7. Gerontology in Russia: Past, present and future

Vladimir N. Anisimov¹ and Olga N. Mikhailova²
¹Department of Carcinogenesis and Oncogerontology, N.N. Petrov Research Institute of Oncology, St. Petersburg, Russia; ²St.Petersburg Institute of Bioregulation and Gerontology, St. Petersburg, Russia

Abstract. The chapter presents major stages of gerontology development in Russia. The issues of training in gerontology and geriatrics, institutional infrastructure within Gerontological Society of the Russian Academy of Sciences have been considered therein. Special attention is given to the prospects of gerontology in Russia.

Major stages of gerontology development in Russia

The analysis of gerontological science in Russia has been given in recent papers which also outlined prospects for its development in the coming years (1-8). There are few key issues in the history of Russian gerontology. First of all, this is a book by I. Metschnikoff «Etudes sur la nature humaine: Essai philosophie optimiste» (1903) (9), where he introduced the term «gerontology» and put the cornerstone of the scientific discipline in biology and physiology of aging. In the 20-ies of the XX century the works of N.A. Belov, A.A. Bogdanov, S.A. Voronov, M.S. Milman, I.I. Schmalhausen not only evoked interest towards the investigation in the processes of aging per se,
but also raised the question on the possible increase in the life span of animals and humans. The 30-40-ies are characterized by the origin of the first national gerontological schools in this country – in Kiev and Kharkov (A.A. Bogomolets, A.V. Nagorny, I.N. Bulankin) and in Leningrad (Z.G. Frenkel, E. S. Bauer, V.G. Baranov). In 1938 in Kiev there took place the first scientific conference on aging. In 1957 in Leningrad on the initiative of Z.G. Frenkel there was organized the very first in this country City Scientific Society of Gerontologists and Geriatricians (3). The same year in Moscow there was organized the section of gerontology within Moscow Society of Nature Testers (MSNT) (10). In 1958 there was established Research Institute of Gerontology of the USSR Academy of Medical Sciences in Kiev with Academic Councils in Gerontology of the USSR Academy of Medical Sciences and Academy of Sciences on its basis (11). In 1963 in Kiev there took place the first All-Union Conference (Congress) on Gerontology and Geriatrics where the All-Union Research Medical Society of Gerontologists was set up. It functioned successfully till the end of the 80-ies. The Academic Council in Gerontology and Geriatrics of the USSR Academy of Medical Sciences alongside with section «Biological and Social Bases of Gerontology» of the Joint Research Council in Human Physiology of the USSR Academy of Sciences and Academy of Medical Sciences coordinated research work in all union republics. In 1970 Kiev Medical Institute for Postgraduate Education opened the first in the country Chair of Gerontology and Geriatrics. In this period, the network of geriatric rooms at the health institutions was set up. A long-term All-Union comprehensive research programme in gerontology and geriatrics was elaborated in the period from 1981 to 1990. This period is characterized by active development of gerontology in the Ukraine (D.F. Chebotarev, V.V. Frolkis, V.N. Nikitin), and other regions of the country – in Leningrad (I.I. Likhnitskaya, N.S. Kosinskaya, M.D. Alexandrova, V.M. Dilman), Moscow (I.A. Arshavsky, N.M. Emanuel, B.F. Vanyushin, I.V. Davydovsky, L.V. Komarov), Tbilissi (N.N. Kipshidze), Kishinev (V.Kh. Anestediadi), Minsk (T.L. Dubina). Of great importance appeared to be workshops «Basic problems of aging» organized by N.M. Emanuel (1970-1984). The Group (Laboratory) of Mechanisms of Aging was organized by V.M. Dilman in 1973 at the Institute of Experimental Medicine in Leningrad. Four All-Union Congresses were held in 1972, 1976, 1982 and 1988. In 1986 there was organized the first in Russia Chair of Geriatrics at the Leningrad Institute for Postgraduate Studies, in 1990 in Kiev the first issue of the All-Union (further Ukrainian) Journal “Problems of Aging and Longevity” saw the light. Major stages of Russian gerontology development up to middle 80-ies of the last century are described in the monograph of Yu.K. Duplenko (12).
Desintegration of the USSR resulted in the collapse of all former All-Union structures and actual closure of systematic studies in gerontology and geriatrics on the territory of the Russian Federation. Practically anew we started collecting professionals and establishing research and practical institutions of this profile. The first regional gerontological centre was set up in Nizhny Novgorod in 1989, then followed city geriatric centre in St. Petersburg in 1994. In 1992 there was founded the Institute of Bioregulation and Gerontology in St. Petersburg. In 1992 on the initiative of Dr. L.D. Itkina there was organized Moscow (later – inter-regional) association “Gerontology and Geriatrics”, which consolidated physicians, practicing in the field of geriatrics.

The convocation of the All-Union founding conference «Medical and social aspects in gerontology and geriatrics» organized by the St. Petersburg scientific gerontological society in March 1994 in St. Petersburg became a crucial moment in the modern history of Russian gerontology. It set up Gerontological Society which in November 1995 was granted the status of the Institution at the Russian Academy of Sciences (RAMS) (Resolution of the Presidium of the Russ. Acad. of Sci. № 241 of 28 November 1995).

