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Scientific review

HOW TO MINIMIZE INFECTIOUS HEALTH RISKS FOR ELDERLY PEOPLE (BASED ON FOCUS GROUP DATA)

A. Yagodina, I. Serova, U. Maslov, S. Korotin

Perm State Medical University named after Academician E.A. Wagner, 26 Petropavlovskaya Str., Perm, 614990, Russian Federation

This literature review focuses on practices aimed at mitigating infectious health risks for elderly people in acute care inpatient hospitals with multiple specializations. We revealed a necessity to create medical information centers; common reference centers for PCR diagnostics, sequencing, plasmid analysis, and MULDI-TOF; as well as to provide support and further development of bacteriological and hygienic service in medical and preventive organizations. Our review also dwells on theoretical solutions to issues related to minimizing infection risks in nursing homes and prospective approaches to providing infectious safety at home. A focus group was organized on May 20, 2021 at the E.A. Wagner's Perm State Medical University of the RF Public Healthcare Ministry with its aim being to implement theoretical approaches into practices of minimizing infectious health risks for elderly people in Perm region within the "aging in place" paradigm. The sociological explication made it possible to fix the regional agenda on minimizing infectious heath risks for elderly people as per three basic directions: by improving living conditions, by improving care provided for elderly people at home, and by making elderly people's lives more active as a way to support their immunity.

All the discussion participants unanimously agreed both on assigning the primary role to the strengthened immunity as a way to minimize infectious health risks and on obvious absence of any drugs which would be able to resolve the issue. Experts believe adherence to conventional recommendations on how to improve elderly people's immunity to be fundamental for infection risk mitigation. We should remember that some elderly people live in improper housing which should be renovated and adapted to basic needs of an elderly person. It is also important to develop the city environment taking into account elderly people's habits and needs (they should be provided with a special place in the yard where they can communicate with each other, play board games or do physical exercises). Financial support should be given to "Inpatient hospital at home" program and to developing tools used to promptly minimize infection risks, for example, telemedicine which allows detecting certain alerting symptoms typical for communicable diseases (fever, complaining about cough and running nose, pains in the lumbar spine, decreased diuresis etc.)

Key words: *sociology of medicine, infection risks, infectious safety, stereotypes of medical care, elderly patients, transmission routes of hospital acquired infections, vaccination, immunity.*

Today there are hardly any doubts that issues related to viral and bacterial infections are top priority since their prevalence is growing persistently every year. Elderly people are a specific population group exposed to high risks of infections. A combination of an infection and an old age is unfavorable for health and has some peculiarities.

Firstly, infections tend to have atypical clinical course in elderly people, that is, they are often afebrile and their symptoms are vague due to concomitant diseases; as a result infections are diagnosed too late and are not treated properly. As a rule, infections in elderly people are concomitant diseases, not primary ones. But if they are not treated, they can become a major health issue and even result in a patient's death.

Secondly, elderly people are a population group who has higher risks of developing sepsis. According to some research data, lethality of bacteremia amounts to 49 % among elderly people during the following 3 years after diagnosis [1, 2]. Sepsis also has some remote ef-

Anna Yu. Yagodina − Candidate of Medical Sciences, Infectiologist, Associate Professor at the Department of Philosophy (e-mail: annayagodina@rambler.ru; tel.: +7 (342) 236-41-60; ORCID: https://orcid.org/0000-0001-6498-9346).

Irina A. Serova − Doctor of Philosophy, Professor, Professor at the Department of Philosophy (e-mail: irinaserova55@mail.ru; tel.: +7 (342) 281-74-81; ORCID: https://orcid.org/0000-0002-6896-0505).

Yurii N. Maslov – Doctor of Medical Sciences, Professor, Leading Researcher at the Central Research Laboratory, Professor at the Microbiology and Virology Department (e-mail: maslov_1@mail.ru; tel.: +7 (342) 212-04-04).

