



**Palestine State**

**Ministry Of Health**

**The First Annual End Stage Renal Disease ( ESRD) Report Registry On Gaza- Strip  
And The Replacement Therapy**

**2018**

**Organ Transplantation Unite**

**OTU**

**June 2019**



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## Abstract

Renal registry was established by the Organ Transplantation Unit as early activity of the unit at 2018 year on start , the primary aim of collating data centrally from the renal centers to improve care of the patients with end stage renal disease (ESRD) , although originally limited to patients on renal replacement therapy ( RRT) either renal transplantation or renal dialysis .

On Gaza strip MOH creating care for about 831 patients on maintenance hemodialysis and about 340 transplanted patients .

Renal transplantation program on Gaza strip decrease the pill cost by about 120,000 \$ for only one patient on comparison with other hemodialysis patient ,( the average transplanted kidney age 10 years ) .

Renal hemodialysis pill cost annually is about 10 million \$ .

Renal transplanted pill cost is about 10 – 15 thousand \$ , this cost will be decreased gradually during the next year up to 1500 \$ ( medications & drugs )and also will be decrease more on the following years .

The average hemodialysis patients increasing about 13 % annually ( 120 – 140 new cases ) ,in relation to an average of deaths is about 9% ( 81 death cases ) during the year of 2018 .

The most common primary cause is Hypertension (31%), followed by Diabetes Mellitus and Hypertension (19.3%), Diabetes Mellitus (17.3 %), Glomerulonephritis (5.9) and then Polycystic kidney disease (4.2%) congenital causes(6 %), Infection (2.6%)and others (13.7) .

More than (41.5%) of the total patients in between the age 60 -69 years old , about (24.11%) less than 40 years old .

Percentage of hemodialysis patients male to female is ( 57% -- 43% ) .

Geographical distribution of hemodialysis patients Gaza city ( 376 patients ) ,North ( 140 patients ) , Khanyounis (132 patients ) , Wissta (88 patients ) & Rafeh (95 patients ) .

Renal transplantation program were on progressing and developing stage started on February 2013 , 65 patients are transplanted up to this time on Gaza city from total number of the transplanted patients (340 patients ) .

Percentage of transplanted patients male to female is (69.1% -- 30.9% ) .

Distribution of transplanted patients regarding governorates Gaza ( 157 patients ) North (73 patients), Khanyounis (72 patients ) ,Wissta (20 patients ) ,and Rafeh ( 18 patients ) .

## **Foreword**

It is my great pleasure to present to you the first report of the Palestinian National End Stage Renal Disease Registry (ESRDR) for the year 2018 on Gaza-Strip. We hope that this report will assist health care providers, public health officials, NGOs in their work to prevent and control renal diseases in Gaza -Strip. As Organ Transplantation Unite Directorate , I will assure that Gaza- Strip ESRD Registry will receive all the support that the ministry can offer. The annual report of the Gaza- Strip Renal Registry explores the trends and characteristics of (ESRD) in Gaza- Strip and clarifies many misconceptions, while providing informative and reliable data to help in policy building at a national level. The data presented in this report constitutes an organized and systematic data of ESRD registry, it provides prevalence, incidence and burden of ESRD in Gaza- Strip , and it will provide readers with information on the epidemiology of ESRD in Gaza- Strip and its distribution by age groups, gender, and governorates. It also assists researchers, renal diseases experts, and policymakers in identifying priorities for developing national strategies and programs for renal diseases early detection as well as prevention programs. I express my gratefulness 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.

## Introduction

ESRD remains one of the leading causes of morbidity and mortality in Gaza-Strip. As life expectancy increases in Gaza-Strip, the proportion of elderly population is expected to increase; this will lead to higher prevalence of non-communicable diseases including renal diseases that may lead eventually to ESRD, although chronic kidney disease sometimes results from primary diseases of the kidneys themselves, diabetes and hypertension remained the major causes of ESRD. Chronic kidney disease could not be prevented in most circumstances, but screening and control of chronic diseases mainly diabetes mellitus and hypertension will decrease the occurrence of renal complications of these diseases with resulting reduction of ESRD. In the ESRD Registry we are collecting all data relevant for ESRD patients and create a data base for the problem in Gaza- Strip, this enables us to determine the incidence, prevalence, epidemiologic characteristics of patients including age, sex, governorate; it also enables us to determine mortality and burden of the disease in our Sector. The Registry provides researchers and scientists with data that help in conducting further research on ESRD, and present important data, figures and statistics for decision makers for the process of planning and implementing preventive programs for ESRD. With great pleasure we present our first annual ESRD report, including prevalence and the incidence of ESRD in Gaza-Strip for the year 2018, reviewing the ongoing changes in the ESRD Registry, using the data to give direction to renal-control planning and programs in the fields of prevention, screening, treatment, and to monitor and evaluate the impact of these programs. This report will help understand the ESRD incidence in Gaza-Strip and thus will enhance prevention and control efforts of the National Renal Registry Program. The team involved in producing this report had made great efforts to present the graphics and tables in a clear, very concise and user-friendly way hoping this will facilitate their utilization and comprehension.

## Geography

Gaza-Strip is located in the Middle East, extending about 51 Kilometers from North to South, it is bounded in the North by historical Palestine land (Israel), East by historical Palestine land (Israel), South also by Egypt and West by Mediterranean sea. The total surface area is 360 Km<sup>2</sup>. The climate of Gaza –Strip as a whole is moderate, there are four seasons. The temperature ranged from 5°C in winter to 38°C in summer. Gaza - Strip is divided into five Governorates (North, Gaza, Wistta, Khanyonis and Rafah governorates).

## Population

The population of Gaza-Strip is 2,090,405 (1,059,522 males and 1,030,883 females), male: female ratio 1: 1.04 according to the true census conducted April 2018. (Department of Statistics Palestine, 2018). About 11.3% of the population under the age of 5 years, 34.5% under the age of 15 years and 61.3% of the population at the age 15-64 years, only 4.2 % of the total population above the age of 65 (Sex Ratio in 2018: 1: 1.04) males for females). Table (1) and figure (2) show the age distribution of Gaza-Strip population, 2018 (Gaza-Strip Population Pyramid). Table (2) shows the population distribution of Gaza-Strip by governorates and gender, which is used to calculate incidence rates for different regions. Gaza-Strip divided into five governorates. The Central region Gaza governorate constitutes about 37.6% of the total population with population density of (10488) person per Km<sup>2</sup>. North governorate constitutes 16.3% of the population with a population density of (5604) person per Km<sup>2</sup>. Wistta governorate which constitutes 14.1% of the population with a population density of 5226 per Km. Khanyonis governorate constitutes (19.4%) of the population with a population density of 3763 per Km. Rafah governorate constitutes (12.5%) of the population with a population density of 4013 per Km.

**Figure (1) Map of the Gaza –Strip , Palestine**



**Table 1**

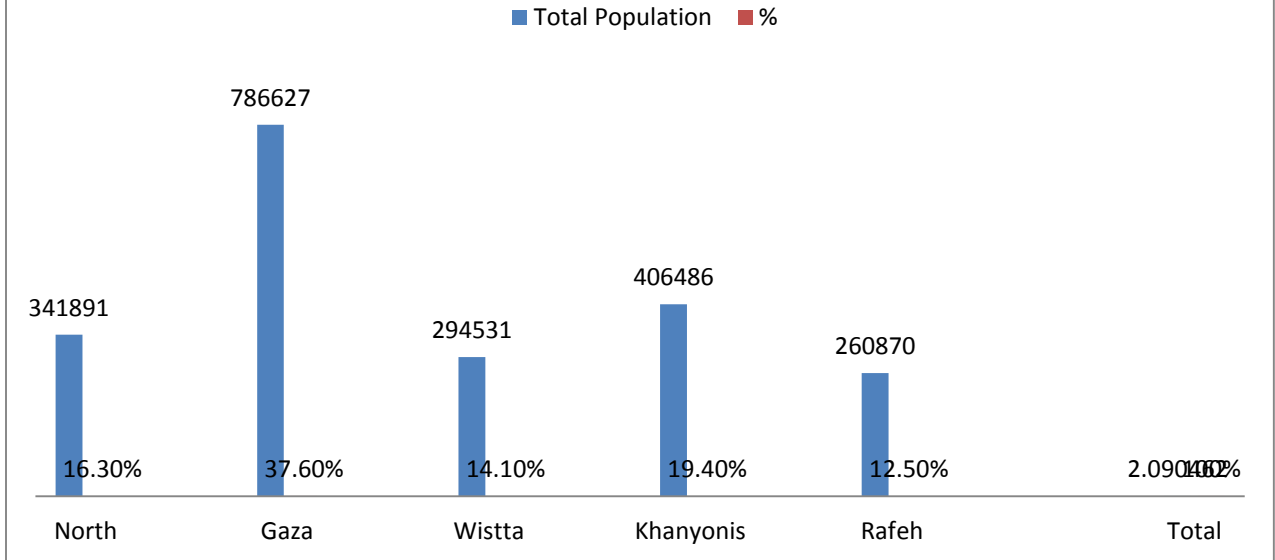
Governorates	Total Population	%	Population Density (persons per KM2 )
North	341891	16.3%	5604
Gaza	786627	37.6%	10488
Wistta	294531	14.1%	5229
Khanyonis	406486	19.4%	3763
Rafeh	260870	12.5%	4013
<b>Total</b>	<b>2.0904620</b>	<b>100%</b>	<b>5819 Average density for Gaza -Strip</b>



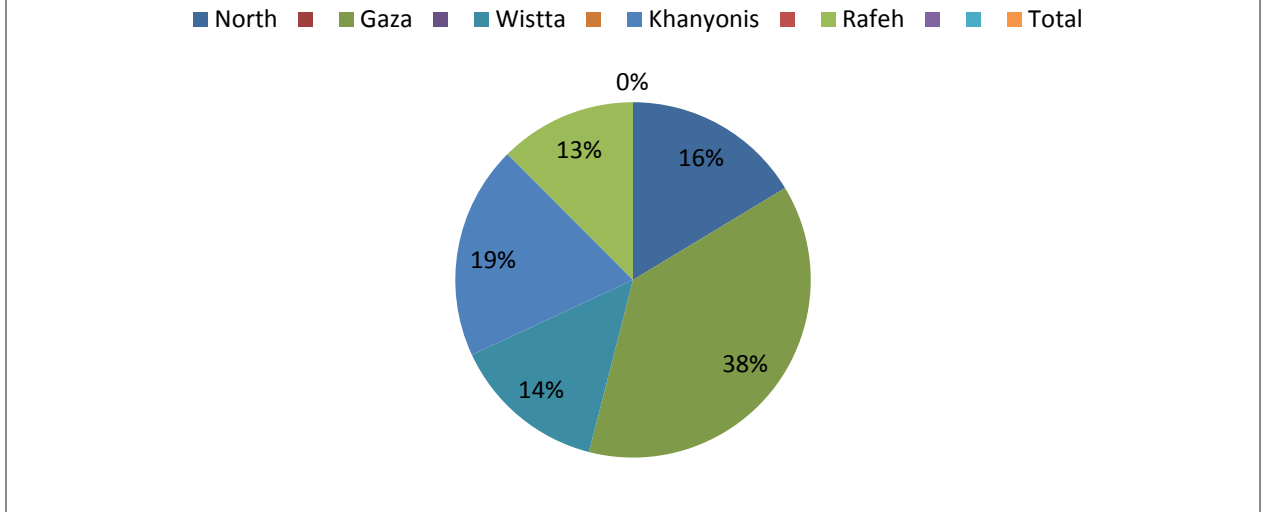
**Table 2****Estimated Population of Gaza –Strip 2018**