Gerontological Society united leading scientists in gerontology and geriatrics around the country irrespective of their agency belonging. In 1994 there was set up a Chair of Gerontology and Geriatrics at the Russian Medical Academy for Postgraduate Studies in Moscow. In 1995 by the resolution of the RF Health Ministry there was adopted a new medical speciality «physician-geriatrist». The same year the first issue of the Journal «Clinical Gerontology» (Moscow) and the manual for physicians «Practical geriatrics» (Samara) saw the light. In 1996 Gerontological Society joined European Regional Branch of International Association of Gerontology (IAG). The same year at the premises of the Samara Regional Hospital for War Veterans there was opened a research institute «International Centre for the Problems of the Aged». In 2007 the Institute was reorganized into geriatric centre.

Regular issuing of the information bulletin «Herald of the Gerontological Society of RAS» (www.gersociety.ru) started since 1996. In 1997 in Moscow there was set up Russian Research Institute of Gerontology of the RF Ministry of Health, and in the Russian Academy of Medical Sciences there took place first elections on the speciality “Gerontology and Geriatrics” (V.S. Gasilin). In August 1997 at the 16th IAG World Congress in Adelaide (Australia) Gerontological Society was accepted into the IAG and its representatives entered IAG Council. The textbook «Gerontology and Geriatrics» (13), the first issue of the journal «Advances in Gerontology» (St. Petersburg) and the 1st issue of the journal «Psychology of Maturity and Ageing» (Moscow), Abstract Bulletin «Gerontology and Geriatrics»
appeared in 1997. In 1998 Scientific council on gerontology and geriatrics of the Russian Academy of Medical Sciences and RF Ministry of Health, International centres for older people on the basis of regional hospitals for war veterans in Ul'yanovsk and Yaroslavl were set up and started their work. The first Russian Congress of Gerontologists and Geriatrists was held in 1999 in Samara. Resolution of the Russian Ministry of Health № 297 of 28 July 1999 «On the improvement of medical assistance to old and senile citizens in the Russian Federation» played a significant role in the development of national geriatric service. This document provided for organization of geriatric centres throughout the country, departments of medical and social assistance to the elderly within out-patient clinics and other important measures, including those on professional training. In 2000 Saint Petersburg hosted the 2nd European Congress on Biogerontology with 300 participants from 33 countries. Scientific Journal “Bulletin of Experimental Biology and Medicine” has a permanent section «Biogerontology». Since 2001 annual almanac «Gerontology and Geriatrics» has been issued by the Russian Research Institute of Gerontology.

In June 2002 in Moscow there was held the 6th European Congress of Clinical Gerontology, and in October 2003, also in Moscow, – the 2nd Russian Congress of Gerontology and Geriatrics. The 6th European Congress of IAGG held on 5-7 July 2007 in St. Petersburg was an event of utmost importance for European and Russian gerontology. It gathered over 1500 participants from 70 countries of the world.

It is worth noting that for the first time ever the Russian institution has been designated a Collaborating Centre of the International Association of Gerontology and Geriatrics. This institution is St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the RAMS. This is a sign of international recognition of the research achievements’ of Russian gerontology.

Chronology of important events in the development of Russian gerontology is given in Table 1.

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<th>Year</th>
<th>Event</th>
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<tr>
<td>1957</td>
<td>Set up of the Leningrad scientific society of gerontologists and geriatricians Organization of the gerontological section in the Moscow Society of Nature Testers (MSNT)</td>
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<td>1958</td>
<td>Establishment of the Research Institute of Gerontology of the USSR Academy of Sciences (Kiev)</td>
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<tr>
<td>1963</td>
<td>1st All-Union Conference (Congress) of Gerontologists and Geriatricians; Set up of the All-Union Research Medical Society of Gerontologists and Geriatricians</td>
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<td>1970-84</td>
<td>Workshops «Fundamental problems of aging» (Moscow)</td>
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<td>Year</td>
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<td>1973</td>
<td>The Group (Laboratory) of Mechanisms of Aging at the Institute of Experimental Medicine, Leningrad</td>
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<td>1986</td>
<td>The Chair of Geriatrics at the Leningrad State Medical Institute for Postgraduate Studies</td>
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<td>1991</td>
<td>The 1st issue of the journal “Problems of aging and longevity” (Kiev)</td>
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<td>1989</td>
<td>Nizhny Novgorod Regional Geriatric Centre</td>
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<td>1992</td>
<td>Foundation of the Moscow (later Inter-regional) association “Gerontology and Geriatrics”; Foundation of the St. Petersburg Institute of Bioregulation and Gerontology (since 1999 – member of the North-Western Branch of the Russian Academy of Medical Sciences)</td>
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<tr>
<td>1994</td>
<td>All-Union founding conference «Medical and social aspects in gerontology and geriatrics» (St. Petersburg); Organization of the Gerontological Society of the Russian Academy of Sciences; The City Geriatric Medical and Social Centre (St.Petersburg); The Chair of Gerontology and Geriatrics at the Russian Medical Academy for Postgraduate Studies (Moscow)</td>
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<td>1995</td>
<td>Adoption of the medical specialty “physician-geriatrist”; The 1st issue of the journal “Clinical Gerontology” (Moscow); Institution of the annual award of the Gerontological Society of the Russian Academy of Sciences for young scientists from Russia for the best work in gerontology</td>
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<td>1996</td>
<td>Samara Research Institute “International Centre for the Problems of the Aged”; The 1st issue of the “Herald of Gerontological Society of the Russian Academy of Sciences” (St. Petersburg); The 1st issue of the journal “Older Generation” (Samara)</td>
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<td>1997</td>
<td>Set up of the Gerontological Society of the RAS joined International Association of Gerontology; Foundation of the Russian Research Institute of Gerontology of the Russian Federation Ministry of Health (Moscow) The 1st issue of the journal “Advances in Gerontology” (St. Petersburg); The 1st issue of the journal “Psychology of Maturity and Aging” (Moscow). The 1st issue of the abstract bulletin “Gerontology and Geriatrics” (Moscow); First elections in “Gerontology and Geriatrics” at the Russian Academy of Medical Sciences</td>
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<td>1998</td>
<td>Organization of the Scientific council on gerontology and geriatrics of the Russian Academy of Medical Sciences and Russian Federation Ministry of Health; Organization of International centers on the problems of the aged in Ul’yanovsk and Yaroslavl’</td>
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<tr>
<td>1999</td>
<td>1st Russian Congress of Gerontologists and Geriatrists (Samara); Issue of the textbook “Gerontology and Geriatrics” (Samara); Organization of section “Gerontology and Geriatrics” at the Academic Council of the Russian Federation Ministry of Health</td>
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<tr>
<td>2000</td>
<td>2nd European Congress on Biogerontology (St. Petersburg)</td>
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<td>2001</td>
<td>Organization of the Institute of Social Gerontology at the Moscow State Social University; 1st Congress of gerontologists and geriatrists of Siberia and Far East (Novosibirsk); European School of Oncology “Cancer in the elderly: achievements and prospects” (Moscow); Institution of a new scientific specialty 14.00.53 - “Gerontology and Geriatrics”; Organization of two dissertation councils for upholding doctorate and candidate thesis in gerontology and geriatrics (Moscow, St.Petersburg)</td>
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### Table 1. Continued