Sergei V. Korotin – Candidate of Medical Sciences, Associate Professor at the Department of Therapeutic Dentistry and Propaedeutics of Dental Diseases (e-mail: korotich73@mail.ru; tel.: +7 (342) 212-21-13).

fects including metastatic infection foci (recurrent sepsis), people becoming carriers of highly pathogenic strains and fungal invasion agents, and antibiotic-associated diarrhea. Bacteremia in clinical case history has its negative influence on life quality and cognitive functions in future. Experts generalized data on 637,867 elderly patients (older than 65 years) focusing on their functional and cognitive abilities after sepsis over the following 3 years. As a result, it was established that 476,311 people had functional disorders and 106,311 people had cognitive ones [3].

Thirdly, comorbidity in elderly patients creates favorable conditions for infectious processes developing more actively. Mild or even asymptomatic infections in an elderly person can cause severe complications: pneumococcal infection can develop together with viral pneumonia and cause otitis, meningitis and sepsis as well [4]. It was established that bacterial intestinal infections, salmonellosis and shigellosis had certain clinical peculiarities in patients who were older than 60 years and their clinical course was usually more severe in such patients than in those aged 20–40 years [5].

Fourthly, infection health risks grow considerably during the present COVID-19 pandemic since the disease is the direct cause of mortality among elderly people. According to data provided by the WHO, a half of lethal outcomes due to COVID-19 in Europe were registered in nursing homes [6]. 89 % of deaths due to COVID-19 in Great Britain occurred among people who were older than 65 years [7]. Outbreaks of the new coronavirus infection were analyzed in 4 nursing homes in Great Britain with their total number of inhabitants being 394 people. The analysis revealed that 26 % of elderly people in these nursing homes died during the first 2 months since an outbreak started [8]. However, according to the US CDC, in December 2021 the total vaccination among people older than 65 years reduced risks of hospitalization by 17 times in the country and vaccination with an additional dose or a buster reduced these risks by 50 times against non-vaccinated people [9].

Fifthly, the immunity, in particular, T-cells activity, becomes weaker with age. Such changes mean that as people get older their bodies gradually lose the ability to react to new infections and vaccines. This phenomenon is known as the immune system aging [10].

In our research, we didn't consider a risk as something resulting from threats which occur due to a direct presence of a person in a certain group. Instead, we examined it as a certain contact with a danger, as a combination of factors which increase or reduce this danger. "That is, risk prevention involves not observing one particular person but rather probable occurrence of diseases, anomalies and deviant behavior in order to minimize them and, conversely, to maximize healthy behavior prevalence" [11]. In other words, you are in a risk zone not due to being who you are but due to doing what you do and certain practices you adhere to can even be lethal. Let us note that the pandemic development directly depends on people's behavior.

The issue of minimizing infection health risks for elderly people has been studied by expert society with its major focus being on examining causes and clinical course of healthcare-associated infections (HAIs). The issue is closely related to different levels of medical aid provided for elderly patients (polyclinic, diagnostic center or in-patient hospital), hygiene, dynamics of infection processes influenced by a number of elderly patients, etc.

Medical aid provision for elderly patients at different levels is regulated by international[1], federal[2] and regional legal

[1] Rhodes A., Evans L.E., Alhazzani W., Levy M.M., Antonelli M., Ferrer R., Kumar A., Sevransky J.E. [et al.]. Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016. *Critical Care Medicine*, 2017, vol. 45, no. 3, pp. 486–552. DOI: 10.1097/CCM.0000000000002255

[2] Ob utverzhdenii Poryadka okazaniya meditsinskoi pomoshchi po profilyu «geriatriya»: prikaz Ministerstva zdravookhraneniya RF ot 29.01.2016 № 38n [On Approval of the procedure for medical aid provision as per "geriatrics" profile: the Order by the RF Healthcare Ministry issued on January 29, 2016 No. 38n (last amended on February 21, 2020)]. *KODEKS: the electronic fund for legal and reference documentation*. Available at: https://docs.cntd.ru/document/420339190 (August 18, 2021) (in Russian).

acts[3]. Though we can admit that these documented recommendations are effective, we still can't fail to notice that it is rather difficult to implement them in reality since differential diagnostics of sepsis with systemic diseases of the connective tissue, infectious pathology (meningococcal infection, hemorrhagic fever with renal syndrome, and tuberculosis), leucosis, and oncologic diseases is rather complicated. Minimization of infection risks for elderly people involves accepting the fact that such strains exist practically in every in-patient hospital.