<b>Gender Age group</b>	<b>Male</b>		<b>Female</b>		<b>Total</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>0-4</b>	120835	11.4	116489	11.3	237324	11.3
<b>5-9</b>	130374	12.3	125767	12.2	256141	12.3
<b>10-14</b>	116595	11	111335	10.8	227930	10.9
<b>15-19</b>	111295	10.5	105150	10.2	216445	10.3
<b>20-24</b>	105995	10.0	97933	9.5	203928	9.8
<b>25-29</b>	84796	8.0	80408	7.8	165204	7.9
<b>30-34</b>	69957	6.6	74223	7.2	144180	7.1
<b>35-39</b>	66777	6.3	69069	6.7	135846	6.5
<b>40-44</b>	61477	5.8	61853	6.0	123330	5.9
<b>45-49</b>	54057	5.1	53605	5.2	107662	5.2
<b>50-54</b>	41383	3.9	41235	4.0	82618	3.9
<b>55-59</b>	28618	2.7	28864	2.8	57482	2.8
<b>60-64</b>	20139	1.9	20617	2.0	40756	1.9
<b>65+</b>	44518	4.2	44328	4.3	88846	4.2
<b>Total</b>	1059957	100.0	1030883	100.0	2090462	100.0

## Total population by governorates



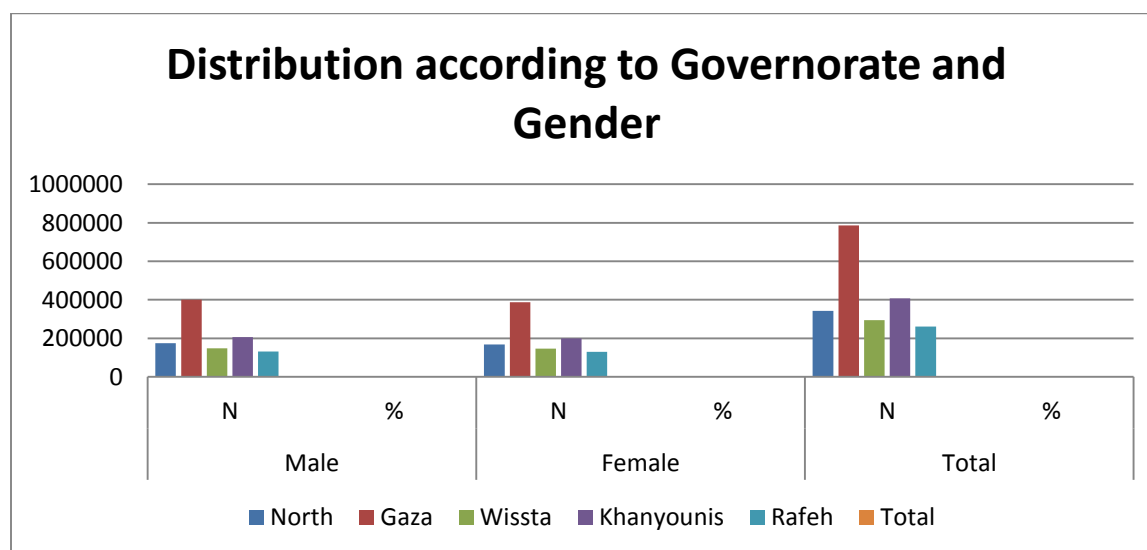
## Total Population



**Table 3**

**Population distribution by Governorate and Gender, Gaza Strip, 2018**

Gender Governorate	Male		Female		Total	
	N	%	N	%	N	%
North	174330	8.33%	167588	8.01%	341891	16.3%
Gaza	399711	19.12%	386916	18.50%	786627	37.6%
Wissta	148114	7.08%	146417	7%	294531	14.1%
Khanyounis	206404	9.87%	200082	9.57%	406486	19.4%
Rafeh	130990	6.26%	129880	6.21%	260870	12.5%
Total	1.0595790	50.7%	1.0308830	49.3%	2.0904620	100%



**When it is right, no one remembers.**

**But when it fails, all have to remember”**

It is described as a small- sized, light-weighted, bean- shaped but a smart organ. Some consider it as the secretary of the body as it deals with each inbox and outbox in the body. Its dysfunction may affect the functions of other organs and systems. It may be affected by dysfunctions of other organs and systems. When it fails, whether acutely or chronically, this may manifest as multiple signs and symptoms relating to multiple systems in the body. So the patient of kidney failure is considered as all patients in one. As a consequence, the Nephrologists must also be all physicians in one. In the past Stewart Cameron said,” for those who have chosen a career in Nephrology there can be no better basic Moto than to strive to be a person with some technical skill, a broad spectrum of scientific knowledge, and with those personal characteristics of warmth and humanity that serve to cement the science of medicine to the art of medicine. Kidneys are the first and so far the only organs whose function can be replaced by a machine. Kidney Failure can be acute, called Acute Kidney Injury (AKI) or chronic, called Chronic Kidney Disease (CKD). When patients of Chronic Kidney Disease (CKD) have reached stage 4 CKD i.e. Glomerular Filtration Rate (GFR)  $< 30 \text{ ml /min / } 1.73 \text{ m}^2$  , ideally they are under a Nephrologists' care. Stage 5 CKD i.e. GFR is  $< 15\text{ml/min /}1.73 \text{ m}^2$  , is called dialysis stage. Renal Replacement Therapy “RRT” means of dialysis and transplantation. Worldwide, the machine of dialysis had served millions of ESRD patients

## **Status of “Renal Replacement Therapy” in Gaza -strip**

Proudly speaking, Gaza -Strip is one of the first Sectors in the Middle East that early started programs of dialysis and kidney transplantation through referral letters During early time of the Palestinian authority .Gaza –Strip approved to be one of the pioneer Sectors in Nephrology and its modalities.

.Most renal dialysis units all over the Gaza –Strip , belonging to Ministry of Health , one is private (Al-quds).

1970- the first dialysis was done at Al-Shifa Hospital “the Main Hospital” in Gaza City .

The first dialysis machine used in Gaza-Strip was ”TRAVENOL” machine type.

1974- The establishment of renal dialysis unit at khanyounis Nasser Hospital.

During the time of Palestinian authority 1994 and the followed years two unites were established on the other governorates , Aqsa unite on wissta governorate and Najjar unite on Rafah Governorate .

Later on Ranttissi Pediatric unite were established at year 2010 for care whole children with ESRD through Gaza Strip for maintenance hemodialysis .

2016 -The first renal dialysis Unit was established in private sector, it was at Al-quds hospital .

The first kidney transplantation was done in Al-Shifa center at February 2013 , then followed and continued transplantation program .

organ transplantation unit were established 2017 to observe , regulate and control the transplantation programs through the ministry of health .

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 National center for organ transplantation.

Gaza 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.

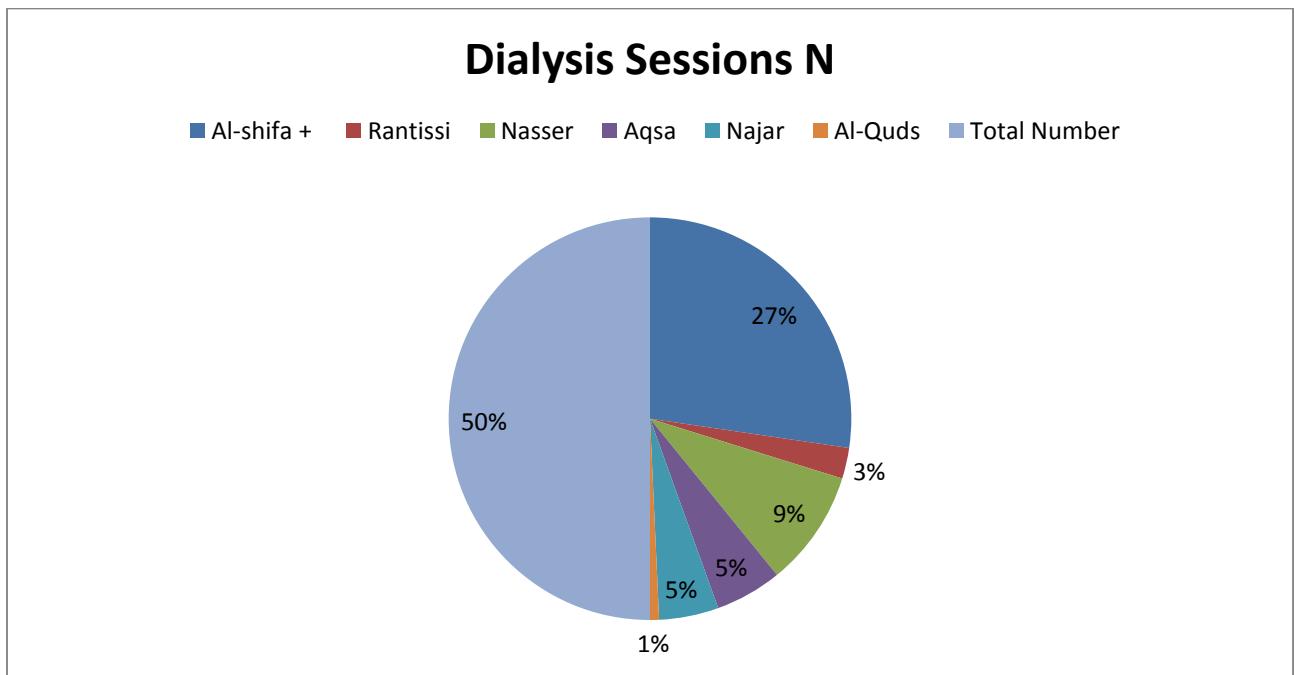
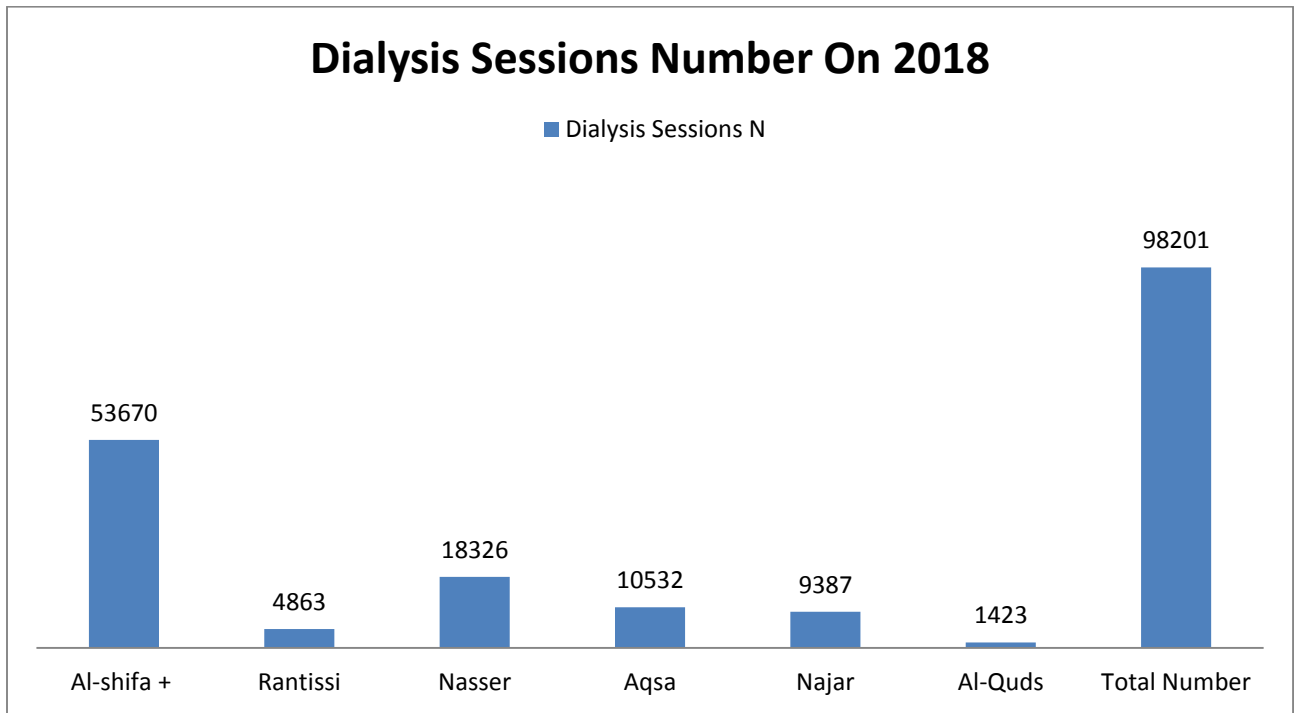
Finally, it is a great achievement to establish the National ESRD Registry, a new achievement in renal events in Gaza-Strip.

