	616.4	5318	745.03	100.00

# Table (4) Distribution of ESRD according to age groups and gender andPrevalence Rate per million (PPM), 2018

#### International comparison of prevalence rate of Hemodialysis ESRD patients

Figure (6) shows the International comparison of prevalence rate of Hemodialysis patients Per Million Population (PMP) in Jordan and other countries . The overall Prevalence Per Million Populations in Jordan in 2018 is (745/1,000,000) compared with other countries.

## Figure (6): International comparison of prevalence rate of Hemodialysis (PPM)



#### 1. Socio demographic characteristics of ESRD prevalent patients:

Figure (7) shows the distribution of patients who underwent hemodialysis treatment in renal dialysis units in all Jordanian hospitals during the year 2018 according to gender. The number of patients treated in the Dialysis Units was 5318 patients , out of them 3211 were male patients which accounted (60.4 %) , and 2107 were female patients accounted (39.6%) , with male to female ratio 1.6:1.



Figure (7) Distribution of ESRD patients by Gender 2018





## Figure (9) Distribution of total cases by gender and age group - 2018



#### Distribution of ESRD patients according to marital status and gender

Table (5) shows that the majority of ESRD patients were married (70.5 %), while (15.6 %) of the ESRD patients were singles , (1.96 %) of the patients were divorced.

# Tables (5) Distribution of ESRD patients according to marital status2018

	Male		Female		Total	
Marital Status	No	%	No	%	No	%
Married	2463	76.71	1286	61.03	3749	70.50
Single	507	15.79	325	15.42	832	15.64
Divorced	46	1.43	58	2.75	104	1.96
Widow	91	2.83	343	16.28	434	8.16
Missing	104	3.24	95	4.51	199	3.74
Total	3211	100.00	2107	100.00	5318	100.00

# Distribution of ESRD patients according to employment status and gender

Table (6) shows the distribution of the ESRD patients according to their employment status for both genders. House wife's accounted (29 %), (10%) of the patients were employed either governmental or non-governmentally and military services, (23%) were retired, and (5%) were students, (18%) of the patients were unemployed, missing data about employment was (11%).

	male		female		total	
Employment	no	%	No	%	No	%
وظف حكومي	266	8.28	76	3.61	342	6.43
موظف قطاع خاص	208	6.48	34	1.61	242	4.55
موظف عسكري	67	2.09	3	0.14	70	1.32
صاحب مصلحة خاصة	192	5.98	8	0.38	200	3.76
ربة منزل	0	0.00	1577	74.85	1577	29.65
طالب	111	3.46	91	4.32	202	3.80
متقاعد بسبب العمر	1117	34.79	64	3.04	1181	22.21
متقاعد بسبب العجز	14	0.44	0	0.00	14	0.26
عاطل عن العمل	742	23.11	85	4.03	827	15.55
رفض الاجابة	11	0.34	0	0.00	11	0.21
غير معروف	483	15.04	169	8.02	652	12.26
Total	3211	100.00	2107	100.00	5318	100.00

#### Table (6) Distribution of ESRD patients by employment status 2018

#### Distribution of prevalent ESRD patients by health sector

Out of the all 5318 prevalent ESRD patients 2249 patients (43.8%) were treated in MOH Dialysis Units , 994 patients (19.4%) treated in RMS Dialysis Units, 143 patients (2.8%) treated in university hospital Dialysis Unit, and 1644 patients (32.0%) treated in Private Sector Dialysis Units.(Figure 10



Figure (10) Distribution of prevalent ESRD patients by Health

Sector, 2018

#### Distribution of ESRD cases according to the type of insurance

Table (7) shows the distribution of ESRD patients according to insurance type. (99%) of patients were insured by one of the various types of health insurance. (40%) of the patients were insured by Kidney Patients Fund in health insurance directorate in Ministry of health. (0.24%) were not covered by any type of insurance.

# Table (7) Distribution of ESRD patients by type of insurance and gender2018

	male		female		total	
Insurance Type	no	%	No	%	No	%
حكومي	679	21.15	463	21.97	1142	21.47
قطاع خاص	22	0.69	18	0.85	40	0.75
عسكري	926	28.84	677	32.13	1603	30.14
ص. مرضى الكلى	1312	40.86	814	38.63	2126	39.98
جامعة	65	2.02	54	2.56	119	2.24
وكالة الغوث	2	0.06	1	0.05	3	0.06
فقراع	35	1.09	31	1.47	66	1.24
لا يوجد تأمين	11	0.34	2	0.09	13	0.24
غير معروف	159	4.95	47	2.23	206	3.87
Total	3211	100.00	2107	100.00	5318	100.00

