

Condition and Dynamic of the Incidence Rate of Age-Related Macular Degeneration in Republic of Uzbekistan

Yangiyeva N. P¹., Rizayev J. A².

¹Tashkent State Dental Institute, Department of Ophthalmology with a course of gynecology

²Samarkand State Medical Institute, Republic of Uzbekistan, city of Samarkand

Address: Uzbekistan, Tashkent, Tashkent State Dental Institute; phone number (+99893) 1841200; Email: Yangiyeva.nodira.1968@gmail.com

Yangiyeva Nodira Rakhimova - Candidate of Medical Sciences, Associate Professor of the Department of "Ophthalmology with a course of gynecology" of the Tashkent State Dental Institute
Rizayev Zhasur Alimzhanovich - Doctor of Medical Sciences, Professor, Rector of the Samarkand State Medical Institute

Annotation. *Age-related macular degeneration (AMD) is a degenerative, progressive disease of the macular region of the retina, which is the leading cause of central vision loss in older people in developed countries.*

Purpose of the study. *to study the incidence rates of AMD in the Republic of Uzbekistan in the context of regions.*

Material and methods: *based on the data of the Ministry of Health of the Republic of Uzbekistan, data from the reporting documentation of the Republican Specialized Scientific and Practical Medical Center for Eye Microsurgery, a retrospective analysis of the dynamics of indicators of general and primary morbidity of AMD for the period from 2010 to 2019 in the context of regions of the Republic of Uzbekistan and the city of Tashkent was carried out and statistical methods.*

Research results. *Analysis of the overall morbidity showed that relative to 2010, the indicators had some downward trend - in 2011 - 15.09, in 2012 - 14.73, but since 2013 they have been growing and in 2019 increased by 7.25 per 100 thousand population relative to 2010 (from 16.30 to 23.55 per 100 thousand population). An analysis of the primary incidence of AMD indicates that the rates are steadily growing from 3.60 in 2010 to 8.38 per 100 thousand population in 2019 (by 4.78).*

Conclusions. *For the first time, the indicators of the incidence of AMD in the Republic of Uzbekistan for a 10 year period are presented, which indicate a high level, in comparison with developed countries, a growth trend and uneven numbers in the regions, which requires organizational and other decisions.*

Key words: *age-related macular degeneration, general morbidity, primary morbidity.*

Relevance. *Age-related macular degeneration (AMD) is a degenerative, progressive disease of the macular region of the retina, which is the leading cause of central vision loss in the elderly in developed countries [5,8]. In the structure of low vision, AMD ranks second and, as a rule, is accompanied by bilateral lesions (both eyes are affected in 60% of cases) [3,7]. According to the WHO, the prevalence of this pathology is 300 per 100 thousand population, 25-30 million people in the world suffer from AMD. Over the age of 40, 25-40% of the population fall ill [2,4,8]. Among people over 60 years old, this pathology is detected in 58% [5,6]. The problem of the development of AMD is becoming more and more urgent due to the increase in elderly people among the*

population, as well as due to the "rejuvenation" of the disease. In Russia, more than 100 thousand people are diagnosed with age-related macular degeneration annually, of which 20% of patients progress to the "wet" (or "neovascular") form [1,3].

The economic consequences of the development of neovascular AMD are significant for patients, their families and the healthcare system (reduced quality of life, loss of independence, disability). The assessment of economic losses from disability of the population can be carried out by analyzing the indicators of morbidity and disability in a given disease.

Unfortunately, in the available domestic literature there is not even mention of the prevalence (incidence) and disability of AMD in the Republic of Uzbekistan. The absence of such indicators in publications shows an insufficient and scientifically grounded approach to the organization of ophthalmological care for the population for the prevention, early detection of AMD, as well as the provision of high-quality medical and diagnostic care for patients with AMD.

Purpose of the study. To study the indicators and dynamics of the incidence of AMD in the Republic of Uzbekistan in the context of regions over a 10-year period.

Materials and research methods. Based on the data of the statistical department and statistical collections of the Ministry of Health of the Republic of Uzbekistan, data from the reporting documentation of the Republican Specialized Scientific and Practical Medical Center for Eye Microsurgery, we carried out a retrospective analysis of the dynamics of indicators of the general and primary morbidity of AMD for the period from 2010 to 2019 in the context of the regions of the Republic of Uzbekistan and the city By copying and statistical methods.