## **Total dialysis sessions for each hospital per year 2018**

**Table 4**

<b>N</b>	<b>Hospital</b>	<b>Dialysis Sessions N</b>
<b>1</b>	<b>Al-shifa +</b>	<b>53670</b>
<b>2</b>	<b>Rantissi</b>	<b>4863</b>
<b>3</b>	<b>Nasser</b>	<b>18326</b>
<b>4</b>	<b>Aqsa</b>	<b>10532</b>
<b>5</b>	<b>Najar</b>	<b>9387</b>
<b>6</b>	<b>Al-Quds</b>	<b>1423</b>
	<b>Total Number</b>	<b>98201</b>

## Total dialysis sessions for each hospital per year 2018



## **Distribution of Dialysis unites and Machines by Health Sector, Gaza-Strip 2018.**

By the end of 2018 , there were six working Dialysis units distributed all over the Gaza – Strip .  
five units administered by the ministry of health and one administered by private (Quds – hospital) .

The total number of dialysis machines (139) in all units was distributed as followed: 137 (98.6%) machines in MOH units and 2 (1.4%) machines in private sector ( Al-Quds hospital ).

The focal points in all six Dialysis Units filled the special form of data collection and send it to organ transplantation unite for ESRD Registry in the Ministry of Health.

Data about ESRD patients was received from all hospitals.

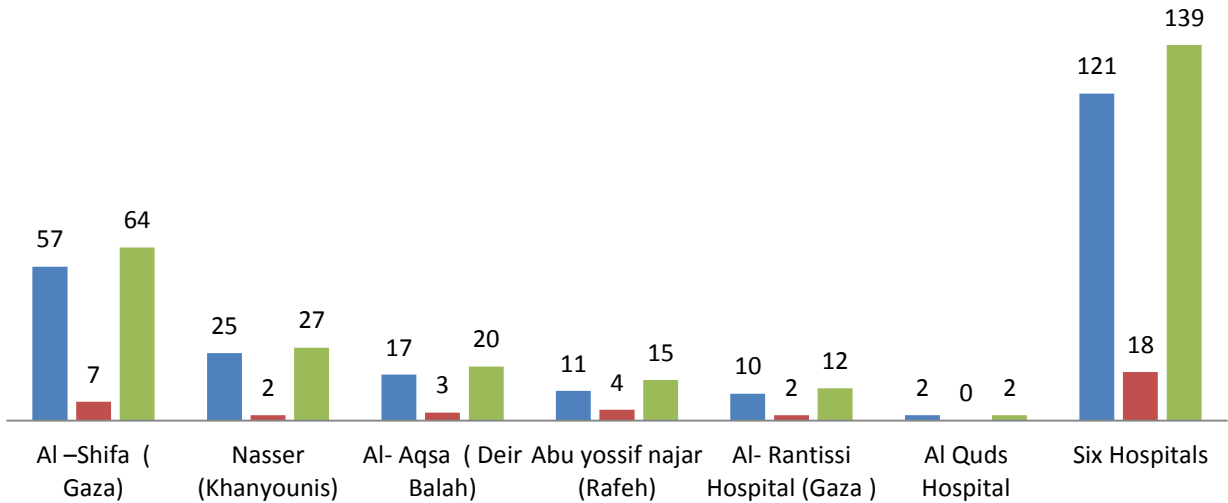
**Table 5**

<b>NO</b>	<b>Hospital</b>	<b>Number of working dialysis machines</b>	<b>Number of not working dialysis machines</b>	<b>Total Number</b>	<b>Percentage %</b>
<b>1</b>	<b>Al –Shifa ( Gaza)</b>	<b>57</b>	<b>7</b>	<b>64</b>	<b>46%</b>
<b>2</b>	<b>Nasser (Khanyounis)</b>	<b>25</b>	<b>2</b>	<b>27</b>	<b>19.4%</b>
<b>3</b>	<b>Al- Aqsa ( Deir Balah)</b>	<b>17</b>	<b>3</b>	<b>20</b>	<b>14.4%</b>
<b>4</b>	<b>Abu yossif najar (Rafeh)</b>	<b>11</b>	<b>4</b>	<b>15</b>	<b>10.8%</b>
<b>5</b>	<b>Al- Rantissi Hospital (Gaza )</b>	<b>10</b>	<b>2</b>	<b>12</b>	<b>8.6%</b>
<b>6</b>	<b>Al Quds Hospital</b>	<b>2</b>	<b>-</b>	<b>2</b>	<b>1.4%</b>
	<b>Six Hospitals</b>	<b>121</b>	<b>18</b>	<b>139</b>	<b>100%</b>



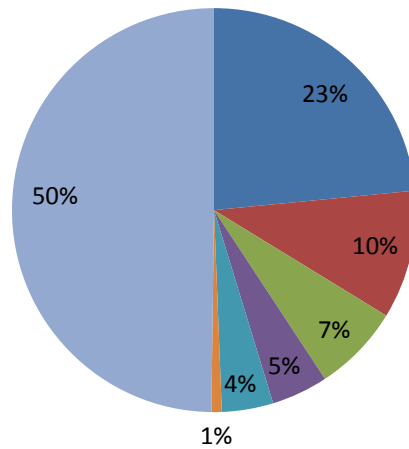
## Tota Number Of Dialysis Machines

■ Number of working dialysis machines ■ Number of not working dialysis machines ■ Total Number



## Number of working dialysis machines

■ Al-Shifa ( Gaza ) ■ Nasser (Khanyounis) ■ Al- Aqsa ( Deir Balah )  
 ■ Abu yossif najar (Rafeh) ■ Al- Rantissi Hospital (Gaza ) ■ Al Quds Hospital  
 ■ Six Hospitals



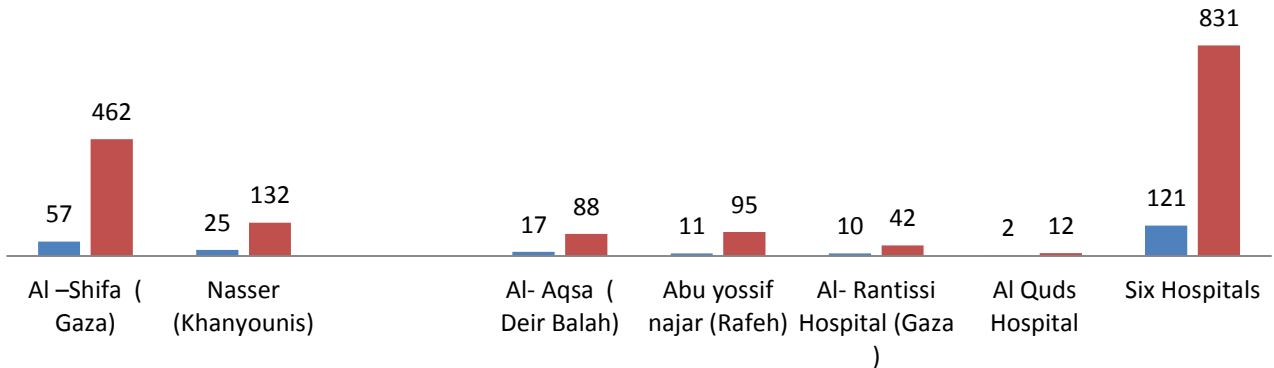
**Distribution of Dialysis unites, Machines and number of ESRD Patients under maintenance Hemodialysis by Health Sector, Gaza- Strip 2018.**

**Table 6**

<b>No</b>	<b>Hospital</b>	<b>Dialysis unite</b>	<b>No of Dialysis machines</b>	<b>Total No of all dialysis patients</b>	<b>Shifts per day</b>	<b>Patients No for each machine</b>
<b>1</b>	<b>Al –Shifa ( Gaza)</b>	<b>1</b>	<b>57</b>	<b>462</b>	<b>4</b>	<b>8.1 Patients for each machine</b>
<b>2</b>	<b>Nasser (Khanyounis)</b>	<b>1</b>	<b>25</b>	<b>132</b>	<b>3</b>	<b>5.3 Patients for each machine</b>
<b>3</b>	<b>Al- Aqsa ( Deir Balah)</b>	<b>1</b>	<b>17</b>	<b>88</b>	<b>3</b>	<b>5.2 Patients for each machine</b>
<b>4</b>	<b>Abu yossif najar (Rafeh)</b>	<b>1</b>	<b>11</b>	<b>95</b>	<b>4</b>	<b>8.6 Patients for each machine</b>
<b>5</b>	<b>Al- Rantissi Hospital (Gaza )</b>	<b>1</b>	<b>10</b>	<b>42</b>	<b>2</b>	<b>4.2 Patients for each machine</b>
<b>6</b>	<b>Al Quds Hospital</b>	<b>1</b>	<b>2</b>	<b>12</b>	<b>2</b>	<b>6 Patients for each machine</b>
	<b>Six Hospitals</b>	<b>6</b>	<b>121</b>	<b>831</b>		<b>(6.2) average Patients for each machine</b>

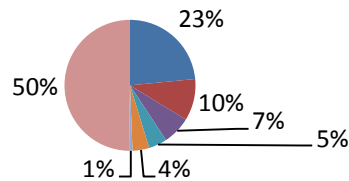
## Total Number Of Dialysis Machines Total Number Of Dialysis Patients

■ No of Dialysis machines    ■ Total No of all dialysis patients



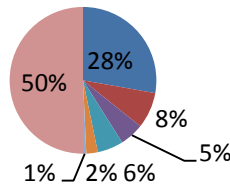
### No of Dialysis machines

■ Al-Shifa (Gaza)    ■ Nasser (Khanyounis)    ■ Al-Quds Hospital  
 ■ Al-Aqsa (Deir Balah)    ■ Abu yossif najar (Rafeh)    ■ Al-Rantissi Hospital (Gaza)  
 ■ Al Quds Hospital    ■ Six Hospitals



### Total No of all dialysis patients

■ Al-Shifa (Gaza)    ■ Nasser (Khanyounis)    ■ Al-Quds Hospital  
 ■ Al-Aqsa (Deir Balah)    ■ Abu yossif najar (Rafeh)    ■ Al-Rantissi Hospital (Gaza)  
 ■ Al Quds Hospital    ■ Six Hospitals



**Distribution of Dialysis unites, and number of ESRD Patients under maintenance Hemodialysis according to Gender by Health Sector, Gaza- Strip 2018 .**

