

Analysis of the state of nephrology and hemodialysis services and the prevalence of diabetic nephropathy in the republic of Uzbekistan for 2019-2024

Annotation

The aim of the study is to analyze the state of nephrology and hemodialysis services in the Republic of Uzbekistan for 2019-2024 and the prevalence of diabetic nephropathy stages I-III in the Republic of Uzbekistan.

Material and research methods: The study included 22,319 people with type 2 diabetes mellitus (DM2) from 13 regions of the Republic of Uzbekistan and the city of Tashkent, who were divided into 3 groups: The first group included representatives of the active working population who were examined at local regional endocrinology dispensaries: 6,433 people - 4,228 men (65.7%) and 2,205 women (34.3%) aged 44-55 years (average age 44.1 ± 11.2 years) without concomitant diseases. The second group - patients who were examined at local regional endocrinology dispensaries: 7320 people - 4075 men (55.7%) and 3245 women (44.3%) aged 56-65 years (mean age 59.5 ± 13.9 years) with concomitant diseases. The third group - patients who were examined at local regional endocrinology dispensaries: 8566 people - 4390 men (51.3%), 4176 women (27.9%) aged over 66-78 years (mean age 66.3 ± 16.7 years) with micro and macroangiopathies. Patients were subjected to studies performed in the regions based on regional endocrinological dispensaries or hemodialysis: general clinical, biochemical (blood glucose, urea, creatinine, calcium, parathormone, electrolytes, lipids, etc.) Instrumental research methods (ECG, X-ray of the chest, Doppler of vessels of the legs et al).

Research results: It was established that the largest number of patients with stage 1-3 DN in 2019 was in Tashkent - 3,533 patients and in the Samarkand region - 2,175 patients, the number of which in 2023 increased to 5,469 and 3,012 patients, respectively. In total, for the period from 2016 to 2023, the number of patients with DN increased from 14,148 to 24,964, that is, by 10,816 people. If in 2016 the number of deaths from chronic renal failure with type 2 diabetes in the Republic of Uzbekistan was 703 cases, then in 2023 it reached 1,330 people, that is, it increased 2 times. Moreover, in the Fergana region the number of deaths in 2016 was the highest - 123 cases, and in 2023, this number also remained the highest in this region - 289 patients (21.7%).

In 2019, the total number of patients with chronic kidney disease was 125,274.

Conclusions: 1. Our republic has a shortage of specialists to ensure employment of nephrologists in medical organizations providing inpatient nephrological care. For example: out of 219.5 allocated staff positions, 108 are filled and 111.5 are vacant, which is 50% in total. 2. The reporting system does not contain sufficient information on the actual number of patients with chronic kidney disease and their risk groups. For example: Patients at risk of developing chronic kidney disease are seen by other specialists in 30-40% of cases. 3. The prevalence of diabetic nephropathy stages 1-3 in dynamics from 2019 to 2024 has significantly increased over the current period.

Keywords: nephrology and hemodialysis services, diabetic kidney disease

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Introduction

According to the authors, chronic kidney disease stage V (CKD) is a devastating medical, social and economic problem for patients and their families. There are no data on the true incidence and prevalence of chronic kidney disease in developing countries. Delayed diagnosis and lack of measures to slow the progression of kidney failure result in a predominantly young population with CKD. Renal replacement therapy (RRT) is a low priority area for health planners in developing countries with a two-tiered health care delivery system. There is an acute shortage of nephrologists and hospitals offering dialysis and transplantation, especially in the poorest regions. There is a direct relationship between the number of dialysis centers and the gross national income per capita in developing countries.¹ In India, for

example, the high cost of haemodialysis (HD) makes it unaffordable for all but the very wealthy, and maintenance HD is the exclusive preserve of private hospitals. Public hospitals are overwhelmed by kidney transplants, which are the only realistic long-term RRT option for most patients. There are no public or private health insurance schemes in India, and patients must raise their own funds for RRT. A number of measures are being used to reduce the cost of RRT. For HD, these include reducing the frequency of dialysis, using cheaper cellulose dialyzers, dialyzer reuse, and avoiding the use of expensive drugs such as erythropoietin.