Results analysis of the overall incidence showed that relative to 2010, the indicators had a slight downward trend - in 2011 - 15.09, in 2012 - 14.73, but since 2013 they have been growing and in 2019 increased by 7.25 per 100 thousand population relative to 2010 (from 16.30 to 23.55 per 100 thousand population) (Table 1, Figure 1).

It was revealed that the indicators of general morbidity are uneven in the territory of Uzbekistan.

In 2010, based on the identified incidence, the leading regions were the Republic of Karakalpakstan - 55.88, Samarkand - 38.83 and Fergana regions - 14.25 per 100 thousand of the adult population.

High registration of confirmed cases of AMD in 2011 is noted in the Samarkand region - 37.94, in the Republic of Karakalpakstan - 25.58 and in the city of Tashkent - 16.16 per 100 thousand of the adult population.

Table 1. Indicators of general morbidity in the Republic of Uzbekistan for the period from 2010 to 2019. in the context of areas.

TOTAL AMD INCIDENCE IN THE REPUBLIC OF UZBEKISTAN (per 100 thousand population)															
Of the year	Karakalpakst	Andijan	Bukhara	Jizzak	Navoi region	Namangan	Samar kand	Sirdarya	Surkhandarya	Kashkadarya	Fergana	Khorezm	Tashkent	Tashkent city	Total:
2010	55,88	14,59	8,50	9,85	11,51	5,36	38,83	13,72	11,47	9,37	14,25	1,79	11,06	12,13	16,30
2011	25,58	15,42	8,43	10,46	9,85	5,46	37,94	13,89	11,26	7,53	15,33	1,37	14,82	16,16	15,09
2012	17,60	12,20	7,67	8,85	14,30	5,95	39,20	12,44	10,50	13,21	17,25	1,90	12,02	13,16	14,73
2013	14,66	13,89	10,81	6,80	13,06	6,95	40,49	11,32	9,51	12,36	17,63	2,24	15,88	17,30	15,56
2014	24,82	14,44	11,05	10,35	14,43	5,67	41,24	14,14	9,10	9,26	17,78	1,48	11,56	12,67	15,33
2015	27,11	15,29	10,42	10,80	13,36	5,05	43,67	14,54	9,24	5,41	19,25	1,98	14,14	15,56	16,02
2016	11,56	15,39	17,08	11,13	11,42	4,15	45,79	14,04	9,58	5	21,00	0	12,88	14,21	16,80
2017	17,88	14,68	16,00	11,61	9,44	5,54	47,54	14,82	13,20	5,80	20,11	3,26	18,27	20,17	17,38
2018	78,41	15,44	7,40	12,34	8,66	4,38	47,78	14,65	12,37	18,40	20,84	2,63	21,33	23,30	22,11
2019	87,43	14,64	6,05	14,05	7,80	5,01	50,99	25,19	13,82	10,74	24,14	2,23	27,12	29,08	23,55

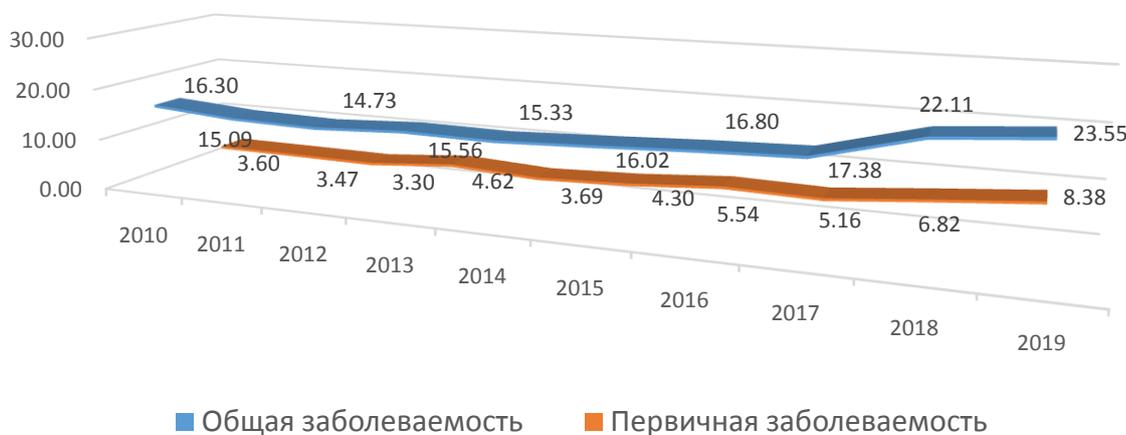


Figure 1. Indicators of general and primary incidence of age-related macular degeneration in the Republic of Uzbekistan (per 100 thousand population).