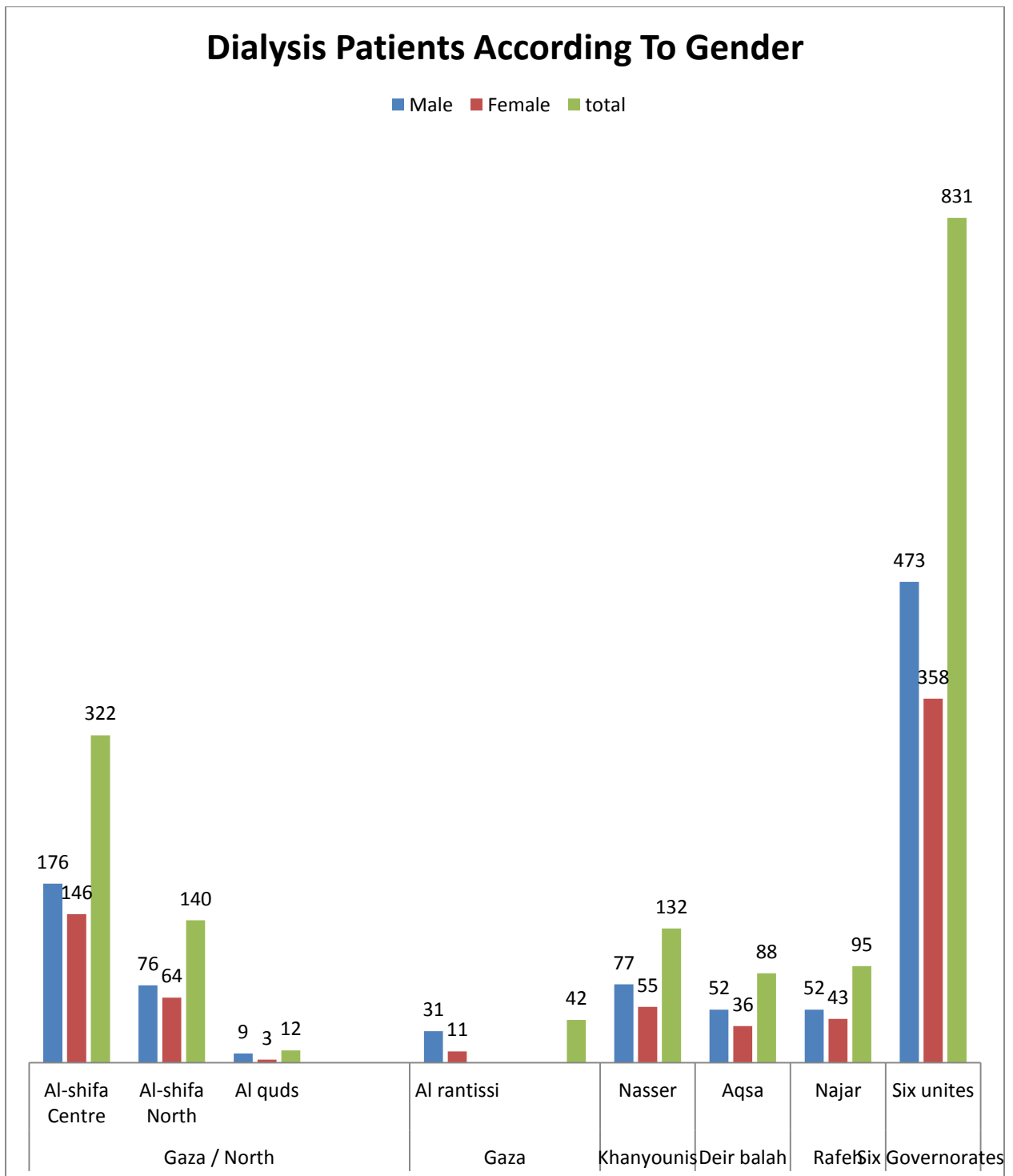
**Table 7**

No	Governorate	Hospital Dialysis unite	Male		Female		Total	
			No	%	No	%	No	%
1	Gaza / North	Al-shifa Centre	176	37.2%	146	40.8%	322	38.7%
		Al-shifa North	76	16.1%	64	17.6%	140	16.8%
		Al quds	9	1.9 %	3	0.8%	12	1.4%
2	Gaza	Al rantissi	31	6.6%	11	31%	42	5.1%
3	Khanyounis	Nasser	77	16.3%	55	15.4%	132	15.9%
4	Deir balah	Aqsa	52	11%	36	10.1%	88	10.6%
5	Rafeh	Najar	52	11%	43	12%	95	11.4%
6	Six Governorates	Six unites	473	100%	358	100%	831	100%
			473	58.5%	358	41.5%	831	100%

The distribution of ESRD relevant patients who attended renal dialysis units in all Gaza – Strip hospitals during the year 2018 according to Gender .the number4 of the patients treated in dialysis units was 831 patients , out of them was 468 male patients which accounted (58.5%) and 363 were female patients accounted (41.5%), with male to female ratio 1.46:1

## Dialysis Patients According To Gender

■ Male ■ Female ■ total



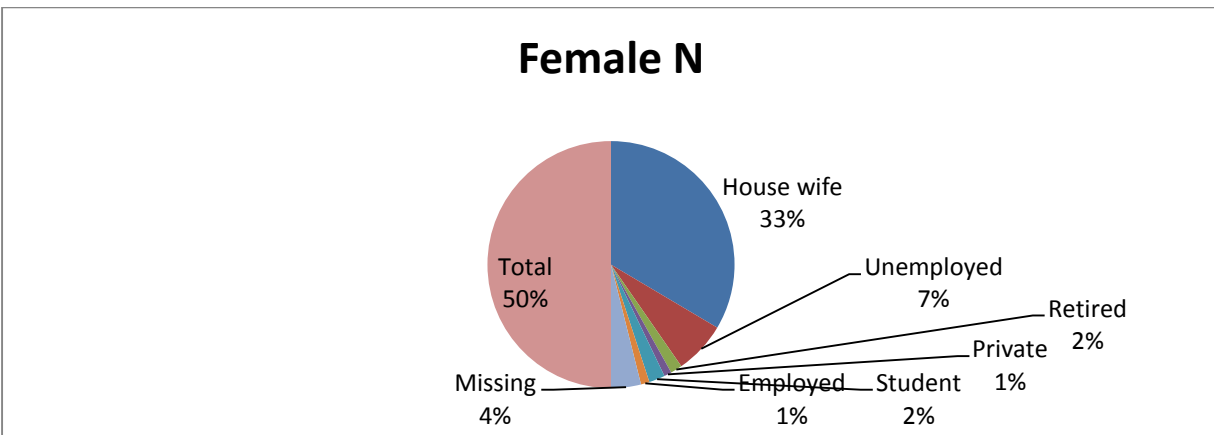
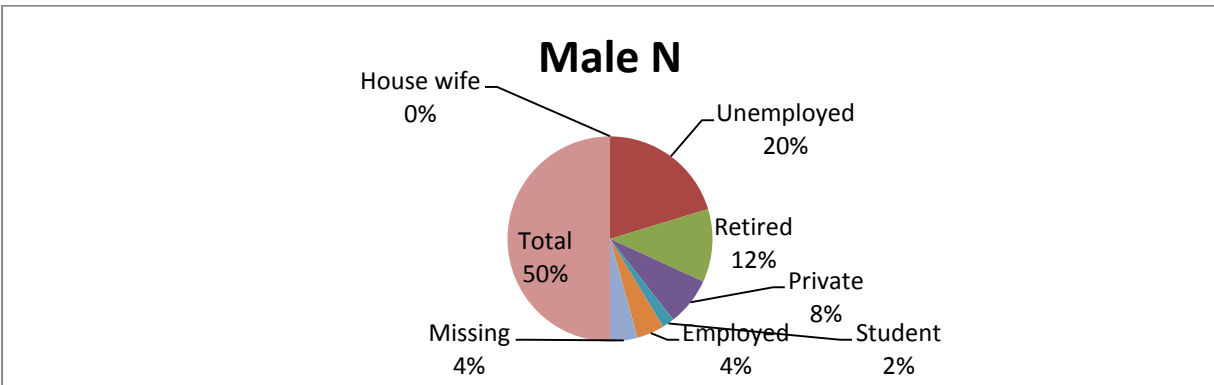
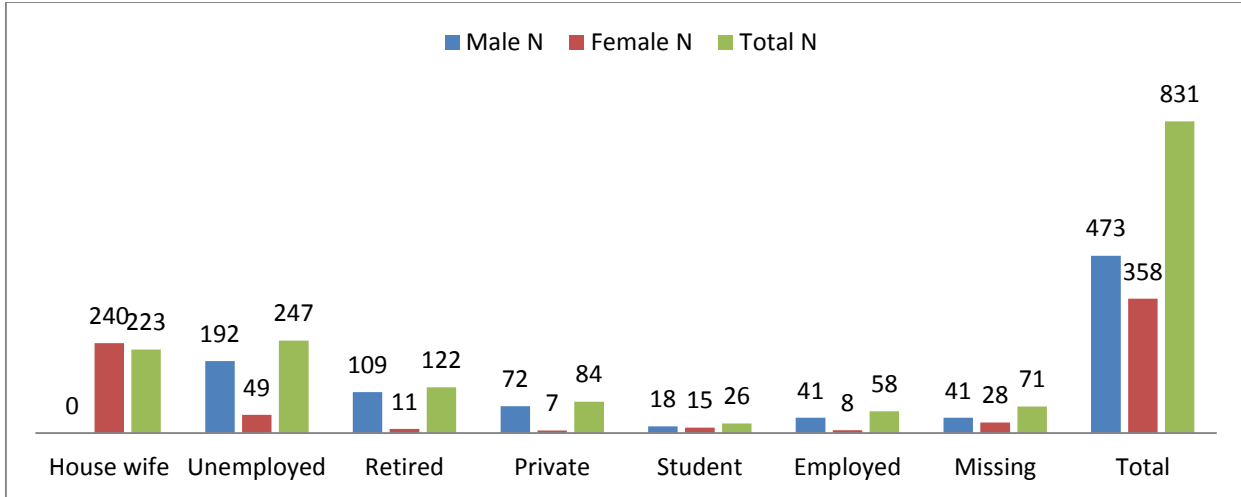
## Distribution of ESRD patients according to employment status and gender .

The distribution of the ESRD patients according to their employment status for both genders. House wife's accounted (66.9 %) of the females, (7 %) of the patients were employed either governmental or non governmentally and , (14.7%) were retired, and (3.1%) were students, (29.7%) of the patients were unemployed, missing data about employment was (8.6%).

**Table 8**

Gender Job	Male		Female		Total	
	N	%	N	%	N	%
House wife	0	0	240	66.9	223	26.8
Unemployed	192	40.6	49	13.7	247	29.7
Retired	109	23.1	11	3.1	122	14.7
Private	72	15.1	7	2.0	84	10.1
Student	18	3.8	15	4.1	26	3.1
Employed	41	8.8	8	2.4	58	7
Missing	41	8.6	28	7.8	71	8.6
<b>Total</b>	<b>473</b>	<b>100%</b>	<b>358</b>	<b>100%</b>	<b>831</b>	<b>100%</b>

## Distribution of ESRD patients according to employment status and gender .



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

The majority of ESRD patients were married (71.7%), (males 79.3% and females 61.8%), while (17.6%) of the ESRD patients were singles (males 16.5% and females 18.8%), (3.0%) of the patients were divorced.