An optimal solution to the HAIs-related issues would be to implement express-diagnostics of highly pathogenic strains (MALDI–TOF mass spectrometry, PCR-analysis, sequencing, plasmid analysis) on the basis of common reference centers or to develop bacteriological services in medical and prevention organizations.

Some authors believe failure to put a correct diagnosis to be the major cause for severe clinical course of infections in elderly people. For example, according to Big and others [12] patients older than 80 years who had bacteremia caused by *St. Aureus* didn't have echocardiography in 45 % cases. Failure to prescribe echocardiography to elderly patients results in a failure to diagnose "Infectious endocarditis" and rational antibiotic treatment is not provided for them in due time [13, 14].

High-tech medical treatment procedures improve health and make life expectancy longer; they also facilitate surgeries on elderly patients which were previously considered impossible. However, certain involutive and pathological processes in elderly people's bodies can aggravate a post-surgery period and create health problems during it. A growing range of facultative normal flora in all locuses is among such potentially hazardous aspects [15]. The situation is further aggravated by lower production of local (lysozyme, complement) and acquired (secretory immunoglobulins A) immunity factors together with antibacterial treatments a patient has been prescribed to have during the whole lifespan. There is a growing risk that a body would be colonized by poly-resistant microflora with elevated pathogenic potential. Susceptibility of elderly people's bodies to such flora is only growing in clinical settings (directly depending on a period of time spent in a hospital), especially in a post-surgery period [16]. It was proved that septic shock was much more likely to develop in elderly patients and acute kidney failure developed two times more frequently in them than in middle-aged people [17]. According to some research works, infections are suspected in 51 % of patients in intensive care units [18]. Inflammatory processes become more severe with age, they occur more frequently and last longer thus inducing specific changes in the body which suppress immune reactions and create favorable conditions for developing inflammations and lesions in the lungs. Therefore, it is completely reasonable to try and minimize a period of hospitalization for elderly patients since this helps mitigate infection risks considerably.

The most acute issue in elimination of hospital-acquired infections is active use of catheters. Use of a urine catheter to treat patients with neurological or cognitive disorders results in 3–7 % higher risks of developing infections in the urinary system. In case of pyelonephritis risks related to bacteremia become even higher. Vascular catheters cause bacteremia in 1–10 % cases. "Long-term usage of a catheter results in a higher risk of developing catheter-associated urinary tract infections (CAUTI)." [19].

In our opinion, when we discuss alternative approaches to using catheters bearing in mind infection risk minimization [20–22], we

[3] Ob organizatsii meditsinskoi evakuatsii bol'nykh i postradavshikh v Permskom gorodskom okruge (s izmeneniyami na 30.06.2021): Prikaz Ministerstva zdravookhraneniya Permskogo kraya ot 14.09.2018 № SED-34-01-06-786 [On organizing medical evacuation of diseased and injured in Perm city (last amended on June 30, 2021): the Order by the Healthcare Ministry of Perm region issued on September 14, 2018 No. SED-34-01-06-786]. *KODEKS: the electronic fund for legal and reference documentation*. Available at: https://docs.cntd.ru/document/550193670/titles/1A9QHU6 (August 18, 2021) (in Russian).

should focus from the very beginning on a differential approach to two different groups of patients: those who require hourly diuresis control and those who don't need it so critically. This approach allows avoiding excessive, too long and groundless use of catheters. Undoubtedly, any catheter should be replaced immediately in case its integrity or working capacity is lost. However, the basic challenge which should be overcome here is violated septic and antiseptic rules when medical workers don't want to work in sterile gloves or use non-sterile glycerin, etc. Systemic review of reasons for weak control over infections in nursing homes also revealed that personnel were rather incompetent with respect to providing infection safety and necessity to eliminate infections [23].