<table>
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<tr>
<th>Year</th>
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| 2002 | 6th European Congress on Clinical Gerontology (Moscow)  
Decision of the Board of the RF Ministry of Health of 25 June 2002 “On the state of the art and development of investigation in the field of gerontology in the Russian Federation” |
| 2003 | 2nd Russian Congress of Gerontologists and Geriatricians (Moscow) |
| 2004 | Dissertation Council on Gerontology and Geriatrics at the Research Centre of Clinical and Experimental Medicine of the RAMS Siberian Branch in Novosibirsk;  
The Highest Attestation Committee of the RF Ministry of Education for the first time awarded an academic title of “Professor” in “Gerontology and Geriatrics”. |
| 2005 | 2nd International School on Gerontology and Geriatrics (St. Petersburg) |
| 2007 | The 6th European Congress of the International Association of Gerontology and Geriatrics (St. Petersburg);  
The 3rd International School on Gerontology and Geriatrics (St. Petersburg) |
| 2008 | Programme “Prevention of age-related pathology and accelerated aging, decrease of premature mortality from biological causes and an extension of healthy period of the life for the population of Russia”;  
UN Workshop on Formulation and Implementation of Policy on Aging for the countries of the former USSR (St.Petersburg) |
| 2009 | The first edition of a complex interdisciplinary programme of basic research “Science against aging” |

### Professional training in gerontology and geriatrics in Russia

A uniform system of education in geriatrics has been set up in Russia with respect to International experience. Therefore, there have been set up Chairs of gerontology and elaborated regulations (7). Teaching of gerontology in Russia has been included into curricula since 1993, and speciality "physician-geriatrist" was adopted by the resolution of the RF Ministry of Health and RF Ministry of Education № 33 of 1995. However, back in 1977 there was issued a Resolution of the USSR Ministry of Health "On the organization of Chairs of geriatrics in medical institutes and institutes for postgraduate studies to train physicians-gerontologists". The system of personnel training in gerontology in the USSR takes its beginning from the onset of postgraduate course. As it was noted above, the first in the country Chair of Gerontology and Geriatrics was organized in 1970 on the basis of the Research Institute of Gerontology of the USSR Academy of Medical Sciences in Kiev for the needs of the Kiev Institute for Postgraduate Studies of Physicians, and in 1986 there was set up the first in Russia Chair of Geriatrics in Leningrad State Institute for Postgraduate Studies, where the Course on Geriatrics has been launched since 1980 at the Chair of Therapy. The significance of created system for personnel training at all levels (physicians, medical assistants, nurses) in the field of geriatrics was stated in
the Resolution of the RF Ministry of Health № 297 of 28.07.99 «On the improvement of medical assistance to old and senile citizens in the Russian Federation».

In 1994, the Chair of Gerontology started its work at the faculty for postgraduate studies of the Moscow Medical Dentistry Institute. Later on, in 1995 it was re-subordinated to the Russian Medical Academy for Postgraduate Studies. There were elaborated qualification requirements to physician-geriatrist in 1995 with its second edition in 1998; statute of physician-geriatrist in 1996, with its second edition in 1998; qualification tests for speciality physician-geriatrist in 1996 with its second edition in 1998; uniform programme for postgraduate training of physicians in gerontology and geriatrics (1997). On the basis of these documents there was developed the document «Standard training of physician-geriatrist» at the I.M. Sechenov Medical Academy in Moscow.