#### Distribution of ESRD patients by Governorate

The overall prevalence per Million Population in Jordan is (745/1,000,000), the highest percent was found in Amman governorate (43.8%) followed by Irbid governorate (15.25%) Zarka governorate (13.3) Balgah governorate (6.88%) and Karak governorate (4.11%)

Governorate	Male	Female	total	percent
Amman	1542	787	2329	43.8 %
Zarqa	412	296	708	13.3 %
Balqaa	212	154	366	6.88 %
Madaba	92	79	171	3.2 %
Central Region	2258	1316	3574	67.2 %
Irbid	427	384	811	15.25 %
Mafraq	109	75	184	3.45 %
Jarash	80	63	143	2.68 %
Ailoun	74	59	133	2.5 %
North Region	690	581	1271	23.9 %
Karak	122	97	219	4 11%
Tafilah	122	38	84	1 57 %
Maan	51	33	<u> </u>	1.57 %
A gaba	31	35	59	1.00 0/
South Pagion	251	104	30	2.4 0/
	12	174	- 443	0.52 0/
IVHSSINg	12	10	20	0.52 %
Total	3211	2107	5318	100 %

Table (8) Distribution of ESRD patients by Governorate 2018

#### Distribution of ESRD prevalent patients by primary cause

Table (9) shows the main primary causes of ESRD:

The most common primary cause is Diabetes Hypertension (30.69 %), followed by Diabetes (25.71 %), Diabetes Mellitus and Hypertension (23.39%), Glomerulonephritis (3.91%), Infection (3.38%), Polycystic kidney disease (2.78%) and congenital causes (2 %),

Table (9) Distribution of primary causes of ESRD for the year 2018

	male		female		total	
causes	no	%	No	%	No	%
HTN	979	30.49	653	30.99	1632	30.69
DM	854	26.60	513	24.35	1367	25.71
Both DM & HTN	756	23.54	488	23.16	1244	23.39
Glomerulonephritis	129	4.02	79	3.75	208	3.91
infection	102	3.18	78	3.70	180	3.38
Polycystic Kidney	82	2.55	66	3.13	148	2.78
congenital	53	1.65	55	2.61	108	2.03
Drugs	46	1.43	35	1.66	81	1.52
vesico	45	1.40	21	1.00	66	1.24
SLE	11	0.34	25	1.19	36	0.68
other	154	4.80	94	4.46	248	4.66
Total	3211	100.00	2107	100.00	5318	100.00

#### Co-morbidity and some risk factors with ESRD

The data showed the presence of other medical conditions coexisting with the ESRD condition itself. The prevalence of co-morbidity in ESRD patients showed tha (58.4 %) of patients were hypertensive, (51.3%) Diabetes , while cardiovascular diseases were found in (12.26%) of ESRD patients. The prevalence of smoking in ESRD was (8.96%) and (4.81 %) of the patients had family history of renal diseases, Table (10).

#### Table (10) Prevalence of co-morbidity and some risk factors with ESRD 2018

Co morbidity	Frequncy	%
HTN	3106	58.4
Diabetes	2732	51.3
Both DM & HTN	1964	36.9
Cardiac Disease	652	12.26
Smoking	477	8.96
Urinary Disease	378	7.1
Family History	256	4.81
Malignancy	59	1.10
Other	214	4.02

#### **Distribution of ESRD patients according to type of Dialysis**

Figure (12) shows that 164 patients (3.08 %) were treated by peritoneal dialysis, while 5154 patients (96.92 %) were treated by hemodialysis.

#### Figure (12) Distribution of ESRD patients by type of Dialysis 2018



#### Distribution of Hemodialysis patients by number of sessions /week

Figure (13) shows that 3338 patients underwent Hemodialysis. thrice a week (65%), twice a week 1644(32%), once a week 108(2%), and 64(1%) four times a week, the average duration of the every session is almost four hours.

5154 patients are in hemodialysis

# Figure (13) Distribution of Hemodialysis patients by number of sessions /week



#### Distribution of ESRD cases according to fitness for transplantation

Table (11) shows that 2210 (41.6%) from both genders were considered candidates for transplantation, and 2432 not candidates for transplantation (45.7%), no available data on 676 (12.7%) of ESRD patients.