The registered cases of morbidity in 2012 show that the tendency of 2010 continues: Samarkand region - 39.20, Republic of Karakalpakstan - 17.60, then Fergana region - 17.25 per 100 thousand of the adult population.

In 2013, the overall incidence of AMD remains relatively at the same level, with a slight increase in the incidence, the leading positions are the same regions: Samarkand region - 40.49, Fergana region - 17.63, Tashkent city - 17.30 per 100 thousand adults population.

The two-year period of incidence of 2014-2015, retains a tendency to increase the incidence in the same regions of the Republic, in the Samarkand region 41.24 - 43.67, the Republic of Karakalpakstan - 24.82 - 27.11, in the Fergana region - 17.78 - 19.25 per 100 thousand of the adult population.

Analysis of data for 2016 shows that the highest overall incidence of AMD is recorded in the Samarkand region - 45.79, in the Fergana region - 21.00, in the Bukhara and Kashkadarya regions - 17.08 and 17.75, respectively, per 100 thousand of the adult population.

The highest registration for 2017 is noted in the Samarkand region - 47.54, in the Fergana region - 20.11, in the city of Tashkent - 20.17 per 100 thousand of the adult population.

For 2018, the highest incidence is observed in the Republic of Karakalpakstan - 78.41, then in the Samarkand region - 47.78, then in the city of Tashkent - 23.30 per 100 thousand of the adult population.

In 2019, a record jump is observed - the peak registration in the Republic of Karakalpakstan is 87.43, in the Samarkand region - 50.99, in the city of Tashkent - 29.08 per 100 thousand of the adult population.

The results show consistently high rates of general AMD morbidity, more than 14 per 100 thousand of the population in the Fergana region and more than 37 per 100 thousand of the population in the Samarkand region, over a ten-year period. Very high in the Republic of Karakalpakstan, especially in 2010 (55.88), in 2018 (78.41) and 2019 (87.43) per 100 thousand population.

According to the results of a retrospective analysis of statistical data, consistently low rates are observed in the Khorezm region and do not exceed 3.26 per 100 thousand population (2017).

In addition to the overall incidence, we analyzed the primary incidence of AMD for the period from 2010 to 2019 in the context of the regions of the Republic of Uzbekistan and the city of Tashkent. The data indicate that the rates are growing steadily from 3.60 in 2010 to 8.38 per 100 thousand population in 2019 (by 4.78) (Table 2, Figure 1).

Table 2. Indicators of primary incidence of age-related macular degeneration in the Republic of Uzbekistan for the period from 2010 to 2019. in the context of areas.

PRIMARY INCIDENCE OF AMD IN THE REPUBLIC OF UZBEKISTAN															
(per 100 thousand population)															
Of the year	Republic of Karakalpakst	an Andijan region	Bukhara region	Jizzak region	Navoi region	Namangan region	Samarkand region	Sirdarya region	Surkhandarya region	Kashkadarya region	Fergana region	Khorezm region	Tashkent region	Tashkent city	Total:
2010	9,44	4,12	2,05	2,33	8,45	1,95	3,88	2,94	0,58	2,10	4,26	1,28	4,25	4,65	3,60
2011	2,74	4,83	1,66	2,49	7,33	1,43	4,10	3,16	0,74	3,60	4,58	0,69	4,88	5,31	3,47
2012	5,14	2,95	2,87	1,60	12,71	1,65	3,85	2,57	0,81	0,47	5,03	0,98	4,38	4,81	3,30
2013	4,50	4,35	2,25	1,33	9,79	2,11	5,35	2,93	0,58	0,74	5,29	1,09	10,76	11,70	4,62
2014	3,69	4,60	1,76	2,53	10,76	1,88	5,57	2,75	1,47	1,76	5,34	0,71	4,40	4,85	3,69
2015	2,27	4,86	2,63	2,88	2,41	1,29	5,72	3,86	0,47	1,22	5,75	1,11	9,72	10,71	4,30
2016	4,13	4,71	3,20	2,51	4,42	1,04	5,22	3,29	1,49	6,51	9,33	0,97	10,84	11,99	5,54
2017	1,27	6,04	5,48	3,00	2,55	1,55	4,76	3,11	0,97	1,49	8,81	2,14	11,45	12,62	5,16
2018	6,47	4,98	3,33	1,86	1,55	1,28	5,14	2,79	1,25	7,64	9,74	1,81	17,00	18,58	6,82
2019	27,33	4,99	2,79	3,11	1,85	1,02	5,32	6,63	1,17	3,17	10,10	1,85	21,56	23,13	8,38

It was revealed that the indicators of primary morbidity are uneven in the territory of Uzbekistan.