According to the requirements developed on the basis of generalized world experience, geriatric education in Russia should be multilevel and multifocal (13). Undergraduate teaching in fundamental, social and medical gerontology and gerontotechnologies should be conducted during the whole course of studies at therapeutic and dentistry faculties of medical higher schools with the help of uniform end-to-end programme of teaching at all Chairs. Postgraduate training of doctors should include general advancement in geriatrics, social gerontology and prevention of premature aging (for physicians of general practice, district out-patient doctors and therapists working with old people) during 144 academic hours; primary specialization in «geriatrics» (for the staff of geriatric centres, hospitals and departments of medical and social care) for at least 144 hours; attestation cycles for certified specialists – 72-144 hours; topical advancement according to separate sections of gerontology for health care organizers and «narrow» specialists. Paramedical personnel needs training in medical, social and psychological rehabilitation, as well as gerontotechnologies.

Along with the Chair of Gerontology at the Russian Medical Academy for Postgraduate Studies other institutions carry out postgraduate training in gerontology and geriatrics. Thus, the Chair of Gerontology and Geriatrics of the Russian State Medical University is open at the premises of the Russian Research Institute of Gerontology; I.M. Sechenov Moscow Medical Academy has the Chair of Geriatrics and Hematology. The Chair of Gerontology and Geriatrics of the St.Petersburg Academy for Postgraduate Studies conducts training in clinical gerontology and medical-social expertise, as well as rehabilitation of old and senile patients. Advancement cycles are held for geriatrists and therapists with subsequent examination for the certificate of specialist – geriatrist, as well as for paramedical personnel.
with further exam and award with the certificate of geriatric nurse. Chair researchers carry out substantial scientific and practical work on age-related pathology of cardio-vascular, gastro-intestinal and genitourinary systems (14). In St. Petersburg, the license for educational activity in the area of professional (postgraduate and additional) training in gerontology and geriatrics was granted also to the St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the Russian Academy of Medical Sciences. The Chairs or courses in gerontology and geriatrics are open in medical higher schools in Ekaterinburg, Yoshkar-Ola, Nizhny Novgorod, Novosibirsk, Rostov-on-Don, Yaroslavl and other Russian cities.

As for undergraduate training, there should be first of all noted a tremendous work carried out by the Chair of Geriatrics of Samara State Medical University. Moreover, the courses in gerontology and/or geriatrics are conducted more than in 10 medical higher schools. For example, St. Petersburg State Medical University named after I.P. Pavlov initiated elective cycle on gerontology and geriatrics for students of the 6th course. The cycle includes lectures on demography and geography of aging, concepts and mechanisms of aging, geroprotectors, interrelation of cancer and aging, major aspects of geriatrics, its diagnostic peculiarities, characteristic features of nutrition in old and senile age. Practical studies are focused on organization and medical and social assistance to the aged, participation in their therapy. The students and masters of the St. Petersburg State University (the Chair of genetics and selection of biology and soil faculty and medical faculty) enjoy lectures in gerontology.

Of great importance is the task of training paramedical personnel. Since 1997 there has been introduced into practice the State educational standard for paramedical personnel (speciality «nurse management»), where issues of gerontology and geriatrics are given within the following disciplines: «The stages of human life and medical services to various groups of population» (the 1st year of education) and «Geriatrics» (the 3rd year of education.) 70 hours are allocated in the curricula to the issues of gerontology and geriatrics. Similar training of nurses has started in several regions. Thus, training programmes in geriatrics have been elaborated with the help of leading specialists of St. Petersburg City Geriatric Centre and the Chair of Family Medicine of the Medical Academy for Postgraduate Studies and the training process has been carried out in St. Petersburg medical college №2. Experience and methodological assistance of professionals from the USA, England and Finland is widely utilized in the training process.

Alongside training of medical workers in gerontology and geriatrics there has been undertaken personnel training in social sphere starting from 1992 (15). It has been conducted in compliance with the state educational
standards of higher professional education on specialties 350500 “Social work” and 031300 “Social pedagogy”. «Social work» standard has a special discipline «Social gerontology» therein. Demographic aspects are included into the course “Social politics”, the issues of pensioners' rights protection – into the course “Legal coverage of social work”, gender issues – into the course «Genderology and Feminology». According to the state educational standard, professional social work embraces population social protection, work with different social, age, gender and ethnic groups, individuals in need of social assistance and protection. Basic curricula include humanitarian, socio-economic and natural sciences. This multidisciplinary training has an integrative character. Postgraduate courses for social workers in the field of gerontology are open in many national universities.

Personnel training for social and medical gerontology is well organized in Republic Bashkortostan at the Institute for Postgraduate Studies of the Medical University, Bashkir State University, Medical colleges (16). During several years professional training in social gerontology is carried out at the M.V. Lomonosov Pomorsky State University in Arkhangelsk.

International schools in gerontology launched in Russia gave a new impulse to personnel training. Bearing in mind acute interest at the national level towards geriatric oncology and contribution of Russian gerontologists to the development of this issue, European school of oncology «Cancer in the elderly: achievements and prospects» was organized in November 2001 at the Russian Cancer Research Centre named after N.N. Blokhin of the Russian Academy of Medical Sciences (Moscow). In 2002 and 2004 there were held International schools on gerontology and geriatrics organized by the International Institute on Aging –UNO (Malta), St. Petersburg Institute of Public Health at the Medical Academy for Postgraduate Studies and City Geriatric Medical and Social Centre.