An idea to support basic treatment procedures provided for elderly people with some hygienic ones has been accepted as a very effective way to minimize infection risks. These hygienic procedures include oral cavity, skin, body, and feet hygiene [24]. Immune functions performed by skin deteriorate in elderly people and this is accompanied with greater frequency of bacterial (streptococcal and staphylococcal cellulite) and fungal (most frequently candidosis) infections and also makes a contribution to more frequent cases of malignant neoplasms of skin [25, 26].

Proper oral cavity hygiene is an integral part of fighting against infections. Dentists discuss how to minimize infection health risks within a new discipline which is called gerontostomatology [27]. Oral cavity hygiene is included into national healthcare programs in most countries since prevalence of dental problems among elderly people varies from 42 % in low income countries to 29 % in high income ones [28]. Major oral health issues, such as dry mouth or caries, are caused by weaker salivation [29]. Acinar tissue atrophies with age, proliferation of duct elements occurs and there are some degenerative changes in major and small salivary glands. Accordingly, salivation reduces gradually and the process can be influenced by frequent use of multiple medications. There are some ways recommended to prevent and treat dry mouth in older age. They include installing air humidifiers which regulate air humidity automatically; having drinking water available all the time; avoiding spicy, salty or too sweet food, carbonated drinks and coffee; drinking herbal teas or drinks made of cranberries, sea-buckthorn berries, or cowberries. It is also effective to use chewing gums and lollypops with xylite and prebiotics. Training sessions on proper oral cavity hygiene provided for patients in inpatient hospitals are aimed at teaching them how to properly clean the teeth and tongue, removable and non-removable dental prostheses and how to choose personal hygiene means correctly.

When discussing where elderly people live, we should pay attention to the fact established by international social studies performed in many countries, Russia included. The fact is that only 5 % of respondents would like to live in alternative housing such as nursing homes, various specialized boarding houses, or other social housing instead of their own home [30].

The national guide on infection control contains comprehensive recommendations on how to minimize infection risks in nursing homes for elderly people [31]. Long-term staying in nursing homes is considered a factor that can cause contamination with resistant agents. According to these recommendations, patients carrying some strains should be placed in such ways so that cross contamination would be prevented. However, elderly patients carry pathogenic and opportunistic bacteria and fungi so frequently that any attempts to place them in accordance with carrying this or that microorganism are hardly effective. Any placement can't prevent contacts and interactions between different cohorts of patients. Therefore it is more important to create barriers "inside" elderly patients, that is, maintain their immunity rather than to try and create protection "around" them.

Obviously, elderly people spend most their time at home. In 2021 the RF Government announced that a new expert long-term system of permanent care would be developed

in the country and would have permanent funding sources. The accomplished steps include creating roadmaps on implementation of hospital-replacing technologies for elderly people; training nurses or caregivers; in some regions mobile inter-branch teams are created to bring medications or foods to elderly people's homes. In 2007 the WHO issued the report "Cities comfortable for elderly people" where the accent was made on creating an environment which stimulates active aging. There are some research works concentrating on assessing how well a city is adapted to its elderly citizens [32]. A lot of support is given to an idea to develop clubs for elderly people (retired freelancers) where they, on one hand, can develop some new skills, for example, computer ones, or become more physically active, but on the other hand, they can help other people doing what is within their power and getting paid for it. There are works in literature where their authors state that it is advisable to develop city infrastructure for leisure, labor, and social activities of elderly people; it is important to preserve social capital of elderly people (including their neighbors) [33]. Some experts established a correlation between social isolation and poor health [34, 35], examined peculiarities of communicative therapy applied to treat dementia, rules and standards of talking to elderly people [36], and described attitudes towards aging prevention [37]. There are a lot of publications focusing on up-to-date ways to develop medical aid provided for elderly people at home using artificial intellect [38] and peculiarities of immune prevention for them [39, 40].