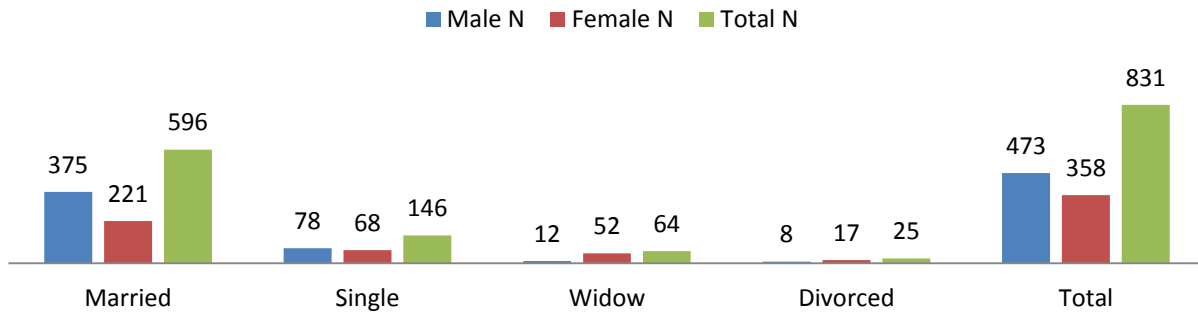
**Table 9**

### Distribution of ESRD patients according to marital status and gender 2018

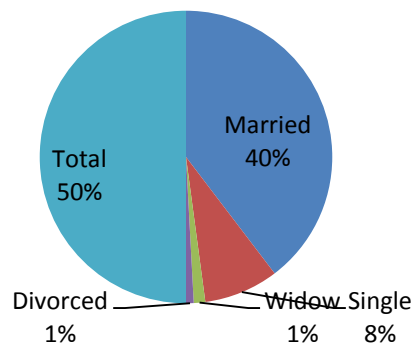
Gender Marital Status	Male		Female		Total	
	N	%	N	%	N	%
Married	375	79.3	221	61.8	596	71.7
Single	78	16.5	68	18.8	146	17.6
Widow	12	2.5	52	14.5	64	7.7
Divorced	8	1.7	17	4.9	25	3.0
Total	473	100.0	358	100.0	831	100.0



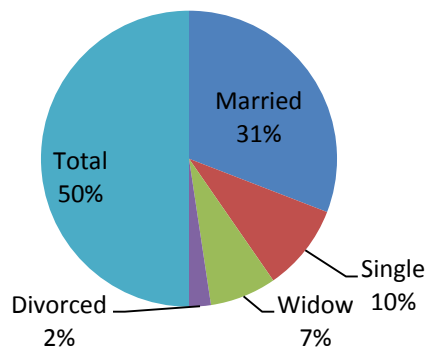
## Dialysis Patients According To Gender & Marital Status



### Male N



### Female N



## Distribution of ESRD prevalent patients by primary cause

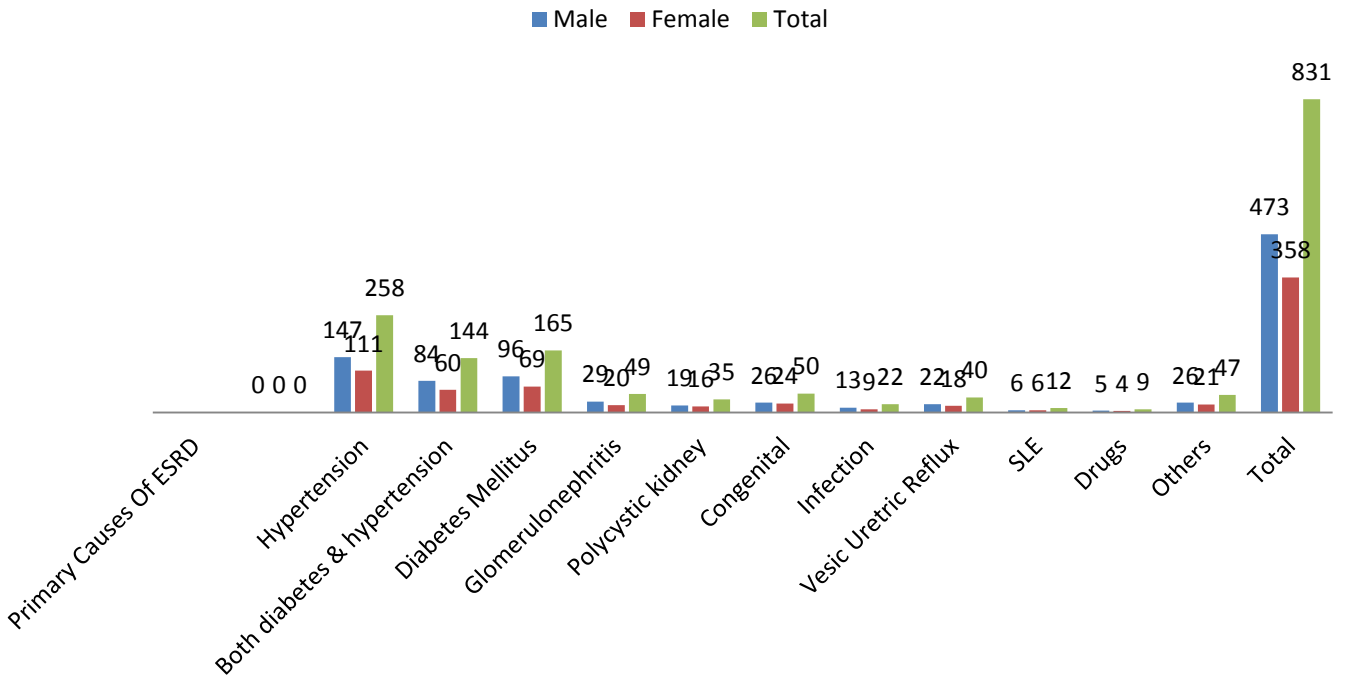
The most common primary cause is hypertension (31%), followed by Diabetes Mellitus (19.9 %), Diabetes Mellitus and Hypertension (17.3 %), Glomerulonephritis (5.9 %) and then Polycystic kidney disease (4.2 %) congenital causes(6 %), Infection (2.6 %).

**Table 10**

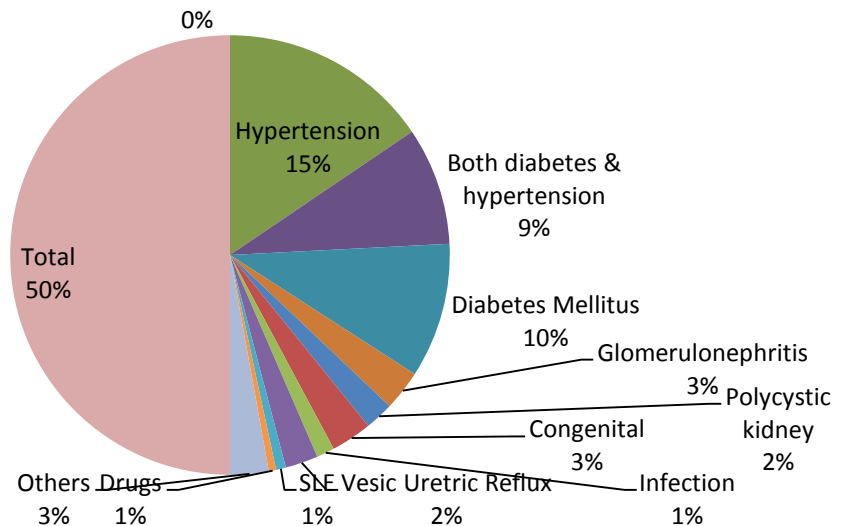
### Distribution of primary causes of ESRD for the year 2018

Primary Causes Of ESRD	Male		Female		Total	
	N	%	N	%	N	%
Hypertension	147	31.1%	111	31 %	258	31%
Both diabetes & hypertension	84	17.8%	60	16.8%	144	17.3%
Diabetes Mellitus	96	20.3%	69	19.3%	165	19.9%
Glomerulonephritis	29	6.1%	20	5.6%	49	5.9%
Polycystic kidney	19	4.0%	16	4.5 %	35	4.2%
Congenital	26	5.5%	24	6.7%	50	6%
Infection	13	2.7%	9	2.5%	22	2.6%
Vesic Uretric Reflux	22	4.7%	18	5.0 %	40	4.8%
SLE	6	1.3%	6	1.7%	12	1.4%
Drugs	5	1.1%	4	1.1%	9	1.1%
Others	26	5.5%	21	5.9%	47	5.7%
<b>Total</b>	<b>473</b>	<b>100%</b>	<b>358</b>	<b>100%</b>	<b>831</b>	<b>100%</b>

## Dialysis Patients According To Primary Causes



## Total Dialysis Patients According To Primary Causes



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

The International comparison of prevalence rate of Hemodialysis patients Per Million Population (PMP) in Gaza –Strip and other countries in 2018. The overall Prevalence Per Million Populations in Gaza –Strip in 2015 is (415 .1 /1,000,000) compared with other countries.

**Table 11**

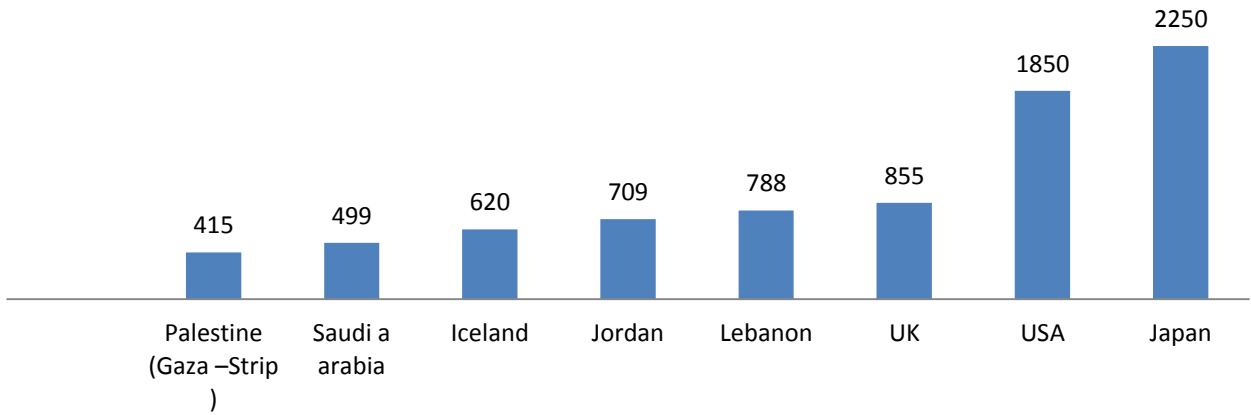
### **comparison of prevalence rate of Hemodialysis ESRD patients 2018**

<b>Number</b>	<b>Country Name</b>	<b>prevalence rate of Hemodialysis ESRD patients Per Million Population (PMP)</b>
<b>1</b>	<b>Palestine (Gaza –Strip )</b>	<b>415</b>
<b>2</b>	<b>Saudi a arabia</b>	<b>499</b>
<b>3</b>	<b>Iceland</b>	<b>620</b>
<b>4</b>	<b>Jordan</b>	<b>709</b>
<b>5</b>	<b>Lebanon</b>	<b>788</b>
<b>6</b>	<b>UK</b>	<b>855</b>
<b>7</b>	<b>USA</b>	<b>1850</b>
<b>8</b>	<b>Japan</b>	<b>2250</b>

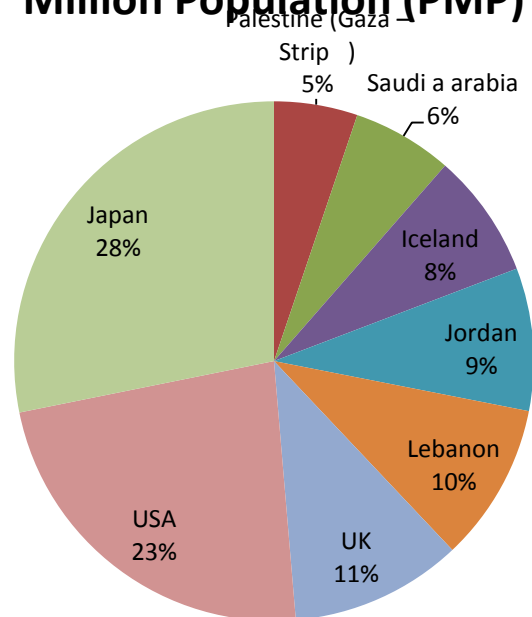
The total number of ESRD patients during the year 2018 was 831 patients who are receiving hemodialysis in hospitals on all sectors . the total number of population in Gaza –Strip 2 millions

## prevalence rate of Hemodialysis ESRD patients Per Million Population (PMP)

■ prevalence rate of Hemodialysis ESRD patients Per Million Population (PMP)



## prevalence rate of Hemodialysis ESRD patients Per Million Population (PMP)



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

distribution of ESRD patients according to the age groups and gender, the mean age of patients was (53) years, (52.8 years for males and 53.4 years for females). The median age of patients was (55) years, (55 years for males and 55.5 years for females). Table (4) also shows the distribution of ESRD cases according to age group and gender 2018.