Joint Finland - St. Petersburg projects «Personnel training for geriatric services» and «Development of geriatric services in St. Petersburg» may serve a vivid example of International collaboration in professional training. Within the framework of these projects doctors, nurses and social workers take postgraduate course in gerontology in Finland (Turku and Tampere).

Textbooks in gerontology issued in Russia serve a good practical basis for personnel training (17-33). A valuable tutorial for students and doctors is «Glossary on social gerontology» (34). International editions and manuals are being translated into Russian. There are manuals summarizing experience of colleagues outside Russia, in particular, the experience accumulated in the United States and Great Britain (23,24,25).

Distant Internet-based course seem to be a prospective undertaking. Thus, Center «Compassion» within the project «Personnel training for the
care of the aged» supported by Foundation «EuroAsia» made a web site (www.openweb.ru/gerocomp), which includes 6 sections containing information regarding medical and social care. One of these section «Training» contains materials describing social work useful for distant training of social workers of Siberian region (34). Regional Public Foundation for Aged People Assistance «Dobroye Delo» has a web site www.dobroedelo.ru, containing materials ment for the personnel of non-profit organizations working in the area of social and medical assistance to the elderly and old people, as well as for students of sociology faculties and those who are interested in the issues of social gerontology. On the basis of this site there has been made a Virtual Resource Centre of gerontological non-profit organizations providing distant training (www.dobroedelo.ru/vrc).

Of utmost importance for the development of national gerontology is training of researchers. Recognition of the research speciality «Gerontology and Geriatrics» would be an essential step towards the development of the international system of training.

On the initiative of the Gerontological society a scientific specialty No 14.00.53 «Gerontology and Geriatrics - medical and biological sciences» has been introduced into the official list of specialties of the Russian Federation Ministry of Industry and Science in 2001, 2 dissertation councils were set up: at the St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the Russian Academy of Medical Sciences and Russian Research Institute of Gerontology of the Russian Federation Ministry of Health; first hundred and eighty thesis were defended on the new specialty. The dynamics of dissertations upheld in gerontology and geriatrics in 2001-2006 is presented in Fig. 1. The team of St. Petersburg professionals prepared and published in 2002 a guidebook for education and training of gerontologists and geriatricians on specialty 14.00.53 (Rules and Regulations) (36).

This specialty (14.00.53) was for the first time introduced into the list of specialties of researchers in this country by the Decree of the Minister of Industry, Science and Technology of the Russian Federation of January 31 2001. The Decree of the Highest Attestation Committee of the Russian Ministry of Education of June 2001 established the Dissertation Councils for Doctorate and Candidate. thesis in gerontology and geriatrics at the Russian Research Institute of Gerontology of the Russian Ministry of Health (Moscow) and St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the Russian Academy of Medical Sciences. The first dissertation was upheld in December 2001 at the St. Petersburg Institute of Bioregulation and Gerontology. Professor G. Gutman emphasized that this event could be instrumental for the development of gerontology worldwide at the Assembly of IAG Council in Valencia in April 2002.
third Dissertation Council in gerontology and geriatrics was opened at the Research Centre on Clinical and Experimental Medicine of the Siberian Branch of the Russian Academy of Medical Sciences in Novosibirsk. It is worth noting that numerous researchers from Ukraine, Belarus, Kazakhstan and Uzbekistan upheld their theses at the Dissertation Councils in Russia. The award and mutual recognition of scientific degrees in different countries will foster education and training of researchers and finally, progress of gerontological studies.

The work of young researchers in the laboratories outside Russia in the framework of joint projects constitutes an important aspect in education and training. Young scientists awarding with grants and prizes of national gerontological societies plays its role as well. For instance, Gerontological Society of the Russian Academy of Sciences instituted in 1995 and awards annually since then the best work among young scientists and recommends young professionals for training at the International schools and courses in gerontology. Presidium of the Board of the Ukrainian Scientific Medical Society of Gerontologists and Geriatricians instituted acad. V.V. Frolikis award for researchers, tutors, postgraduate students from national and international institutions aged under 35 years in order to attracts young scientists to basic studies in gerontology. Academic Council of the Research Institute «International Centre for the Problems of the Aged» (Samara) instituted an annual prize named after T.I. Eroshevski for the best research work among Russian scientists in the field of medical gerontology. The prize is granted for the best monograph, thesis, cycle of papers or other publications. In accord with recommendation of the IAGG President
G. Gutman many national gerontological societies set up sections for young professionals and made up a programme for exchange of young specialists.

Postgraduate training of geriatricians is carried out at 10 Chairs of Gerontology in Medical Academy for Postgraduate Studies and faculties for advanced studies. Students get education at the Chair of Geriatrics in Samara Medical University, Chair of Haematology and Geriatrics of the I.M. Sechenov Moscow Medical Academy, course of gerontology in Perm Medical Academy and some other medical higher schools. In October 2001 for the first time ever in Russia St. Petersburg Institute of Bioregulation and Gerontology got a license of the Russian Ministry of Education and Science authorizing professional postgraduate education on speciality 14.00.53 - «Gerontology and Geriatrics», professional training and advanced qualification of administrative staff on the Institute profile.