In theory, all these aforementioned approaches should minimize infection health risks for elderly people at home. The question is how to implement them into everyday routines of elderly people living in Perm region. A tendency to neglect banal solutions makes people's life quality poorer because when we consider obvious and vital things to be simply banal, we exclude basic statements which represent the reality in the best possible way from our social discourse thus allowing ourselves not to think about the essentials (for example, we stop talking to our old relatives, etc.). It is well known that "ignoring banalities comes at the highest price" (I. Kant).

Our research goal was to explicate managerial decisions aimed at minimizing infection risks for elderly people in a given region. Perm region was chosen as a research object. Sociological methods give an opportunity to find an answer to the question what known instruments aren't still used properly to achieve the major target, an increase in life expectancy in the region. These methods also help determine peculiarities of hygienic culture necessary for elderly patients who are involved into an epidemic process in their families. "A sociological approach, rather than a scientific one, is required to analyze all the roles played by all the concerned parties in decision making." [41].

Practical significance. Expert estimates produced by focus groups can be used both in implementation of the Order by the RF Public Healthcare Ministry issued on January 29, 2016 No. 38n "On Approval of the procedure for medical aid provision as per "geriatrics" profile" and the State Programs adopted in Perm region including "Social support for Perm region citizens" and "Qualitative healthcare", the regional project "Development and implementation of the program for systemic support and improving life quality of elderly people (Perm region)".

Research technique. Focus groups as a research technique differ from a formalized expert questioning or depth interviews since they are better focused on key issues. In our research, there were three key issues:

1. How to minimize infection risks for elderly people by improving their living conditions in Perm region;
2. Relevant practices which can be implemented in the region to improve care provided for elderly people at home;
3. How to make elderly people's lives more active as a way to support the immunity.

Our focus group was created as per the following principles: a team should include experts from multiple spheres; experts

should be personally involved into practical activities aimed at providing infection safety for elderly people in the region. Participation in the focus group was voluntary, and experts were representatives of all age groups; the group included scientific experts from higher educational establishments, practical healthcare and business, and from various occupational groups such as administrative staff, doctors with various specialties, postgraduate students, and independent experts (a microbiologist, a philosopher, a businessman, and a volunteer).

The focus group was created as per objective and subjective criteria. The objective approach meant that experts were chosen based on documentary data (higher education, work experience in the sphere relevant to the discussion, an academic degree, title, position, a number of published papers, and participation in international conferences). The subjective approach involved choosing experts bearing in mind their knowledge on details, subtle points and difficulties in providing infection safety for elderly patients.

The ultimate goal was to stimulate the participants in the discussion to share their perception of practical results achieved in mitigating infection risks for elderly people in Perm region. To achieve this, the following focus group was formed in full conformity with the principles which should be followed when an expert pool is created; all the participants fully corresponded to the definition of a "true expert".

1. L.A. – the moderator, a postgraduate student at the Department of Microbiology and Virology, epidemiologist;

2. N.A. – Doctor of Medical Sciences, Professor at the Department for Polyclinic Therapy, the Chief Free-lance Therapist of the Perm Regional Public Healthcare Ministry;

3. Yu.N. – Doctor of Medical Sciences, Professor, Leading researcher at the Central Scientific Research Laboratory of E.A. Wagner's Perm State Medical University, Professor at the Department of Microbiology and Virology;

4. K.S. – The Head of the social service "The Social Welfare Center";

5. A.R. – the medical supervisor at the Perm regional department of the All-Russian Youth Social Organization "Russian Student Groups";