**Table 12**

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

Gender Age group	Male		Female		Total	
	N	%	N	%	N	%
0- 4	4	0.8	1	0.3	5	0.6%
5 -9	3	0.6	1	0.3	4	0.5%
10 -14	15	3.2	6	1.7	21	2.5%
15 -19	10	2.1	7	1.9	17	2%
20 -24	14	2.9	12	3.5	26	3.1%
25 -29	21	4.4	16	4.4	37	4.5%
30 -34	23	4.9	20	5.5	43	5.2%
35 -39	30	6.3	17	4.9	47	5.7%
40 -44	34	7.1	23	6.4	57	6.%
45 - 49	41	8.6	26	7.3	67	8.1%
50 -54	50	10.6	34	9.2	84	10.1%
55 -59	43	11.3	34	9.2	77	9.3%
60 -65	51	10.8	41	11.3	92	11.1%
65 +	134	28.3	119	33.2	253	30.4%
<b>Total</b>	<b>473</b>	<b>100%</b>	<b>358</b>	<b>100%</b>	<b>831</b>	<b>100%</b>

## **Facts and statistics provided by organ transplantation unite**

### **Renal data system**

#### **Current trends in kidney transplantation in Gaza –Strip**

##### **kidney, Transplantation Program Facts and Registry On Gaza –Strip**

Kidney transplantation program in Gaza- Strip as evolved since 6 years on the year 2013 .

Its currently continued to complete the referral line for whole cases in need for kidney transplantation .

Whole transplantation cases were donated by alive donor .

ESRD under maintenance hemodialysis is associated with approximately 830 patients along whole governmental hospitals on Gaza- Strip .

Approximately 15 kidney transplantation are performed at Al- shifa center annually by Doctor Abed Qader Hamad ( Ahead of Liver ball organ transplantation center UK ) with a national assistant team on 4 stages .

Approximately 10 – 20 kidney transplantation cases were performed also yearly out side Gaza through referral letter of MOH .

The data are not as accurate as would be desirable due to the absence of national transplant registry .

The early challenges of medical and surgical complications of kidney transplantation have now been overcome and currently, there has been a gradual shift toward nationalization transplantation program through developing highly training program system for our manpower .

## Distribution of Renal transplantation patients according to hospital care and gender, 2018

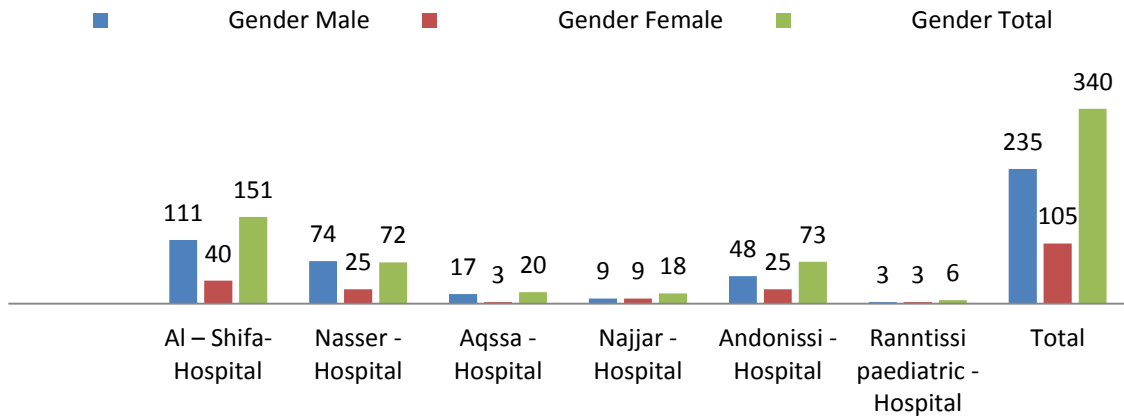
distribution of Renal transplantation patients according to hospital care and gender, the total number of patients was 340, (235 of the total number males and 105 are females). All number of renal transplantation patients were distributed to all MOH hospitals for care & treatment on the Gaza –Strip .

**Table 13**

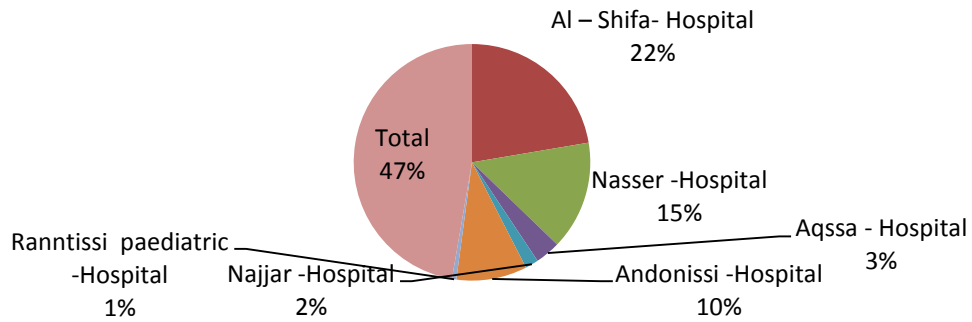
No	Gender		Male	Female	Total
	Hospital				
1	Al – Shifa- Hospital		111	40	151
2	Nasser -Hospital		74	25	72
3	Aqssa - Hospital		17	3	20
4	Najjar -Hospital		9	9	18
5	Andonissi -Hospital		48	25	73
6	Ranntissi paediatric - Hospital		3	3	6
	<b>Total</b>		<b>235</b>	<b>105</b>	<b>340</b>



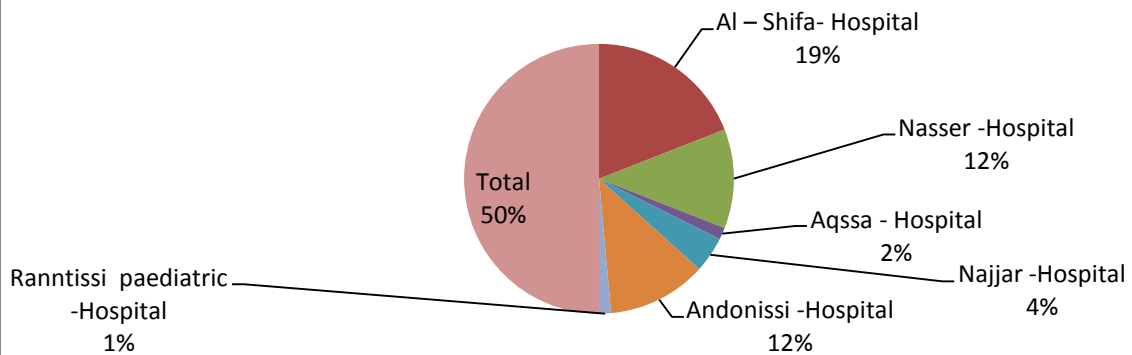
## Renal Transplantation Patients According To Gender



### Gender Male



### Gender Female



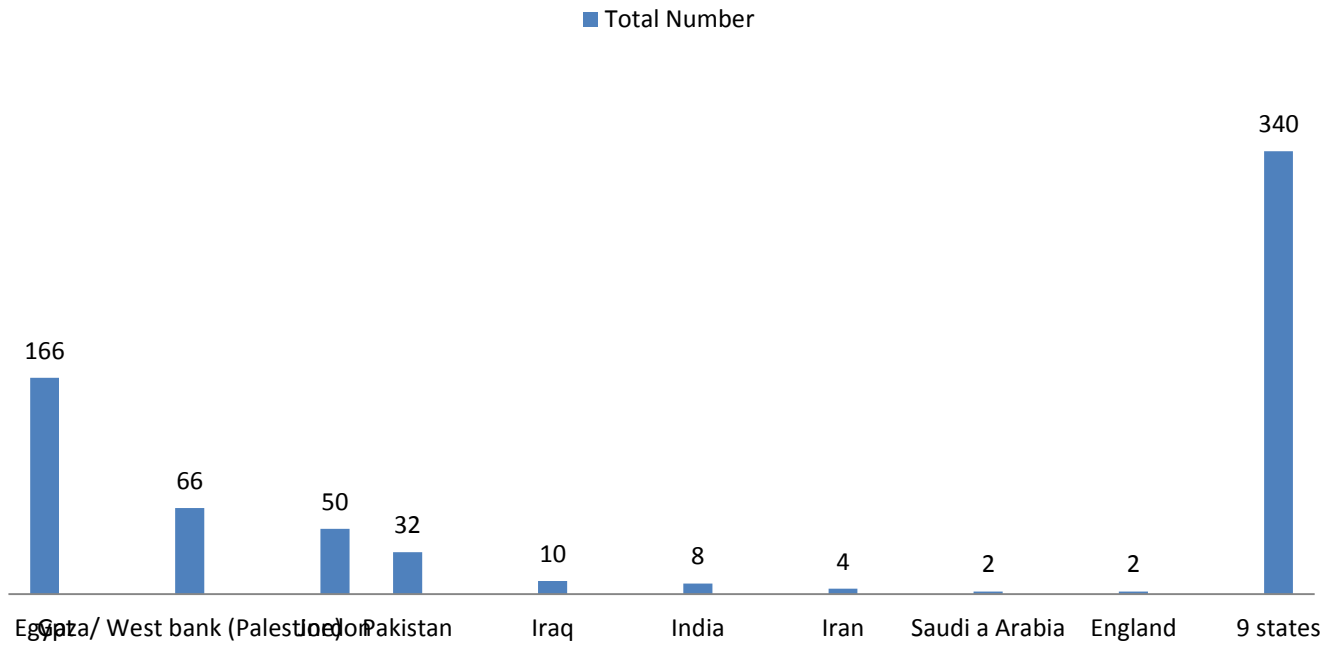
## **Distribution of Renal transplantation patients according to operation area**

distribution of Renal transplantation patients according to operation area , the total number of patients was 340, (235 of the total number males and 105 are females). The most number of renal transplantation patients were operated on Egypt , Gaza , Jordon and others .