#### Table (11) Distribution of ESRD patients by fitness for transplantation

Patient Candidate Total							
	G	ender					
Candidate	Male	Male Female		%			
Yes	1331	879	2210	41.6			
No	1502	920	2432	45.7			
Unknown	378	308	676	12.7			
Total	3211	2107	5318	100			

#### Distribution of ESRD cases according to unfitness for transplantation

Table (12) and Figure (14) show that the main causes of unfitness for transplantation were as followed: age 958 patients (44.8%), medical causes 819 patients (38.3%) of all cases, malignancies in 47 patients (2.2%), while unknown causes for the cases were 147 patients (6.9%) of all patients.

cause	No	%
Age	1022	42.0
Malignancy	59	2.4
Medical Cause	962	39.6
Other Causes	218	9.0
Missed	171	7.0
Total	2432	100.0

#### Table (12) Causes of unfitness for transplantation



#### Figure (14) Causes of unfitness for transplantation

# Distribution of fitness of ESRD patients by priority level for transplantation

Figure (15) and Table (13) show the priority level for transplantation for patients who are candidate for transplantation 909 patients (39%) were considered of high priority level for transplantation and 791 patients (34%) considered of medium, and 462 patients (20%) of low priority and 161 (7%) had no data about their priority level.



#### Figure (15) Distribution of fitness of ESRD patients by Priority level for Transplantation

Table (13) Priority level for ESRD patient candidate for transplant-2018

Priority Level For ESRD candidate for Transplant 2018							
	Male		Female		Total		
Priority level total	No	%	No	%	No	%	
High	564	40	252	31.8	816	37	
Medium	512	36	321	40.5	833	37.5	
Low	242	17	139	17.5	381	17	
Unknown	101	7	79	9.9	180	8.5	
Total	1419	100	791	100	2210	100	

#### Distribution of ESRD cases according to availability of a donor 2018

Figure (16) shows that 1735 patients (79%) had no available donor, and 338 patients (15%) had available donor, 137 patients (6%) had no data about available donor, this reflects the burden of ESRD in Jordan.

#### Figure (16) Distribution of ESRD patients by availability of a donor Prevalence of Hepatitis B and C in prevalent ESRD patients



Table (14) shows the prevalence of hepatitis B and C in ESRD patients.

(0.9 %) of the cases had Hepatitis B and (1.13 %) had Hepatitis C.

#### Table (14) Prevalence of Hepatitis B and C in ESRD patients

Туре		Hepati	itis B		Hepatitis C				
	Male	female	t	otal	Male	female	total		
Gender	No	No	No	%	No	No	No	%	
Positive	71	35	106	1.99	108	58	166	3.12	
Negative	2633	1620	4253	79.97	2507	1578	4085	76.81	
Missed	507	452	959	18.03	596	471	1067	20.06	
Total	3211	2107	5318	100.00	3211	2107	5318	100.00	

#### **Part Four**

#### **Incidence of ESRD Patients**

The total number of patients who treated in the dialysis units by the end of 2018 were (5572) patients, but the number of new cases for the year 2018 was 649 patients; of them 624 were Jordanians (96.15%) and 25 were non Jordanians (3.85%).

This part of the report only include Jordanian patient – incidence 2018, The number of new cases of ESRD Jordanian patients for the year 2018 was 624 patient.

#### **Incidence of ESRD, 2018**

Table (15) and Figure (17) show the distribution of ESRD incident patients in 2018 according to the age group and gender, with a mean age of 54.3 years, and median age of 55 years. Table (15) also shows the distribution of ESRD patients by Age-Specific Incidence Rate per million (ASIR). The overall Incidence per Million Populations in Jordan was (87.42/1,000,000).

Agegroup	l	Male	F	emale	Total			
	No	PPM	No	PPM	No	PPM	%	
0-10	7	1.93	2	0.57	9	1.26	1.44	
10_20	7	1.93	10	2.85	17	2.38	2.72	
20-30	22	6.05	10	2.85	32	4.48	5.13	
30-40	30	8.25	19	5.42	49	6.86	7.85	
40-50	49	13.48	21	5.99	70	9.81	11.22	
50-60	77	21.18	29	8.28	106	14.85	16.99	
60-70	71	19.53	56	15.99	127	17.79	20.35	
70-80	40	11	62	17.7	102	14.29	16.35	
80-90	9	2.48	11	3.14	20	2.8	3.21	
90-100	2	0.55	0	0	2	0.28	0.32	
Missing	53	14.58	37	10.56	90	12.61	14.42	
Total	367	100.96	257	73.37	624	87.42	100	

## $Table\ (15)\ \text{Distribution}\ \text{and}\ \text{ASIR}\ \text{of}\ \text{ESRD}\ \text{cases}\ \text{by}\ \text{gender}\ \text{and}\ \text{age}\ \text{group}\ \text{-}\ \text{Incidence}\ 2018$

\*ASIR per Million population





Distribution of incident ESRD patients by health sector

Figure (18) shows that the new number of patients treated in the Dialysis Units in 2018 were 624 patients; 233 patients (37.4%) treated in MOH Dialysis Units, 213 patients (34%) treated in RMS Dialysis Units, 27 patients (4.2%) treated in university hospital Dialysis Unit, and 150 patients (24%) treated in Private Sector Dialysis Units.