Until recently, infectious glomerulonephritis was considered the most common cause of CKD stage V, but in recent years, the rapid emergence of diabetic nephropathy has been shown as the most

common cause among new patients with CKD stage V. Lack of health insurance limits the ability of patients in South Asia to afford expensive treatment for stage V CKD. The quality of chronic dialysis is largely determined by non-medical, financial factors. Facilities for maintenance HD are few. Chronic peritoneal dialysis is not cheaper than HD; high costs and nephrologist bias have limited the growth of peritoneal dialysis in South Asia. Related donor transplantation is the only viable form of renal replacement therapy for most.² Thus, RRT has crossed the threshold of clinical application and its value as an effective treatment for stage V CKD is well established. However, RRT has highlighted the large gap between developed and developing countries. Most developed countries are able to provide sufficient resources, directly or indirectly, for RRT. However, providing RRT is particularly difficult in developing countries where national incomes are insufficient to cover even the basic needs of their citizens. Although some developing countries have made active efforts to establish cadaver transplantation programs, most currently have virtually no programs.³

Specialized nephrology and hemodialysis care for the population of the Republic of Uzbekistan is created as a unified system, the implementation of which is carried out by district nephrology departments, interdistrict hemodialysis departments, regional nephrology and hemodialysis departments, the Scientific and Practical Medical Center of Nephrology and Kidney Transplantation, the Ministry of Health. The head institution of the system is the Republican Specialized Scientific and Practical Medical Center of Nephrology and Kidney Transplantation (RSSPMCNT). Nephrology and hemodialysis services provide medical care to the population through 14 regional branches of the RSSPMCNT, 62 interdistrict hemodialysis departments and 208 nephrology offices of district and city medical associations.

Type 2 diabetes mellitus (DM 2) is a disorder of heterogeneous genesis characterized by hyperglycemia due to lack of insulin action, insulin secretion, or both, and is projected to affect approximately 439 million people worldwide by 2030.⁴ Long-standing type 2 diabetes mellitus is associated with microvascular complications, especially Diabetic Kidney Disease (DKD). DKD is the most common complication of type 2 diabetes mellitus and the leading cause of end-stage renal disease worldwide.^{3,4} It is critical to diagnose patients who are more susceptible to developing DKD for better disease control. Several factors and mechanisms contribute to the development and outcome of DKD. Microalbuminuria is an early marker of DKD and is used as a routine screening method, but renal damage can occur even without microalbuminuria.⁵⁻⁷ There are several important biomarkers of kidney damage and disease that help in early detection of DKD. An early biomarker may allow earlier diagnosis, treatment reduces the prevalence of DKD and slows the progression of DKD. All this led to this study.

The Kidney Disease: Improving Global Outcomes (KDIGO) 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease (CKD) is an update to the KDIGO 2012 guideline on the topic. The diagnostic criteria of DKD stages 1-3 according to KDIGO guidelines, reducing the glomerular filtration rate – GFR- (≥ 90 (G1), 60–89 (G2), 45–59 (G3A), 30–44 (G3B), 15–29 (G4) ml/min by 1.73 m²). A certain decrease in rGFR is defined as a decrease in the category of GFR, accompanied by a decrease in rGFR by 25% or more from the initial level.⁸⁻¹⁰ All of the above formed the basis for this study.

The aim of the study is to analyze the state of nephrology and hemodialysis services in the Republic of Uzbekistan for 2019-2024

and the prevalence of diabetic nephropathy stages I-III in the Republic of Uzbekistan.