For 2010, the largest is registered in the Republic of Karakalpakstan - 9.44, then in the Navoi region - 8.45, then in the city of Tashkent - 4.65, in the Fergana and Tashkent regions - 4.26 and 4.25, respectively, and Andijan region - 4.12 per 100 thousand of the adult population.

In 2011, high rates are noted in the Navoi region - 7.33, then in the city of Tashkent - 5.31, then in the Tashkent and Andijan regions - 4.88 and 4.83, respectively, in the Fergana region - 4.58 and Samarkand region - 4.10 per 100 thousand of the adult population.

An analysis of indicators for 2012 showed that the highest figures were in the Navoi region - 12.71, then in the Republic of Karakalpakstan - 5.14, then in the Fergana region - 5.03 per 100 thousand population.

For 2013, the highest primary morbidity is recorded in the city of Tashkent - 11.70 and Tashkent region - 10.76, then in Navoi region - 9.79, then in Samarkand and Fergana regions - 5.35 and 5.29,

respectively, per 100 thousand the adult population.

In 2014, in the Navoi region - 10.76, then in the Samarkand region - 5.57, then in the Fergana region - 5.34, in the city of Tashkent - 4.85 and Andijan region - 4.60 per 100 thousand of the adult population.

The indicators of 2015 indicate that the highest primary morbidity is recorded in the city of Tashkent - 10.71, then in the Tashkent region - 9.72, then in the Fergana region - 5.75, in the Samarkand region - 5.72 and in the Andijan region - 4.86 per 100 thousand of the adult population.

For 2016, the largest is registered in the city of Tashkent - 11.99 and in the Tashkent region - 10.84, then in the Fergana region - 9.33, then in the Kashkadarya region - 6.51 per 100 thousand of the adult population.

The indicators of 2017 made it possible to establish that the highest incidence is recorded in the city of Tashkent - 12.62 and in the Tashkent region - 11.45, then in the Fergana region - 8.81, then in the Andijan region - 6.04 per 100 thousand of the adult population.

For 2018 - in the city of Tashkent - 18.58 and in the Tashkent region - 17.00, then in the Fergana region - 9.74, then in the Kashkadarya region - 7.64 per 100 thousand of the adult population.

The data for 2019 indicate a record high registration of primary morbidity in the Republic of Karakalpakstan - 27.33, in the city of Tashkent - 23.13 and in the Tashkent region - 21.56, then in the Fergana region - 10.10 per 100 thousand of the adult population.

The results show consistently high rates of primary morbidity of AMD, more than 10 per 100 thousand of the population in the city of Tashkent, more than 4 in Andijan, Fergana and Samarkand regions, over a ten-year period. Very high in the city of Tashkent and the Tashkent region, especially in 2018 (18.58 and 17.00) and 2019 (23.13 and 21.56), as well as in the Republic of Karakalpakstan in 2019 - 27.33 per 100 thousand population ...

Stably low rates are observed in the Khorezm region and do not exceed 2.14 (2017), also in the Surkhandarya region - do not exceed 1.49 per 100 thousand population (2016).

In the city of Tashkent, the overall incidence increased from 12.13 in 2010 to 29.08 in 2019 (by 16.95) per 100 thousand population. Special growth begins in 2016. The primary incidence is also growing: from 4.65 in 2010 to 23.13 in 2019 (by 18.48) per 100 thousand population, which indicates a significant increase in the primary incidence. Perhaps this is due to the increase in the number of specialized private clinics with modern equipment in the city of Tashkent and with a good detectability of AMD (Figure 2).