#### Figure (18) Distribution of ESRD patients by health sector, 2018



#### Distribution of ESRD incident patients by gender

In the years 2018, out of the total (624) new cases of ESRD, 367 patients (59%) were males and 257 patients (41%) were females with male to female ratio1.4:1 Figure (19)

#### **Distribution of ESRD Incident patients by primary cause**

Table (16) shows the main primary causes of ESRD Incident patients: The most common primary cause was Diabetes (31.3%), followed by HTN (26.35%), Diabetes Mellitus and Hypertension (24.81%), Infection (4.63%) Glomerulonephritis (3.47%) and then congenital causes (1.8%) Polycystic kidney disease (1.67%), Drugs (1.41%), Vesico uretric reflux (0.77%), and others was (3.73%) of the patient

### Table (16) Primary causes of ESRD for the year 2018- Incidence

		Male	]	Female		Total
Causes	no	%	No	%	No	%
HTN	123	33.51	87	33.85	210	33.65
DM	105	28.61	53	20.62	158	25.32
Both DM & HTN	89	24.25	67	26.07	156	25.00
Glomerulonephritis	14	3.81	12	4.67	26	4.17
Polycystic Kidney	15	4.09	5	1.95	20	3.21
infection	5	1.36	5	1.95	10	1.60
Drugs	3	0.82	3	1.17	6	0.96
Congenital	4	1.09	1	0.39	5	0.80
Vesico	3	0.82	2	0.78	5	0.80
SLE	0	0.00	3	1.17	3	0.48
other	6	1.63	19	7.39	25	4.01
Total	367	100.00	257	100.00	624	100.00

#### **Distribution of ESRD patients by Nationality**

Figure (20) shows the distribution of ESRD patients according to Nationality, in 2018 there were (25) non-Jordanian patients accounted (3.85%) and 624 Jordanian patients accounted (96.15%).



#### Figures (20) Distribution of ESRD patients by Nationality 2018

Nationality		Male	1	female	Total		
nationality	No	%	No	%	No	<u>%</u>	
Jordanian	367	96.07	257	96.98	624	96.15	
Non JOR	15	3.93	10	3.77	25	3.85	
Total	382	100.00	267	100.75	649	100.00	

#### **Distribution of ESRD patients according to type of Dialysis**

Figure (21) shows that in 2018, only 28 patients (4.48 %) were treated by peritoneal dialysis, while 596 patients (95.52%) were treated by hemodialysis.

#### Figure (21) Distribution of ESRD patients by type of Dialysis, 2018



**Distribution of ESRD cases according to fitness for transplantation,** 2018.



**Figure (22)** shows that there were 301 (48 %) candidates for transplantation, and 323 not candidates for transplantation (52%).

#### Distribution of fitness of ESRD patients by Priority level for transplantation

**Figure (23)** shows the priority level for transplantation: in 2018 it was found that 66 patients (11 %) were of high priority level for transplant, 269 patients (43 %) of medium and 277 patients (44 %) of low propriety level , and 12 patients (2%) had missing data

#### Figure (23) Distribution of fitness of ESRD patients by Priority level for Transplantation 2018



#### Distribution of mortality among ESRD patients

In the year 2018 a total of 28 ESRD patients (4.48 %) died during this year, 11 of them were females and 17 were males of different age group Figure (24).



Figure (24) Distribution of mortality in ESRD patients 2018

#### **Part Five:**

#### **Pediatric ESRD**

The total number of pediatric patients from 0-14 years was 147 patients in 2018.

**Figure (25)** shows the distribution of Pediatric ESRD who treated in renal dialysis units in all hospitals during the year 2018 according to sex. There were 147 patients, out of them 80 were males (54.42%) and 67 were female patients accounted (45.58%).



Figure (25) Distribution of ESRD pediatric patients by Gender

#### Distribution of Pediatric patients according to type of Dialysis

The total number of pediatric patients from 0-14 years was 147 patients. Out of them 120 patients were treated by hemodialysis and 27 on peritoneal dialysis. Figure (26) shows distribution of pediatric patients according to type of dialysis.