Material and research methods

The data of the state department served as the material for the study. The country has organized specialized nephrology and hemodialysis care for the population of the Republic of Uzbekistan. The implementation of this service system is carried out by district nephrology departments, interdistrict hemodialysis departments, regional nephrology and hemodialysis departments, the Scientific and Practical Medical Center of Nephrology and Kidney Transplantation, the Ministry of Health. The main institution of the system is the Republican Specialized Scientific and Practical Medical Center of Nephrology and Kidney Transplantation (RSNPMCNT). Nephrology and hemodialysis services provide medical care to the population through 14 regional branches of the RSNPMCNT, 60 interdistrict hemodialysis departments and 208 nephrology offices of district and city medical associations.

The study also included 22,319 people with type 2 diabetes mellitus (DM2) from 13 regions of the Republic of Uzbekistan and the city of Tashkent, who were divided into 3 groups:

The first group included representatives of the active working population who were examined at local regional endocrinology dispensaries: 6,433 people - 4,228 men (65.7%) and 2,205 women (34.3%) aged 44-55 years (average age 44.1±11.2 years) without concomitant diseases.

The second group - patients who were examined at local regional endocrinology dispensaries: 7320 people - 4075 men (55.7%) and 3245 women (44.3%) aged 56-65 years (mean age 59.5±13.9 years) with concomitant diseases.

The third group - patients who were examined at local regional endocrinology dispensaries: 8566 people - 4390 men (51.3%), 4176 women (27.9%) aged over 66-78 years (mean age 66.3±16.7 years) with micro and macroangiopathies. Patients were subjected to studies performed in the regions based on regional endocrinological dispensaries or hemodialysis: general clinical, biochemical (blood glucose, urea, creatinine, calcium, parathormone, electrolytes, lipids, etc.) Instrumental research methods (ECG, X-ray of the chest, Doppler of vessels of the legs et al).

Inclusion criteria

Chronic kidney disease 1-5 stages, type 1 and 2 diabetes, children and adolescents, men and women.

Exclusion criteria

patients who refused to observe and treatment, patients outside of dispensary accounting.

Statistical analysis

The obtained data were processed using the computer programs Microsoft Excel and STATISTICA-6. The reliability of differences in quantitative indicators ($n > 12$) was determined using the Wilcoxon method for unrelated ranges; to determine the reliability of small samples ($n < 12$), the nonparametric Fisher component randomization criterion for independent samples was used; for qualitative values, the Fisher-Irwin exact test was used. Differences between groups were considered statistically significant at $P < 0.05$, correlation analysis was carried out using the nonparametric Spearman rank correlation method.

Research results

It was established that the largest number of patients with stage 1-3 DN in 2019 was in Tashkent - 3,533 patients and in the Samarkand region - 2,175 patients, the number of which in 2023 increased to 5,469 and 3,012 patients, respectively. In total, for the period from 2016 to 2023, the number of patients with DN increased from 14,148 to 24,964, that is, by 10,816 people. If in 2016 the number of deaths from chronic renal failure with type 2 diabetes in the Republic of Uzbekistan was 703 cases, then in 2023 it reached 1,330 people, that is, it increased 2 times. Moreover, in the Fergana region the number of

deaths in 2016 was the highest – 123 cases, and in 2023, this number also remained the highest in this region – 289 patients (21.7%). In 2019, the total number of patients with chronic kidney disease was 125,274. The number of patients in 2020-2021 increased by 27% compared to 2019. The number of patients in 2022 increased by 10.3% compared to 2021. In 2023, the number of patients increased by 14% compared to 2022, and in 2024 by 4% compared to 2023. This is due to the increase in cardiovascular diseases and diabetes mellitus, which are the causes of secondary nephropathy, as well as improved early diagnosis (Tables 1).