**Table 14**

<b>No</b>	<b>Country Operation Area</b>	<b>Total Number</b>	<b>Notes</b>
<b>1</b>	<b>Egypt</b>	<b>166</b>	
<b>2</b>	<b>Gaza/ West bank (Palestine)</b>	<b>66</b>	<b>This program started on Feb - 2013</b>
<b>3</b>	<b>Jordon</b>	<b>50</b>	
<b>4</b>	<b>Pakistan</b>	<b>32</b>	
<b>5</b>	<b>Iraq</b>	<b>10</b>	
<b>6</b>	<b>India</b>	<b>8</b>	
<b>7</b>	<b>Iran</b>	<b>4</b>	
<b>8</b>	<b>Saudi a Arabia</b>	<b>2</b>	
<b>9</b>	<b>England</b>	<b>2</b>	
<b>Total</b>	<b>9 states</b>	<b>340</b>	<b>Whole transplanted patients during the last 20 years</b>

## Total Number According TO Operation Area



## Total Number According To Operation Area

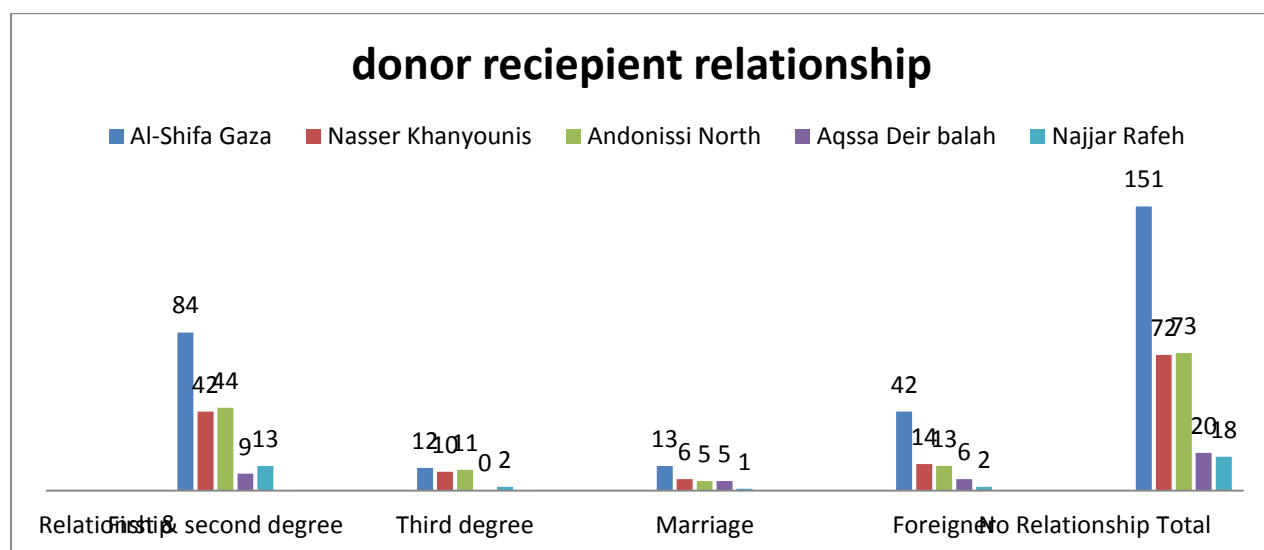


## Distribution of Renal transplantation patients according to donor relationship to recipient

distribution of Renal transplantation patients according to donor relationship to recipient , the total number of patients was 340, (235 of the total number males and 105 are females). The most number of renal transplantation patients of the close relationship (first And second degree relationship ) about 198 patient , foreigner about 77 patients , third degree of relationship 35 patients & about 30 from the total from their husbands and wives .

**Table 15**

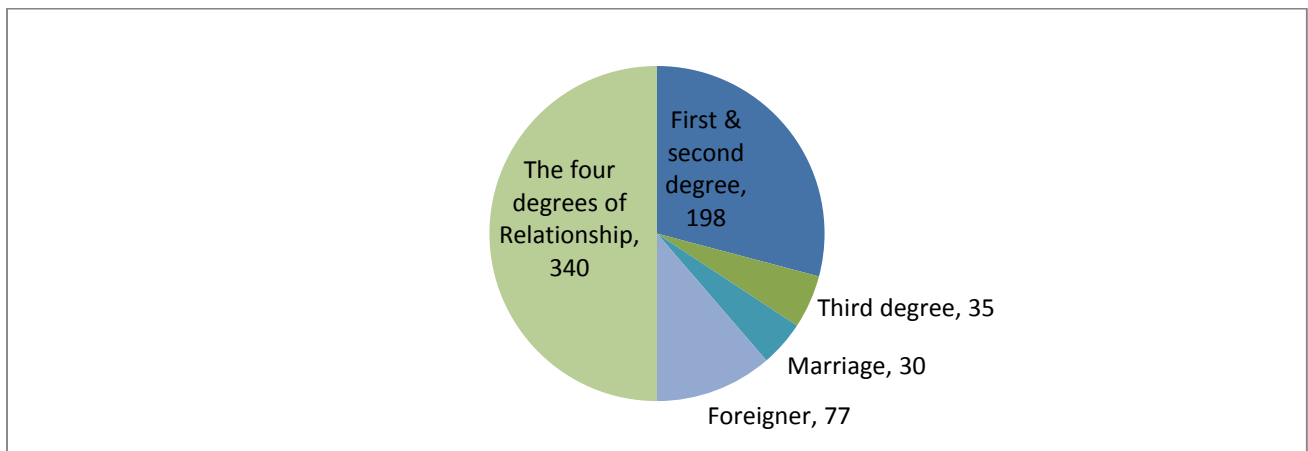
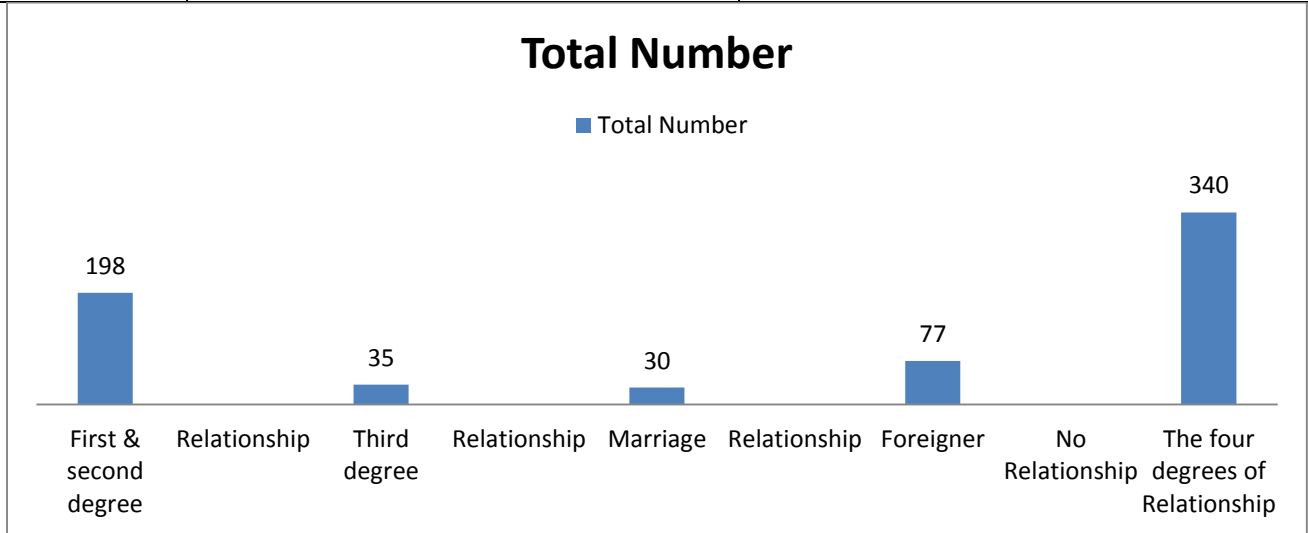
No	Hospital Relationship	Al-Shifa Gaza	Nasser Khanyounis	Andonissi North	Aqssa Deir balah	Najjar Rafeh	Rantissi Gaza	Total
1	First & second degree Relationship	84	42	44	9	13	6	198
2	Third degree Relationship	12	10	11	-	2	-	35
3	Marriage Relationship	13	6	5	5	1	-	30
4	Foreigner No Relationship	42	14	13	6	2	-	77
5	Total	151	72	73	20	18	6	340



**Distribution of Renal transplantation patients according to donor relationship to recipient**

**Table 16**

NO	Relationship Degree	Total Number
1	First & second degree Relationship	198
2	Third degree Relationship	35
3	Marriage Relationship	30
4	Foreigner No Relationship	77
5	The four degrees of Relationship	340

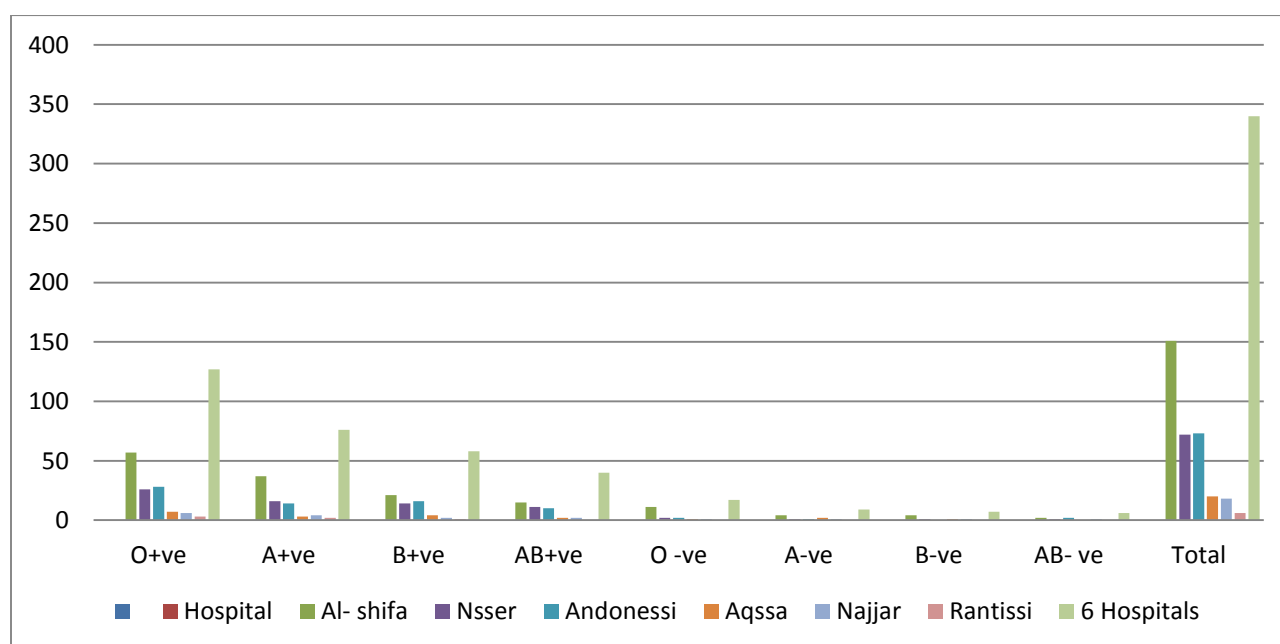


## Distribution of Renal transplantation patients according to donor, recipient blood group

distribution of Renal transplantation patients according to donor , recipient blood group the total number of patients was 340, (235 of the total number males and 105 are females). The most number of renal transplantation patients of blood group O+ about 127 patient , A+ 76 patients & the other groups about 137 patients .