Figure (26) Distribution of Pediatric patients according to type of Dialysis



#### <u>Part six</u>

#### **ESRD** Mortality

#### **Distribution of mortality among ESRD patients**

Figures (27-29) and table (18) show the distribution of deaths for ESRD patients, 339 patients out of 5657 were died during the year 2018 . 217 (64%) of them were males, and 122 (36%) were females. Median age at death was 61 years, (59 years for males and 62 years for females).







Figure (28) Distribution of mortality in ESRD patients according to gender

#### Figure (29) Distribution of mortality in ESRD patients by age group and gender



Table (17) Distribution of mortality in ESRD patients by age group an	d
gender	

	Male		F	emale	Total		
Agegroup	No %		No	%	No	%	
0-10	3	1.38	1	0.83	4	1.18	
10_20	6	2.75	4	3.31	10	2.95	
20-30	5	2.29	4	3.31	9	2.65	
30-40	11	5.05	9	7.44	20	5.90	
40-50	37	16.97	17	14.05	54	15.93	
50-60	68	31.19	26	21.49	94	27.73	
60-70	65	29.82	47	38.84	112	33.04	
>70	22	10.09	14	11.57	36	10.62	
Total	217	99.54	122	100.83	339	100.00	

#### Part seven :

#### ESRD patients among Non-Jordanians, 2018

#### Distribution of ESRD patients by Nationality

Figure (30) shows the distribution of ESRD patients according to Nationality, The total number of patients among Non-Jordanians was (339).

#### Figure (30) Distribution of ESRD patients by Nationality



#### Distribution of ESRD patients among Non-Jordanians by Gender

Figure (31) shows the distribution of Non-Jordanians ESRD patients who treated in renal dialysis units in all Jordanian hospitals during the year 2018 according to gender, the number of patients treated in the Dialysis Units were 339 patients, 216 ( 64 % ) male , and 123 ( 36 % ) female

Figure (31) Distribution of ESRD patients among Non-Jordanians by gender



#### ESRD patients among Non-Jordanians according to age groups

Table (18) Figure (32) shows the distribution of Non-Jordanians patients according to the age groups and gender, which indicates that the highest occurrence of the cases was among the age group (60-70) years for both genders, followed by age-group (50-60) years for both genders

## Table (18) Distribution of ESRD patients among Non-Jordaniansaccording to age groups and gender, 2018

	Male		F	'emale	Total		
Agegroup	No %		No	%	No	%	
0-10	2	0.93	1	0.81	3	0.88	
10_20	16	7.41	6	4.88	22	6.49	
20-30	11	5.09	12	9.76	23	6.78	
30-40	22	10.19	16	13.01	38	11.21	
40-50	31	14.35	13	10.57	44	12.98	
50-60	42	19.44	23	18.70	65	19.17	
60-70	45	20.83	29	23.58	74	21.83	
>70	31	14.35	16	13.01	47	13.86	
Missing	16	7.41	7	5.69	23	6.78	
Total	216	100.00	123	100.00	339	100.00	

#### Figure (32) Distribution of ESRD patients among Non-Jordanians according to age groups and gender, 2018



#### References

1- Annual Report, Jordan, 2016. Department of Statistics (DOS)

2- BRFSS Survey, 2007 Ministry of Health (MOH) Jordan.

3- Cancer incidence in Jordan, MOH, 2014.

4- Global Youth Tobacco Survey, Anti-Smoking Society Association, Jordan,

5- Mortality Data in Jordan, 2014, information and mortality section annual report 2014-Ministry of Health, Jordan.

#### (Annex 1)

المملكة الأردنية الهاشمية وزارة الصحة مديرية الأمراض غير السارية السجل الوطني لمرضى الفشل الكلوي استمارة معلومات حول وحدات الديلزة الكلوية

									١ ـ التاريخ	
									۲ ـ اسم المستشفى	
	٣-العنوان									
	٤ - رقم الهاتف									
	٦ - ضابط الارتباط									
	٩- رقم الهاتف									
١٥-المجموع	١٤-معطل ١٥-المجموع			ط	۱۳-احتيا	١١ـعادي ١٢ـعزل		۱۱ ـ عادي	١٠ - عدد الأجهزة موزعة كالتالي	
									١٦ ـعدد الورديات العاملة	
٢٣ -المجموع	ای	۲۱۔ ۲۲۔ مکریین غیر ذلک		æ	- صندوق ىرضى الكلى	۲.	۱۹ ـ بطاقة غير قادر	۱۸ ـ تامين صحي مدني	١٧-عدد المرضى الأردنيين موزعين كالتالي	
۲۷ - المجموع								٢٥ الجنسية	۲٤-عدد المرضى	
				غير الأردنيين						
	رضي في الوحدة									

٢٩- ملاحظات :