Thus, during recent decade there has been created a research and institutional infrastructure in Russia for the development of gerontology and geriatrics: research institutions (Russian Research Institute of Gerontology of the Russian Health Ministry, Moscow; St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the Russian Academy of Medical Sciences), number of big gerontological (geriatric) centres. There have been issued special scientific journals and guidebooks providing information basis for research and training in new scientific speciality «gerontology and geriatrics” and new medical speciality «geriatrician».

Organizational activity of the gerontological society of the Russian academy of sciences (RGS) on development of research in Russia

The primary objectives of the Gerontological Society consist in promoting the development of gerontology and related fields of physiology and biology; integrating research results with practice; establishing and maintaining contacts with scientific gerontological institutions of the CIS and other countries and with international non-governmental scientific organizations; organizing and convening meetings to exchange and discuss research and practical issues; assisting Society members in improving their professional skills and research activities; providing research and methodological assistance in teaching gerontology and geriatrics at higher schools and those for paramedical personnel; membership in international scientific associations and participating in the international meetings; fostering and distributing knowledge and recent scientific achievements in the field of Society’s activity.
RGS was founded in 1994 and included 7 regional branches at that moment. The participants of the Founding conference numbered 100 people. Today it embraces 45 branches with about 1500 members from over 50 regions: Moscow, Saint Petersburg, Altay (Barnaul), Arkhangelsk, Astrakhan, Bashkir (Ufa), Buryat (Ulan-Ude), Chelyabinsk, Chita, Sverdlovsk (Ekaterinburg), Far East (Khabarovsk), Irkutsk, Ivanovo, Kabardino-Balkarian (Nalchik), Karelian, Krasnoyarsk, Kursk, Magadan, Mari El Republic (Ioshkar-Ola), Mordovian (Saransk), Minsk, Nizhny Novgorod, Novokuznetsk, Nizhny Novgorod, Novosibirsk, Obninsk, Perm, Primosky (Vladivostok), Pushchino, Rostov, Ryazan, Samara, Saratov, Sochy, Stavropol, Syktyvkar, Tomsk, Tula, Tver, Tyumen, Ulyanovsk, Voronezh, Yaroslavl, Yakutsk.

Honorary members of the RGS are Professors V.V. Bezrukov (Kiev, Ukraine), L.A. Bokeria (Moscow), Butenko (Kiev, Ukraine), F.I. Komarov (Moscow), B.A. Lapin (Sochi-Adler), W.B. Ershler (Norfolk, USA), C. Franceschi (Bologna, Italy), M. Passeri (Parma, Italy), Y. Toutou (Paris, France).

Great attention in the Society is given to young researchers. In 1995 there was instituted the Award for young Russian scientists which is annually granted for the best research work in the field of gerontology and geriatrics. Since then about 20 young researchers became its laureates. In 1999 within the framework of the National congress «Man and Medicine» (Moscow) there was open «the School of gerontologists». Upon the recommendation of the Gerontological Society a few young researchers and practitioners participated in the International courses and schools in gerontology and geriatrics (Romania, 1997; Italy, 1999, Malta, 2001-2007, Turkey, 2003, 2009). International schools in gerontology and geriatrics organized by the International Institute on Aging – UN (Malta) and Gerontological Society of the Russian Academy of Sciences were held in 2002, 2004 and 2007 in St. Petersburg at the City Geriatric Medical and Social Centre.

Over 120 scientific conferences and symposia, including 20 international ones have been organized since the date of Gerontological Society foundation in 1994. During recent years (1994 - 2007) there were held over 250 scientific conferences on different aspects of gerontology and geriatrics. Among them it's worth mentioning such significant events as the 1st Russian Congress of Gerontologists and Geriatricians, Samara, 1999; the 1st Congress of Gerontologists and Geriatricians of Siberia and Far East, Novosibirsk, 2000; the 2nd European Congress on Biogerontology, 2000, St. Petersburg; the 6th European Congress of Clinical Gerontology, 2002, Moscow; the 6th European Congress of the International Association of Gerontology and Geriatrics, 2007, St. Petersburg; annual International conferences «Elderly Patient. Quality of life» (1996-2002), Moscow; International symposium
Prospects of Russian gerontology development

Despite growing interest to research in gerontology in Russia during recent 15 years, creation of infrastructure (establishment of profile research institutions, issue of new specialized journals, introduction of a new scientific speciality «Gerontology and Geriatrics», etc.) and a number of obvious scientific achievements of Russian gerontologists, it should be noted that there is definite lack of governmental support, financial, in particular, especially in regard to basic research. It dooms national gerontology to backlog in development and inhibits solution of urgent problems the country faces. Demographic situation in Russia (decreased birth rate, increased proportion of old people in the structure of population, especially in big cities, such as Moscow, St. Petersburg, Ekaterinburg and other, unprecedented decrease of expected life span, decreased number of people of the working age and their premature aging) and unfavorable demographic prognosis for the coming decades (36,37), put forward not only the issue of health in Russia, but its economic and political safety.

Has young and immature Russian gerontology a chance to «find feet»? Isn't it doomed to stay an outsider, hardly making itself known in the world science on aging?

Table 2 contains a detailed list of priorities in up-to-date fundamental gerontology with reference to leading Russian institutions engaged in the studies at a high professional level providing publication of the results obtained in the reputable peer-reviewed national and international journals.