Table 1 The number of patients with chronic kidney disease from stage I to IV by region of the republic by year

Regions	Number of patients with chronic kidney disease					
	2019	2020	2021	2022	2023	2024
Tashkent city	18670	18980	19280	19685	19985	14996
Andijan	7416	11675	12416	12916	13269	13269
Bukhara	4500	6500	7500	8500	9500	9325
Jizzakh	11740	9032	14762	17852	20034	31457
Kashkadarya	11258	12771	13571	14571	19300	19002
Navoi	6021	6158	6352	6352	7011	7132
Namangan	10283	10951	10982	11966	12986	12572
Samarkand	8150	9456	10922	11922	12636	12763
Surkhandarya	12695	12908	13890	14740	15750	15848
Syr Darya	822	900	1042	1144	1540	1653
Tashkent region	9650	12025	15745	17745	27991	28592
Fergana	7766	7766	8091	9091	12190	12070
Khorezm	7223	9150	11400	15665	17764	17650
Republic of Karakalpaskan	9080	12162	13186	15206	16164	17559
General	125274	140434	159139	177355	206120	213888

Chronic kidney disease

It has been established that the overall incidence rate increases from year to year, and the upward trend corresponds to the global statistics of chronic renal failure. When analyzing this disease by

region, it was revealed that the number of patients in relation to the population was low in the Andijan and Bukhara regions, and high in the Tashkent, Samarkand, Kashkadarya and Surkhandarya regions (Table 2).

Table 2 The number of patients with chronic kidney disease stage V by year in the regions of the republic

Regions	Number of patients with chronic kidney disease stage V					
	2019	2020	2021	2022	2023	2024
Tashkent city	10550	10950	11350	12595	13195	13195
Andijan	200	604	700	820	940	949
Bukhara	480	701	801	905	990	960
Jizzakh	320	334	531	1308	3744	3022
Kashkadarya	1063	1239	1719	3232	8400	8000
Navoi	2428	2512	3246	4132	5526	5383
Namangan	2806	3523	4292	5283	6334	6752
Samarkand	3454	4867	5922	6904	7071	7296
Surkhandarya	1671	2798	3858	4695	7394	7148
Syr Darya	1937	2465	2761	3167	3840	3548
Tashkent region	2004	2880	3973	4130	4937	4726
Fergana	2000	2700	3021	3821	4015	4115
Khorezm	1280	1812	2046	2946	3675	3663
Republic of Karakalpaskan	1152	1188	2046	2946	3465	3489
General	31345	38573	56271	56884	73526	72246

Patients in need of planned hemodialysis treatment in our republic

After the entry into force of the Decree of the President of the Republic of Uzbekistan dated July 12, 2018 No. PP-3846 “On measures to improve the efficiency of providing nephrological and hemodialysis care to the population of the Republic of Uzbekistan”, the focus on hemodialysis has changed dramatically. Uninterrupted

supplies of consumables for hemodialysis have been ensured. The number of patients increased in 2019-2020. Due to the COVID-19 pandemic, the number of patients in 2021 decreased by 32% compared to 2020. According to the annual report for 2024, the number of patients increased by 26% compared to 2021. In this regard, it is important to note that kidney transplantation is developing in our republic (Table 3).

Table 3 Number of patients receiving planned hemodialysis treatment by region of the republic by year

Regions	Number of patients receiving regular hemodialysis treatment					
	2019	2020	2021	2022	2023	2024
Tashkent city	1340	1324	868	880	989	1238
Andijan	204	204	173	221	251	284
Bukhara	272	296	205	228	253	280
Jizzakh	183	175	198	231	224	258
Kashkadarya	374	488	318	539	403	542
Navoi	98	140	96	107	106	98
Namangan	385	456	337	395	375	426
Samarkand	454	653	365	403	403	421
Surkhandarya	224	409	305	133	299	341
Syr Darya	154	203	212	235	152	156
Tashkent region	806	912	675	728	717	734
Fergana	385	449	263	317	400	453
Khorezm	286	282	174	236	307	399
Republic of Karakalpaskan	217	290	134	122	107	135
General	5382	6281	4323	4775	4986	5765

Organization of hemodialysis departments in the republic, based on the number of population and patients

Following the President’s decisions, attention to the sector will increase, and the life expectancy of patients will increase. Diseases began to be detected earlier. The number of patients has increased. In order to bring hemodialysis services closer to the population and

improve their quality, new inter-district hemodialysis departments have been opened and continue to be opened depending on the population and patient numbers. In 2022, the number of hemodialysis departments increased by 50% compared to 2019. In 2024, the number of departments increased by 21% compared to 2022. This led to an improvement in the quality of hemodialysis treatment, saving patients time and money (Table 4).