**Table 17**

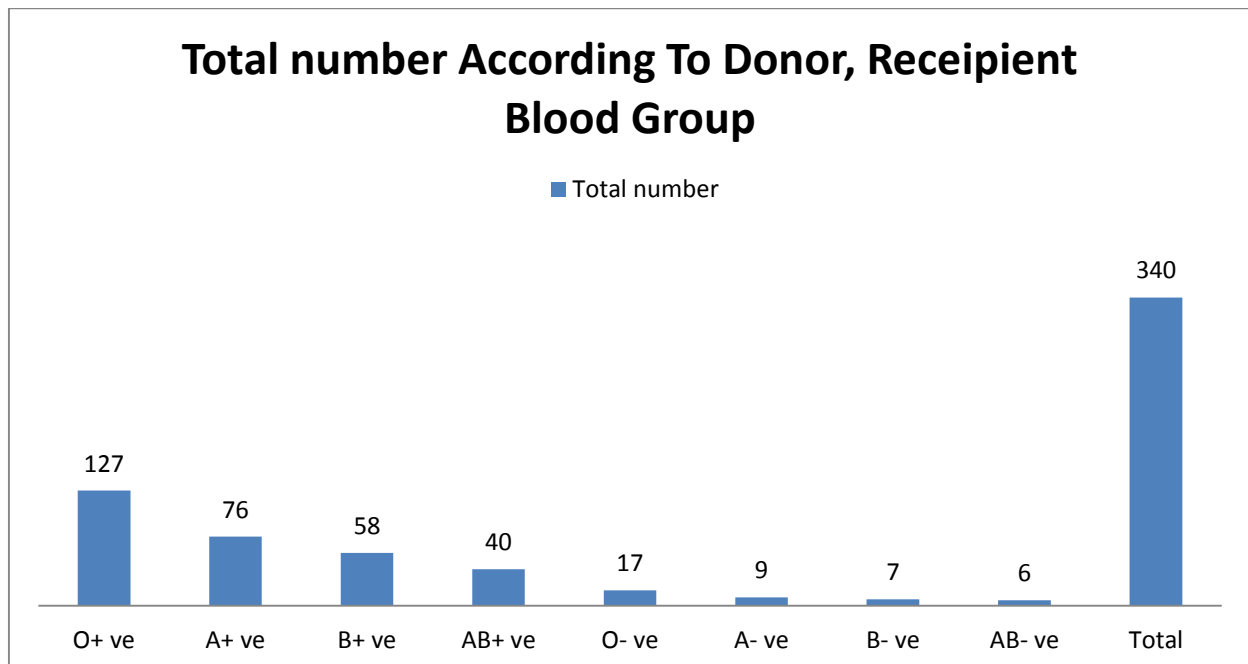
No	Blood group Hospital	O+ve	A+ve	B+ve	AB+ve	O -ve	A-ve	B-ve	AB- ve	Total
1	Al- shifa	57	37	21	15	11	4	4	2	151
2	Nsser	26	16	14	11	2	1	1	1	72
3	Andonessi	28	14	16	10	2	1	--	2	73
4	Aqssa	7	3	4	2	1	2	1	--	20
5	Najjar	6	4	2	2	1	1	1	1	18
6	Rantissi	3	2	1	--	--	--	--	--	6
	<b>6 Hospitals</b>	<b>127</b>	<b>76</b>	<b>58</b>	<b>40</b>	<b>17</b>	<b>9</b>	<b>7</b>	<b>6</b>	<b>340</b>



**Distribution of Renal transplantation patients according to donor, recipient blood group**

**Table 18**

No	Blood group	Total number
1	O+ ve	127
2	A+ ve	76
3	B+ ve	58
4	AB+ ve	40
5	O- ve	17
6	A- ve	9
7	B- ve	7
9	AB- ve	6
	<b>Total</b>	<b>340</b>



**Distribution of Renal transplantation patients according to Gender & age grouping on Gaza – Strip**

**Table 19**

Hosp Age group	Male							Female							Total
	A	B	C	D	E	F	Total	A	B	C	D	E	F	Total	
0 - 4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
5 - 9	--	--	--	--	--	1	1	--	--	--	--	--	1	1	2
10-14	1	--	--	--	--	1	2	--	--	--	--	1	2	3	5
15-19	5	3	3	1	--	1	13	3	1	1	--	--	--	5	18
20-24	9	5	6	--	1	--	21	7	2	2	1	3	--	15	36
25-29	8	6	5	--	--	--	19	4	5	6	1	1	--	17	36
30-34	11	3	3	2	--	--	19	6	4	3	--	1	--	14	33
35-39	12	4	5	3	1	--	25	5	3	4	--	2	--	14	39
40-44	15	2	3	1	1	--	22	4	3	2	--	--	--	9	31
45-49	10	9	10	2	1	--	32	4	2	3	--	--	--	9	41
50-54	15	6	6	2	2	--	31	3	5	4	--	--	--	12	43
55-59	10	5	4	4	2	--	25	2	--	--	--	--	--	2	27
60-64	8	2	2	--	1	--	13	1	--	--	1	1	--	3	16
65<	7	2	1	2	--	--	12	1	--	--	--	--	--	1	13
<b>Total</b>	<b>111</b>	<b>47</b>	<b>48</b>	<b>17</b>	<b>9</b>	<b>3</b>	<b>235</b>	<b>40</b>	<b>25</b>	<b>25</b>	<b>3</b>	<b>9</b>	<b>3</b>	<b>105</b>	<b>340</b>

Keywords / A (Al- shifa hospital ) B (Nasser hospital) C ( Andonessi hospital )

D (Aqssa hospital) E (Najjar hospital ) F ( Rantissi hospital )



## من إحصائيات الوحدة الطبية المركزية لنقل وزراعة الاعضاء البشرية

أوضحت بيانات الوحدة الطبية المركزية لنقل وزراعة الأعضاء البشرية والخاصة بمرضى الفشل الكلوي والتي أجريت في نهاية العام 2018 إلى وجود 831 مريضا ، جميعهم يعالجون بالتنقية الدموية ( غسيل الكلى الدموي ) وهو ما يشير لمعدل إنتشار الفشل الكلوي النهائي المعالج بالتنقية بما يعادل 415 حالة لكل مليون نسمة بالسنة ، بينما بلغ معدل حدوث الفشل الكلوي النهائي المعالج بالتنقية ما يعادل 130 حالة لكل مليون نسمة .

كما أوضحت البيانات بأن إجمالي عدد مرضى زراعة الكلى والمسجلين لدى وزارة الصحة بقطاع غزة بلغ ما يقارب 340 مريضا ، حيث أنه كانت عمليات الزراعة تتم لهم في داخل الوطن وخارجه ويتلقون الرعاية الصحية ومتابعتهم من خلال وزارة الصحة .

### مرضى التنقية الدموية :

بلغ عدد المرضى المعالجون بالتنقية الدموية (غسيل الكلى الدموي ) بنهاية عام 2018 حوالي 831 مريضا ، كما بلغ عدد الوفيات المسجلة بينهم 81 حالة ( 10 % ) . وقد بلغ عدد وحدات الغسيل الدموي الكلوي 6 وحدات مع نهاية عام 2018 م ومجهزة بما مجموعه 139 جهاز للغسيل الكلوي ، حيث أن 97.2 % من هذه الأجهزة تتبع لوزارة الصحة الفلسطينية ، 2.8% تتبع القطاع الخاص بالهلال الأحمر الفلسطيني .

بلغ عدد المرضى المسجلين للتنقية الدموية من الذكور 473 مريضا بنسبة (56.9%) بينما بلغ عدد الإناث منهم 358 مريضا بنسبة ( 43.1% ) .

سجلت منطقة غزة والشمال أكبر نسبة كثافة للمرضى المعالجين بالغسيل الكلوي في وحدة غسيل الكلى بمجمع الشفاء الطبي حيث بلغ عددهم 474 مريضا أي ما يعادل 57 % من مجموع المرضى المعالجين بالتنقية الدموية ، تلتها منطقة خان يونس بعدد 132 مريضا بنسبة 15.9 % ثم منطقة رفح بعدد 95 مريضا بنسبة 11.4% وتبعته منطقة الوسطى بعدد 88 مريضا بنسبة 10.6 % وقد مثل الأطفال الذين يتم عمل لهم تنقية دموية بمستشفى الرنتيسي بعدد 42 مريضا بنسبة 5.1 % من المجموع على مستوى قطاع غزة .

يشير توزيع أعمار المرضى المعالجين بغسيل الكلى الدموي إلى وجود غالبية المرضى في فئة الأعمار من ( 26- 65 ) عاما ( 60.6 % ) بعدد 504 مريضا . من ناحية أخرى بلغت نسبة المرضى تحت عمر 15 عاما (3.6%) وبعدد 30 مريضا ، بينما كانت نسبة المرضى فوة 65 عاما (30.6%) بعدد 253 مريضا .

بالنسبة لتوزيع المرضى حسب مستطد السطح لإلتهاب الكبدى (ب) فقد وجد أن (1.8%) من المرضى (15) لديهم فحص إيجابي ، بينما كانت نسبة الإصابة بأضداد إلتهاب الكبدى من نوع ( ج ) عند مرضى الغسيل الدموي الكلوي (2.6%) بعدد 22 مريضا .

هذا وقد أشارت التقارير لوجود ارتفاع ضغط الدم عند 47.8% من مرضى غسيل الكلى ، بينما شكلت نسبة الإصابة بالداء السكري حوالي 36.1% من مجموع مرضى غسيل الكلى الدموي

تشير الدراسات بان التكلفة الإجمالية لعمليات غسيل الكلى بقطاع غزة ما يقارب 10 مليون دولار .

نستخلص من هذه الدراسة أهمية تحليل البيانات بهدف فهم حجم المشكلة والمتطلبات المستقبلية والحلول للفترة المستقبلية لمقدمي الخدمات الصحية .

## مرضى زراعة الكلى

بلغ عدد المرضى زارعي الكلى الذين تتم متابعتهم عبر مؤسسات وزارة الصحة بقطاع غزة بنهاية عام 2018 حوالي 340 مريضا ، حيث أن معظم الحالات تمت عمليات الزراعة لهم خارج الوطن ، ومنذ فبراير 2013 بدأت الوزارة بتبني البرنامج الوطني لزراعة الأعضاء من خلال إستقدام الوفود الزائرة لعمل زراعة كلى وتدريب الكوادر الوطنية في هذا المجال .

تم إنجاز ما يقارب 65 حالة زراعة كلى داخل الوطن من إجمالي حالات زراعة الكلى بنسبة 19.1%

سجلت منطقة غزة أكبر نسبة كثافة للمرضى الذين تتم متابعتهم حيث بلغ عددهم 157 مريضا وبنسبة 46% ، كما بلغ عدد المرضى الزراعين في منطقة الشمال 73 حالة وبنسبة 21.5% وتلتها منطقة خانيونس بعدد 72 مريضا وبنسبة 21.2% ثم منطقة الوسطى بعدد 20 مريضا وبنسبة 5.9% ومثلت منطقة رفح بعدد 18 مريضا وبنسبة 5.3%

سجل عدد الذكور من المرضى الزراعين 235 مريضا وبنسبة 69% وأما الأناث فقد كان عددهم 105 مريضة وبنسبة 31%

أشارت التقارير إلى أن زراعة الكلى في قطاع غزة توفر نحو 120000 دولار للمريض الواحد مقارنة بغسيل الكلى الصناعي لكل 10 سنوات وهو معدل عمر الكلية المزروعة

تبلغ تكلفة عملية زراعة الكلية 10 – 15 ألف دولار للمريض الواحد ، كما تشير الدراسات بان تكلفة السنة الثانية للمريض التي تمت له عملية الزراعة تتراوح ما بين 1400 – 2000 دولار ثمنا للدوية وتتناقص تدريجيا مع مرور السنين

جميع مرضى زراعة الكلى في قطاع غزة كان التبرع لهم يتم من متبرعين أحياء ، فقد مثل عدد المرضى الذين تم التبرع لهم من أقرباء من الدرجة الأولى والثانية 198 حالة وبنسبة 58.2% وأما الدرجة الثالثة من القرابة فكانت 35 حالة وبنسبة 10.3% ، وكذلك المتبرعين بحكم علاقة الزواج فكان عددهم 30 حالة وبنسبة 8.8% ، أما المتبرعين من غير الأقارب وكانت جميعها تتم خارج الوطن فمثلت عدد 77 حالة وبنسبة 22.6%

هناك تحديات طبية وجراحية ومضاعفات قد تحدث في عمليات الزراعة تم التغلب عليها ، والان وزارة الصحة في طور التقدم والتطوير لتوطين خدمة زراعة الكلى بشكل مبدئي في إطار البرنامج الوطني لزراعة الأعضاء من خلال التدريب المكثف والإبتعاث للكوادر الوطنية .

إعداد :

الدكتور / بسام أبو وردة

منسق برنامج الزراعة / د. محمد شتات

مسؤولة البيانات والتسجيل / أ. غادة قديح

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النهاية

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