The contribution of Russian science into major priorities of the world biogerontology is manifested by few groups of researchers conducting up-to-date studies. The research made by them in respect to above directions produce considerable and sometimes decisive impact on the solution of particular scientific tasks, which is confirmed by the level of publications, and their lecturing as invited speakers at the top International forums on gerontology, where they organize symposia and topical sessions and often are awarded with international grants.
Table 2. Priorities in current biogerontology: Participation of Russia.

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<tr>
<th>№</th>
<th>Research Directions</th>
<th>Leading Institutions in Russia</th>
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<tr>
<td>1.</td>
<td>Population genetics of aging</td>
<td>N.I. Vavilov Institute of General Genetics, RAS (Moscow); Institute of Therapy, RAMS (Novosibirsk)</td>
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<tr>
<td>2.</td>
<td>Genetics of aging and longevity in humans, Studying of centenarians</td>
<td>St.Petersburg Institute of Bioregulation and Gerontology, RAMS; Institute of Therapy, RAMS (Novosibirsk); Research Institute of Gerontology of the RF Health Ministry (Moscow); D.O. Ott Research Institute of Obstetrics and Gynecology, RAMS (St.Petersburg); St.Petersburg City Geriatric Medical and Social Centre</td>
</tr>
<tr>
<td>3.</td>
<td>Genetics of aging and longevity in animals</td>
<td>St. Petersburg State University; Institute of Genetics and Cytology, RAS (Novosibirsk); Institutes of Biology, RAS (Syktyvkar)</td>
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<tr>
<td>4.</td>
<td>Progeria</td>
<td>Institute of Cytology, RAS (St.Petersburg).</td>
</tr>
<tr>
<td>5.</td>
<td>Use of transgenic and mutant animals in aging research</td>
<td>N.N. Petrov Research Institute of Oncology (St. Petersburg); M.V. Lomonosov Moscow State University; Institute of Genetics and Cytology, RAS (Novosibirsk).</td>
</tr>
<tr>
<td>6.</td>
<td>DNA damage, DNA repair and aging</td>
<td>Institute of Theoretic and Experimental Biophysics, RAS (Puschino); Institute of Cytology, RAS (St.Petersburg); Central Research Roentgenology and Radiology Institute (St.Petersburg).</td>
</tr>
</tbody>
</table>
| 7. | Cell aging, telomere, telomerase                | Institutte of Molecular Biology, RAS (Moscow)  
Institute of Cytology, RAS (St.Petersburg) |
| 8. | Apoptosis and aging                             | A.N. Belozersky Institute of Physical and Chemical Biology (Moscow); M.V. Lomonosov Moscow State University; N.N. Petrov Research Institute of Oncology (St. Petersburg); Institute of Biology, RAS (Syktyvkar). |
| 9. | Free radical theory of aging                   | M.V. Lomonosov Moscow State University; N.M.Emanuel Institute of Biochemical Physics, RAS (Moscow); D.O. Ott Research Institute of Obstetrics and Gynecology, RAMS (St.Petersburg). |
| 10.| Aging of the brain and nervous system           | Institute of the Brain, RAMS (Moscow); Institute of the Human Brain, RAS (St.Petersburg); Ural Medical Academy (Ekaterinburg) |
| 11.| Aging of the neuro-endocrine system             | I.P. Pavlov Institute of Physiology, RAS (St. Petersburg); I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry, RAS (St.Petersburg). |
| 12.| Pineal gland and aging                          | N.N. Petrov Research Institute of Oncology (St. Petersburg); St. Petersburg Institute of Bioregulation and Gerontology, RAMS; Research Institute of Medical Primatology, RAMS (Sochi-Adler); Tyumen Medical Academy |
| 13.| Peptide regulation of aging Geroprotectors      | St.Petersburg Institute of Bioregulation and Gerontology, RAMS; N.N. Petrov Research Institute of Oncology (St.Petersburg); A.N. Belozersky Institute of Physical and Chemical Biology, Moscow State University. |
Table 2. Continued

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<tr>
<th></th>
<th>Aging and cancer</th>
<th>N.N. Petrov Research Institute of Oncology (St.Petersburg); N.N.Blokhin Russian Cancer Research Center, RAMS (Moscow)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Theories of aging</td>
<td>M.V. Lomonosov Moscow State University; N.M.Emanuel Institute of Biochemical Physics, RAS (Moscow); The Institute of Chemical Physics, RAS (Moscow); Research Institute of Experimental Medicine of the RAMS (St.Petersburg)</td>
</tr>
<tr>
<td>16</td>
<td>Mathematic models of aging</td>
<td>The Institute of Control Sciences, RAS (Moscow); The Institute of Numerical Mathematics, RAS (Moscow); St. Petersburg State University; Ul’yanovsk State University</td>
</tr>
<tr>
<td>17</td>
<td>Demography of aging</td>
<td>St.Petersburg Economy and Mathematics Institute, RAS; St.Petersburg Institute of Bioregulation and Gerontology, RAMS</td>
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<tr>
<td>18</td>
<td>Biomarkers of aging</td>
<td>Perm Medical Academy; St. Petersburg Institute of Bioregulation and Gerontology, RAMS; The Institute of Systemic Analysis, RAS (Moscow)</td>
</tr>
</tbody>
</table>

Figure 2. Dynamics of publications of Russian authors in gerontology and geriatrics, 1994–2006.