Table 4 Number of hemodialysis departments by regions of the republic

Regions	Number of hemodialysis departments by region					
	2019	2020	2021	2022	2023	2024
Tashkent city	7	8	10	10	10	14
Andijan	3	3	3	5	5	5
Bukhara	2	3	4	5	6	6
Jizzakh	2	2	3	6	6	6
Kashkadarya	4	4	4	9	10	10
Navoi	2	3	4	4	5	5
Namangan	3	3	5	7	7	7
Samarkand	2	3	5	8	8	9
Surkhandarya	2	3	3	3	5	6
Syr Darya	2	2	2	3	5	5
Tashkent region	4	4	5	7	9	9
Fergana	3	3	5	8	9	9
Khorezm	3	3	4	4	5	7
Republic of Karakalpaskan	3	3	4	4	5	7
General	42	47	61	83	95	105

Equipping hemodialysis departments with artificial kidney machines depending on the number of patients in our republic

Until 2019, hemodialysis departments and their medical equipment were in a deplorable state, supplies were extremely scarce. There were not enough wards and apartments to accommodate patients. As

attention to the sector grew, so did the supply of medical equipment, as well as the number of departments. In 2020, the supply of medical equipment increased by 21%, in 2021 - by 34%, in 2022 - by 6%, in 2023 - by 6%, in 2024 - by 13%. This, naturally, led to the emergence of new hemodialysis centers. Currently, in our republic, patients do not have to wait in line for hemodialysis treatment. The supply of consumables is also 100% (Table 5).

Table 5 Number of artificial kidney machines by regions of the republic. (The statistical data presented in the tables above were obtained from the health departments)

Regions	Number of artificial kidney machines by region					
	2019	2020	2021	2022	2023	2024
Tashkent city	91	116	165	158	134	177
Andijan	12	15	27	31	33	37
Bukhara	16	22	30	37	39	42
Jizzakh	12	13	25	32	32	37
Kashkadarya	29	31	46	51	61	70
Navoi	8	15	23	23	28	27
Namangan	24	26	38	42	49	52
Samarkand	17	30	46	52	57	64
Surkhandarya	16	21	35	34	45	47
Syr Darya	8	13	21	25	29	31
Tashkent region	45	47	65	69	79	87
Fergana	20	27	43	47	49	61
Khorezm	16	17	25	23	24	21
Republic of Karakalpakstan	12	16	26	26	32	34
General	326	409	615	650	691	786

As a result of the creation of the Republican Specialized Scientific and Practical Medical Center for Nephrology and Kidney Transplantation and its branches, on the initiative of our President, a single practical and methodological center was created. The management system has been formed. A unified register of nephrological patients has been created, and provision of highly qualified specialized medical care to them has been brought to the district level.

The development and implementation of diagnostic and treatment standards based on modern requirements have made it possible to reduce or significantly delay the occurrence of such a dangerous complication as renal failure in nephrological patients. The introduction of the first-of-its-kind use of consumables for the planned hemodialysis procedure has significantly improved the effectiveness of treatment and prevented complications such as blood-borne diseases and microthrombosis. It is no secret that in previous years, patients in need of programmed hemodialysis treatment waited for their turn for days, and sometimes weeks, and ultimately this situation led to a tragic outcome for the patient. Until the center and its branches are created, patients throughout the republic will be provided with Maintenance of 283 hemodialysis machines in 38 departments was carried out.