6. T.A.– a dermatovenerologist, Candidate of Medical Sciences;

7. I.A.– Doctor of Philosophy, Professor;

8. A.Yu.– an infectiologist and therapist, Candidate of Medical Sciences;

9. N.E. – a postgraduate student at the Department for Neurology and Medical Genetics, neurologist;

10. A.V. – a postgraduate student at the Department for Anesthesiology, and Critical Care Medicine, anesthesiologist and resuscitator;

11. S.V. – the director of "Liniya ulybki" LLC (a dental clinic).

Results and discussion. The participants in the discussion were guided by the central idea in the European social policy developed in the second half of the 20th century. According to this idea, a possibility to live at one's own home is believed to be the fundamental principle and value for an elderly person [42]. Living at home preserves one's dignity and gives an opportunity to pursue a lifestyle a person is accustomed to. But still, to make aging at home safe for elderly people, it is necessary to implement active social strategies when attention of all the relevant authorities is concentrated on improving care, providing maximum possible comfort for elderly people at their homes, as well as on considering elderly people to be productive participants in social life [43].

New risks occurred during the COVID-19 pandemic with respect to an issue how to organize safe living environment for elderly people. When there are a lot of elderly people at one place, this leads to high lethality due to elevated infection risks. All the discussion participants estimated people's wishes to get old at their homes, in their settlements, "age in place", and to remain at home in case of a disease in order to recover sooner [44] as evidence that elderly people were quite reasonable in this respect.

The discussion on the issue "How to minimize infection risks for elderly people by

improving their living conditions" advanced by searching for up-to-date markers of proper housing. These markers primarily include the access to basic communal services such as safe drinking water, energy to cook food, heating, lighting, safe food storage, waste utilization, and proper sanitary conditions [45]. The discussion participants mentioned a social survey which was performed in spring 2020 among retired people in Russia. According to the results, more than 30 % of retired people who live in private houses don't have permanent access to hot water and warm toilet; 30 % of respondents also complained that they didn't have elevators or comfortable bathrooms and toilets in their houses [30]. The moderator also mentioned another study focusing on sanitary-epidemiological determinants of life expectancy growth in Perm region. These determinants include providing people with qualitative drinking water and raising safety of certain foods (meat, milk, fish, and bread) [46]. A correlation between the aforementioned housing-related and other everyday problems and growing infection risks is obvious for experts. I.A. outlined a promising administrative trend in risk minimization, namely housing renovation provided for elderly people; another suggestion was to supplement widely used subsidies provided to elderly people to help them with payments for communal services with funding provided for repairing living spaces and making them more suitable to satisfy elderly people's needs. This means making doorways wider, removing high thresholds, probable installment of shower cabins in bathrooms, making solariums on balconies, as well as subsidizing elderly people's expenses on transport and communication.

The moderator drew the participants' attention to solitary elderly people and their needs since they don't feel safe and are often afraid of falling or a sudden disease [47]. According to N.E.'s opinion, "Installing an alarm button is the first step in helping a solitary person". N.A. mentioned systems which were aimed at providing a so called "in-patient hospital" at home. They make medicine an integral part of a person's life due to constant monitoring over his or her health, either by constant wearing of artificial intellect devices or by consulting and partnership with medical workers (immunization, therapeutic exercises, detection of untreated diseases, and improved drug therapies). A.Yu. noted that telemedicine devices detect alerting symptoms typical for communicable diseases (fever, saturation, complaints about cough, running nose, pains in the lumbar spine, reduced diuresis etc.) in online mode and give an opportunity to minimize infection risks promptly and effectively.

When discussing the issue "Relevant practices which can be implemented in the region to improve care provided for elderly people at home", the experts mentioned a positive trend related to developing partnership between private and state participants in finding solutions to the problem. The social service supervisor drew the participants' attention to the fact that elderly people could be provided with professional care at home if they applied to the Social Welfare Center; they could hire a nurse at a reasonable price for the service; there was a service of transportation provided for bed-ridden patients, escort for wheelchair-bound people, and consultations on how to care for a bed-ridden patient. "We are also ready to work in close contacts and joint projects with the Pension fund, social security fund, medical organizations, and to participate in medical and social expertise" K.S. concluded.