The bulk of investigation carried out by Russian researchers according to certain directions is quite substantial, but unfortunately their publications are rather rare in leading international journals. Many of them, do not meet the requirements of such journals due to weak methodological basis, thus they cannot contribute to the development of the issue they dwell on. At the same time some of them could’ve undoubtedly shown up-to-date professional level should their research be supported and their laboratories up-graded. Fig. 2 depicts dynamics of publications of Russian authors in gerontology
and geriatrics in the period from 1994 to 2006 (39). Over 13% of them are published in International peer-reviewed journals.

In general, it may be stated that gerontology has not yet entered the range of sciences, supported by the government on a constant basis.

Historically, research schools in Russian gerontology got shape within the framework of other disciplines. However, Gerontological Society of the Russian Academy of Sciences set up in 1994 gave an impulse to the development of gerontology in Russia (37), and today we can talk about the existence, rather formation of research schools, where gerontology studies occupy a substantial proportion. The criteria for referring this or that group to the rank of a research school in gerontology could be as follows:

1. Presence of a leader whose personal contribution to the development of particular aspects in gerontology is most valuable, and who has publications of international standard and outlines the area of investigation conducted by his team.
2. Presence of the followers, who develop certain areas of the research undertaken by the team.
3. Wide-scale participation in the national and international research forums devoted to the problem under study.
4. Research collaboration with other groups of scientists.

The most notable role in the national basic gerontology play schools which got shape on the basis of leading research institutions of this country, entering the system of the Russian Academy of Sciences (RAS) (N.M. Emanuel Institute of Biochemical Physics of the RAS, the Institute of Numerical Mathematics of the RAS, V.A. Engelhardt Institute of Molecular Biology of the RAS, N.I. Vavilov Institute of General Genetics of the RAS, the Institute of Economic Forecasting of the RAS, the Institute of Control Sciences of the RAS, N.N. Semenov Institute of Chemical Physics of the RAS, - all in Moscow; the Institute of Theoretical and Experimental Biophysics, Puschino; the Institute of the Problems of Chemical Physics of the RAS, Chernogolovka; I.M. Sechenov Institute of Evolutionary Physiology and Biochemistry of the RAS, the Institute of the Human Brain of the RAS, I.P. Pavlov Institute of Physiology of the RAS, the Institute of Nuclear Physics of the RAS, - all in St. Petersburg; the Institute of Genetics and Cytology of the Siberian Branch of the RAS, Novosibirsk, Institutes of Biology and Physiology of the Komi Research Centre of the Ural Branch of the RAS, Syktyvkar; the Institutes under the auspices the Russian Academy of Medical Sciences (RAMS) (St. Petersburg Institute of Bioregulation and Gerontology of the North-Western Branch of the RAMS, Research Institute of Experimental Medicine of the RAMS, D.O. Ott Institute of Obstetrics and
Gynecology of the RAMS,- all in St. Petersburg; Research Institute of the Brain of the RAMS, Moscow; the Institute of Therapy of the Siberian Branch of the RAMS, Novosibirsk); the Institutes of the Ministry of Health and Social Development of the Russian Federation (Russian Research Institute of Gerontology of the RF Ministry of Health and Social Development, Moscow, N.N. Petrov Research Institute of Oncology of the RF Ministry of Health and Social Development, St. Petersburg) and leading higher schools of the country (M.V. Lomonosov Moscow State University, St. Petersburg State University, Ulyanovsk State University, I.M. Sechenov Moscow Medical Academy, Russian State Medical University, St. Petersburg State Medical University named after I.P. Pavlov, St. Petersburg Medical Academy named after I.I. Metschnikoff, Samara State Medical University, Ural Medical Academy (Ekaterinburg), Tumen Medical Academy and other).

It should be emphasized that formation of steady research schools in gerontology is a marker of progress in this discipline and its growing topicality, which in its turn, reflects global changes in demographic situation and society demands in general. We believe that the development of gerontology would be more effective under governmental support. Enrollment of gerontology into the classifier of research directions sponsored by the Russian Foundation for Basic Research could play its positive role. Of utmost importance seems the “Programme for prevention of age-related pathology and accelerated aging, reduction of premature mortality due to biological reasons and extension of healthy period of life for the population of Russia” developed on the basis of the latest achievements of Russian researchers on the initiative of the St.Petersburg Institute of Bioregulation and Gerontology (40). On the initiative of the non-government organization Russian Foundation for the support of scientific research “Science for Life Extension”, a complex interdisciplinary programme for fundamental research “Science against aging” was prepared. Both programmes were presented at the 19th IAGG World Congress of Gerontology and Geriatrics, Paris, 2009 (41).

In spring 1907 in his introduction to the first Russian edition to «Etudes of Optimism» E. Metschnikoff wrote that science in Russia survived long and hard crisis. Not only the demand for science was absent, it was kept down. Unfortunately, we must admit that the situation in today’s Russia little differs from that at the beginning of the century. As mentioned by another Russian citizen Nobel Prize Laureate A.I. Solzhenitsyn in 1999 at the celebration of the 275th anniversary of the Russian Academy of Science: “Never ever during three centuries of its existence in Russia science has been neglected as such and left in poverty”. And still Metschnikoff entitled his book optimistically. Impetuous development of gerontology in this country gives us every reason to feel optimistic about future.
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