Currently, there is a law in effect in Republican Specialized Scientific and Practical Medical Center of Nephrology and Renal Transplantation (RSSPMCNRT) and its 14 branches and 105 hemodialysis departments, the number of hemodialysis machines in them has increased to 786 over the past 5 years. This, in turn, created the opportunity for patients undergoing hemodialysis treatment three times a week to receive hemodialysis treatment in a hospital close to their place of residence, without the need to travel 80-100 km to Tashkent or the regional center. In addition, clinics have been

established in Tashkent, the Republic of Karakalpakstan and the Khorezm region on the basis of public-private partnership. The study included 1258 patients. Ambulances are used as needed to transport hemodialysis patients to the hospital.

Patients undergoing hemodialysis treatment people who have undergone a kidney transplant are provided with 5 types of essential medicines free of charge. A very important issue – the issue of training qualified personnel – is also in the constant focus of our state. Training of nephrologists, pediatric nephrologists and hemodialysis specialists is carried out through master’s degree and clinical residency. The scope of scientific research is expanding.35 doctoral and candidate dissertations have been defended, and another 5 are planned to be defended in 2025.

As a result of the created opportunities for foreign cooperation, scientific, methodological and practical interaction between specialists from the center and the regions has reached a new level.76 doctors improved their qualifications in 10 foreign countries, 200 doctors in the center and 90 doctors in their workplaces. Over the past three years, leading foreign experts have been involved in solving pressing problems in the industry.15 scientific and practical conferences were held. The approach to the development of the material and technical base of the Center and its branches, to the social protection of medical workers, and the creation of favorable conditions for their effective work has changed radically.

In accordance with the decision of our esteemed President, a new, modern building has been built for the center, fully meeting the nature and level of specialized medical services. At present, this building Work is underway to equip the hospital with specialized medical equipment worth 7 million US dollars and 45 billion soums. Given the growing number of patients requiring nephrological and renal replacement therapy according to global statistics, We have set a number of plans

and goals for 2025. And in regional branches two diagnostic methods and two treatment methods will be implemented. Three diagnostic methods and four treatment methods will be implemented in the center itself. As a result, high efficiency of early diagnostics and treatment of severe kidney diseases will be achieved, and the need for patients to spend extra time and money on trips abroad, to the capital and regional centers will be significantly reduced. Work in district and regional hospitals 140 people (25 abroad, 115 in national institutions). In the nephrology center 12 specialists from prestigious clinics foreign countries improve their skills Also, 27 specialists conduct scientific research in 5 areas. 5 specialists in the near future defend doctoral and candidate dissertations.

In order to organize specialized medical care at the district level, the Center and its branches will provide medical care to the population of each region by 2025. Guarantees the development of 2 districts/cities (27 in total) into exemplary and improved ones. Exchange of experience, holding master classes, introducing new diagnostic and treatment methods, conducting medical examinations in the regions. Our country will be visited by 18 specialists from 6 countries (China, Russia, Germany, Korea, Türkiye, Belarus).

By raising the status and prestige of the nephrology and hemodialysis services of our country, we will increase the number of foreign patients attracted to the Center through the development of medical tourism. Increases by 3 times. The following works are planned:

Programs such as digital and innovative technologies, telemedicine, remote consultations, artificial intelligence will be implemented, and private partnership investments will be attracted.

In the near future, it is planned to introduce electronic programs "Determination of the glomerular filtration rate of the kidneys" in all district and city medical associations and to train doctors of specialized specialties and clinics in the correct interpretation of the results obtained for the purpose of rapid and inexpensive diagnosis of chronic kidney diseases and their stages; High-tech immunological test to determine compatibility between donor and recipient in kidney transplantation introduction of checks.

To all regions introduction of a diagnostic method of kidney biopsy to determine the level of inflammation in chronic kidney disease; Implementation of modern immunosuppressive therapy for primary and secondary nephropathies based on morphological examination of the kidneys and immunohistochemical analysis. Implementation of modern methods of extracorporeal detoxification, such as plasma sorption, hemosorption, plasmapheresis, immunosorption in kidney diseases. The center and regional branches of the center, together with the regional health department, personalize hemodialysis sessions taking into account primary and secondary diseases, as well as concomitant conditions.