I.A. believed that effective rehabilitation of elderly people at home after treatment in in-patient hospital was considerably hampered by practices adopted by social services when they solely react to citizens' applications asking for help. A medical organization should be obliged to provide a relevant social service with all the necessary data on a patient who need professional care. In Great Britain, the public healthcare system includes special information centers which are responsible for finding optimal solutions to variable challenges patients have to face. Such information centers would be quite useful for elderly patients since they can answer not only the question "What hurts?" but also

"What to do?" or "Where to get help most effectively?" For example, hardly many people know that the Social Welfare Center provides hygienic services for bed-ridden patients at home: washing in a bath, shaving, nail care, and hairdresser's services. Also very few people know that cognitive disorders require help by relatives and it is recommended to use diapers instead of catheters since it helps minimize infection risks etc.

When discussing peculiarities of immune prevention among elderly people, the participants expressed an opinion that people older than 65 years should be the target audience for vaccination against pneumococcal infection. Patients aged 65–85 years are recommended to get the first vaccination with pneumococcal vaccine 13; then, after a year, pneumococcal vaccine 23. Patients who accidentally got vaccinated with pneumococcal vaccine 23 should get vaccinated with pneumococcal vaccine 13 during the year from the first vaccination, not later. Revaccination with pneumococcal vaccine 23 is recommended every 5 years [48]. The participants discussed two probable attitudes towards estimating remote effects produced by elderly people's vaccination against opportunistic pathogens. A.Yu. thought that vaccination against pneumococcal infection probably resulted in more aggressive microorganisms, such as *St. Aureus*, *Acinetobacter baumani*, *Klebsiella pneuminiae* etc., starting to dominate in the body. Yu.N. stated that "Since it is pneumococcus which is called "elderly people's friend", that is, the direct cause of deaths among them, vaccination with pneumococcal vaccines is the best way to preserve their health".

A.Yu. was still not fully convinced that vaccination of elderly people against influenza is effective. Yu.N. believed that according to the reports on effectiveness of up-to-date subunit and split influenza vaccines they are effective and optimal exactly for elderly people. There was also no unambiguous attitude towards vaccination against Type III herpes virus. Yu.N. believed that this vaccine was primarily aimed at preventing chicken pox in children; moreover, in some countries it is recommended not to use it in old people since there were cases of herpes zoster among people who got immunized with it.

When the discussion moved to the issue how to make elderly people's life more active in order to minimize infection risks, the Moderator shared some results produced by a social survey according to which people didn't trust geroprotectors as an effective way to optimize their immunity [37] and they faced certain problems when trying to stick to "Don't stay at home!" appeal, the effective recommendation on how to support their immunity. We can't fail to notice that yards are now much more suitable for young people and elderly people lost some territories which they once considered theirs. There are no wooden benches in the yards where elderly women can sit and socialize; there are no tables with benches around them where old men used to sit and play dominos, checkers, backgammon and even chess or just socialize; there are no chin-up bars for adults. City development has led to elderly people losing a space which was significant for them and a number of people who spend all their time indoors has grown drastically.

I.A. thought that a massive mass media campaign aimed at promoting use of therapeutic exercises for various age groups and for elderly patients with different pathologies would make elderly people do them more actively; they could also be persuaded to do basic muscle-strengthening exercises to prevent muscle weakness, go dancing or attend choral singing sessions. In this respect, experts remembered Item 9 in the Order by the RF Public healthcare Ministry issued on January 29, 2016 No. 38n where it is stated that "medical aid as per "geriatry" profile is rendered by a geriatrist who should interact with medical workers with non-medical higher education (speech therapists, medical psychologists, and therapeutic training instructors) in order to assess and correct the psychoemotional state of a patient, communicative disorders, limitations on physical activity, any disorders in using one's common and occupational skills". In I.A.'s opinion, today it is necessary to

make young people understand that talking to an elderly person is the most universal and available care he or she can be given. Unfortunately, this banality has lost its meaning as a cultural pattern; therefore, social advertising of home safety for elderly is priceless since "banalities exist simply because they are the truth in the essence" (Margaret Thatcher). This social advertising can cover some topics described on the relevant web-site [49]:

– Don't warn you parents that you're going to visit and come to them suddenly. This will help you to understand how your parents really get on.