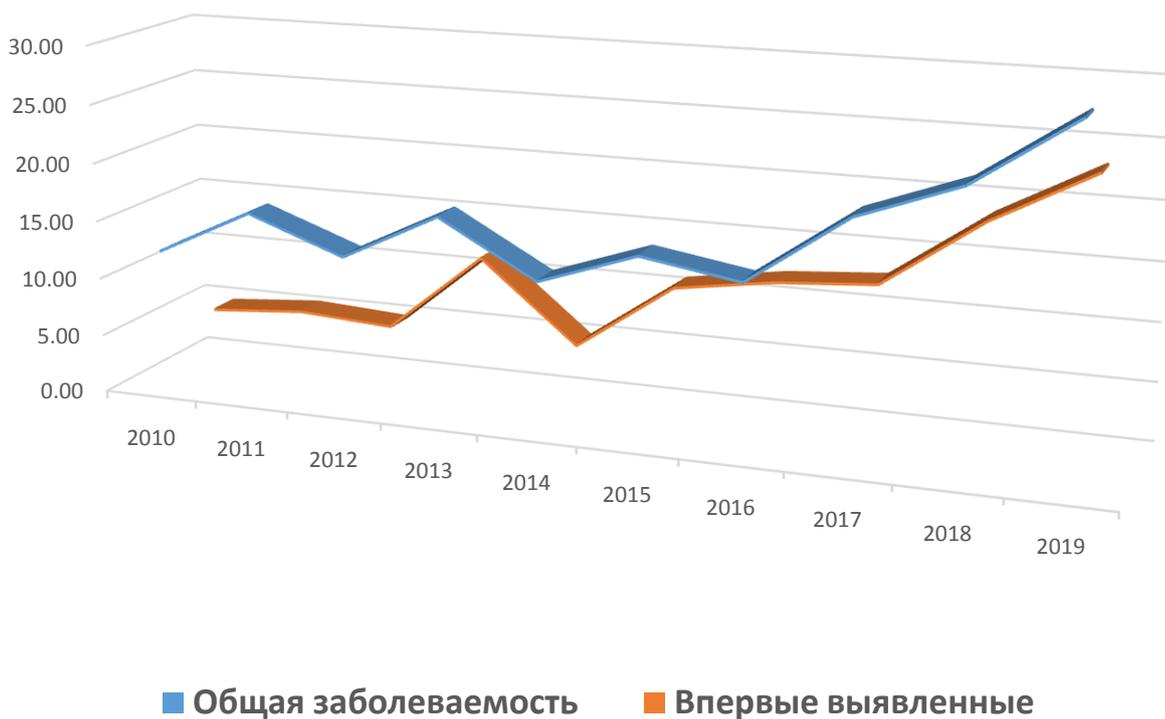


Figure 2. Indicators of general and primary morbidity in the city of Tashkent for the period from 2010 to 2019.

Conclusions:

1. For the first time, an analysis of statistical data and dynamics of the incidence of AMD in the Republic of Uzbekistan for the period 2010-2019 was carried out, which showed that for 2019 the total incidence is 23.55, and the primary incidence is 8.38 per 100 thousand of the adult population. In comparison with the literature data, these indicators are quite high.

2. Indicators of general and primary morbidity in the regions of the republic indicate an upward trend and vary significantly, which requires further study of the reasons for such a difference by conducting large, regional, properly organized epidemiological population studies.

3. This circumstance necessitates the improvement of measures to provide medical care to the population with AMD.

4. The information obtained during the research can be used for the rational organization of high-quality medical care for the population.

References:

1. Bikbov M., Fayzrakhmanov R., Kazakbaeva G., Jonas J.B. Ural Eye and Medical Study: description of study design and methodology. *Ophthalmic epidemiology*. 2018; 25 (3): 187-198. DOI: 10.1080 / 09286586.2017.1384504.
2. Gilmanshin T.R. Epidemiology of age-related macular degeneration in the Republic of Bashkortostan (clinical and statistical analysis according to The Ural Eye and Medical Study). *Ophthalmology*. 2019. No. 16 (1S). Pp. 137-141.