At the same time, there are a number of pressing issues in the industry

Due to the lack of qualified nephrologists at the district level, the disease is still diagnosed late, and chronic renal failure and its severe stages develop already at the early stages. For example: according to statistics, chronic kidney disease is diagnosed at stage 3-4 in 50% of cases, and at the terminal stage of the disease in 10% of cases. Each district lacks specialists to ensure employment of nephrology personnel organized for the primary system. For example: Of the 208 operating district multidisciplinary central polyclinics, only 54 have nephrologists. Of the 786 existing hemodialysis machines, 229

require repair, and there is not a single service center that would provide technical support for other related equipment. Due to the small number of children receiving hemodialysis, pediatric dialyzers are ordered in small batches as a set (blood supply line, venous and arterial lines, double-lumen catheter). Due to the small number of applications at the time of the tender announcement and the small number of companies producing pediatric dialyzers, often no one participates in the tender. As a result, purchases are not made on time.

Discussion

After the entry into force of the Decree of the President of the Republic of Uzbekistan dated July 12, 2018 No. PP-3846 "On measures to improve the efficiency of providing nephrological and hemodialysis care to the population of the Republic of Uzbekistan", the focus on hemodialysis has changed dramatically. Uninterrupted supplies of consumables for hemodialysis have been ensured. The number of patients increased in 2019-2020. Due to the COVID-19 pandemic, the number of patients in 2021 decreased by 32% compared to 2020. According to the report for 9 months of 2024, the number of patients increased by 23% compared to 2021. In this regard, it is important to note that kidney transplantation is developing in our republic.

Following the President's decisions, attention to the sector will increase, and the life expectancy of patients will increase. Diseases began to be detected earlier. The number of patients has increased. In order to bring hemodialysis services closer to the population and improve their quality, new inter-district hemodialysis departments have been opened and continue to be opened depending on the population and patient numbers. In 2022, the number of hemodialysis departments increased by 50% compared to 2019. In 2024, the number of departments increased by 19% compared to 2022. This led to an improvement in the quality of hemodialysis treatment, saving patients time and money.

The 2022 American Diabetes Association (ADA) Standards of Medical Care in Diabetes and the Kidney Disease: Improving Global Outcomes (KDIGO) 2022 Clinical Practice Guideline for Diabetes Management in Chronic Kidney Disease each provide evidence-based recommendations for management. A joint group of ADA and KDIGO representatives reviewed and developed a series of consensus statements to guide clinical care from the ADA and KDIGO guidelines. The published guidelines are aligned in the areas of CKD screening and diagnosis, glycemia monitoring, lifestyle therapies, treatment goals, and pharmacologic management. Recommendations include comprehensive care in which pharmacotherapy that is proven to improve kidney and cardiovascular outcomes is layered on a foundation of healthy lifestyle. Consensus statements provide specific guidance on use of renin-angiotensin system inhibitors, metformin, sodium-glucose cotransporter 2 inhibitors, glucagon-like peptide 1 receptor agonists, and a nonsteroidal mineralocorticoid receptor antagonist. These areas of consensus provide clear direction for implementation of care to improve clinical outcomes of people with diabetes and CKD.^{11,12}

Conclusion

1. Our republic has a shortage of specialists to ensure employment of nephrologists in medical organizations providing inpatient nephrological care. For example: out of 219.5 allocated staff positions, 108 are filled and 111.5 are vacant, which is 50% in total. 2. The reporting system does not contain sufficient information on the actual number of patients with chronic kidney disease and their risk groups.

For example: Patients at risk of developing chronic kidney disease are seen by other specialists in 30–40% of cases. 3. The prevalence of diabetic nephropathy stages 1–3 in dynamics from 2019 to 2024 has significantly increased over the current period.

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None.

Conflicts of interest

The author declares that there are no conflicts of interest.

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