3. Kazakbaeva G., Bikbova G., Fayzrakhmanov R., Uzyanbaeva Y., Zainullin R., Jonas J.B. Axial length and its associations in a Russian population: The Ural Eye and Medical Study. *Investigative Ophthalmology & Visual Science*. 2018. Vol. 59 (9). P. 3373.
4. Epidemiologie der altersbedingten Makuladegeneration / C. Brandl [et al] // *Ophthalmologie*. 2016. Vol. 113. P. 735-745.
5. Flaxman SR, Bourne RR, Resnikoff S, et al. Global causes of blindness and distance vision impairment 1990–2020: a systematic review and meta-analysis. *Lancet Global Health*. 2017. Vol.5 (12). R. 1221–34.
6. Jonas J.B., Cheung C.M., Panda-Jonas S. Updates on the Epidemiology of Age-Related Macular Degeneration. *The Asia-Pacific Journal of Ophthalmology*. 2017. Vol. 6 (6). R. 493–497. DOI: 10.22608 / APO.2017251.
7. Wong T., Hyman L. Population-based studies in ophthalmology. *American Journal of Ophthalmology* 2008; 146: 656-663. DOI: 10.1016 / j.ajo.2008.07.048
8. WHO [webpage on the Internet] Prevention of Blindness and Visual Impairment. Priority Eye Diseases. 2017. <https://www.who.int/blindness/causes/priority/en/index7.html> (access date: 03.05.2018).
9. Bazarova D. Some problems of counteracting crimes related to laundering of illegal proceeds in Uzbekistan *Journal of Advanced Research in Dynamical and Control Systems*. Volume 11, Issue 7, 2019, Pages 873-885
10. Ismailova, Z., Choriev, R., Ibragimova, G., Abdurakhmanova, S., & Abdiev, N. (2020). Competent model of Practice-oriented education of students of the construction profile. *Journal of Critical Reviews*. Innovare Academics Sciences Pvt. Ltd. <https://doi.org/10.31838/jcr.07.04.85>
11. Ismailova, Z., Choriev, R., Musurmanova, A., & Aripjanova, M. (2020). Methods of training of teachers of university on advanced training courses. *Journal of Critical Reviews*. Innovare Academics Sciences Pvt. Ltd. <https://doi.org/10.31838/jcr.07.05.85>
12. Ismailova, Z., Choriev, R., Salomova, R., & Jumanazarova, Z. (2020). Use of economic and geographical methods of agricultural development. *Journal of Critical Reviews*. Innovare Academics Sciences Pvt. Ltd. <https://doi.org/10.31838/jcr.07.05.84>
13. Isakov, A., Tukhtamishev, B., & Choriev, R. (2020). Method for calculating and evaluating the total energy capacity of cotton fiber. *IOP Conference Series: Earth and Environmental Science*, 614(1), 012006
14. Davirov, A., Tursunov, O., Kodirov, D., Baratov, D., & Tursunov, A. (2020). Criteria for the existence of established modes of power systems. *IOP Conference Series: Earth and Environmental Science*, 2020, 614(1), 012039
15. Obidov, B., Choriev, R., Vokhidov, O., & Rajabov, M. (2020). Experimental studies of horizontal flow effects in the presence of cavitation on erosion-free dampers. *IOP Conference Series: Materials Science and Engineering*, 883(1), 012051
16. Khasanov, B., Choriev, R., Vatin, N., & Mirzaev, T. (2020). The extraction of the water-air phase through a single filtration hole. *IOP Conference Series: Materials Science and Engineering*, 2020, 883(1), 012206
17. Shokhrud F. Fayziev The problem of social stigma during a pandemic caused by COVID-19 *International Journal of Advanced Science and Technology* Vol. 29, No. 7, (2020), pp. 660-664 <http://sersc.org/journals/index.php/IJAST/article/view/13965/7188>
18. Fayziyev Shokhrud Farmonovich Medical law and features of legal relations arising in the provision of medical services. *International journal of pharmaceutical research* Volume 11, Issue 3, July - Sept,

2019 P. 1197-1200 doi:10.31838/ijpr/2019.11.03.088

<http://www.ijpronline.com/ViewArticleDetail.aspx?ID=11016>

19. Bryanskaya Elena, Fayziev Shokhrud, Altunina Anna, Matiukha Alena Topical Issues of an Expert Report in the Process of Proving in a Criminal Examination. International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249 – 8958, Volume-9 Issue-1, October 2019 5345-5349 DOI: 10.35940/ijeat.A2946.109119 <https://www.ijeat.org/wp-content/uploads/papers/v9i1/A2946109119.pdf>

20. Fayziev Shokhrud (2019) Legal Aspects of Transplantology in the Republic of Uzbekistan. Systematic Reviews in Pharmacy, ISSN: 0976-2779, Vol: 10, Issue: 2, Page: 44-47 doi:10.5530/srp.2019.2.08 <http://www.sysrevpharm.org//fulltext/196-1575419211.pdf?1586863081>

21. Tulaganova, G. Some issues of observance of international legal norms of fight against legalization of criminal incomes in the Republic of Uzbekistan Journal of Advanced Research in Dynamical and Control Systems 12(2 Special Issue), c. 143-155