– Watch over an elderly person when the weather is too hot or too cold (this creates elevated risks of heat strokes or frostbites).

– Encourage your beloved elders to wear a necklace with an alarm button since this will help them to call for help in case of emergency (for example, if they fall).

– Teach your elders to move slower since there are often no reasons to hurry.

– Recommend your elders to always ask for your help instead of doing all the cleaning or repairing themselves.

All the participants agreed that making elderly people stronger and raising their vital capacity would involve not only doing physical exercises at home, on sport grounds, in parks or sport clubs, participating in volunteering activities, interesting leisure and travelling, but also caring about beauty and strength of one's body. T.A. stated that "Skin elasticity reduces with age due to decreasing volume of liquid in the body, hydrolipid cellular mantle becomes thinner, skins becomes drier and loses one of its basic functions, namely, acting as a barrier preventing adverse exposures. To minimize infection risks, people should adhere to several very simple rules of skin care at an older age: they should not use spirit-containing skin care products as well as means for skin hygiene which contain antibacterial components; they should avoid using stiff loofas when washing and blot the body with a towel, not rub it. The most important thing is to use wetting cosmetics after bathing as well as during a day in case of necessity".

Research works accomplished in many countries indicate that in most cases dental status of elderly people is unsatisfactory. But at the same time, dentists manage to effectively treat pathologies of hard tissues in elderly patients who regularly visit them at least twice a year to get primary and secondary prevention of dental diseases and who are also committed to proper dental care. Inflammatory pathology in periodontium is usually in remission in such patients and oral cavity hygiene is quite satisfactory which has positive effects on their life quality [50]. S.V. stated that poor awareness about adverse effects produced by periodontal pathogens and low incomes of elderly people prevented them from going to a dentist at least every 6 months to have their oral cavity to be cleaned by an expert. And it's a pity since it is well proven that dental tartar and bacterial plaque removal reduces infection risks considerably. We should also note that oral cavity sanitation not only prevents HAIs in elderly patients but also helps prevent caries in their children and grandchildren. A smile showing some teeth missing is ugly and stimulates developing inferiority complex; missing teeth also make people eat only high caloric foods with very small quantities of useful nutrients (vitamins minerals, or dietary fiber) which have been cooked with excessive mechanical and thermal processing. All this combined leads to failures of various systems in the body, including the immune system. A beautiful smile which can be provided by a proper prosthesis technology is a unique way to raise one's spirits and to start eating foods which are useful for immunity (sour cabbage, carrots, nuts, or celery).

I.A. suggested developing a bit paradox recreational concept which once existed but eventually lost its drive. The concept was entitled "Perm is a territory of ravines". The idea is to make elderly people's life more interesting due to organizing safe tobogganing for them in winter, rock climbing or bicycle races in summer, and creating special grounds for walking with dogs. Infection risks for elderly people should be minimized by creating safe routes for health walks, benches where they can meditate etc.

Conclusion. Risk management is improving everyday practices in elderly people's lives at their homes; this improvement should be aimed at strengthening the immunity since it helps minimize health risks caused by infections. Subjects who participate in the process are relevant authorities, medical and social workers and elderly people themselves. The active long life paradigm makes it possible to minimize infection risks as it changes behavioral attitudes adopted by all the concerned parties:

– authorities should be responsible for creating not only a long-term care system but also adequate infrastructure which helps elderly people to realize their human potential in everyday life, communication, labor and leisure thereby supporting their immunity. They should also provide funding for renovating elderly people's homes so that their specific needs are satisfied and create special places in yards where elderly people can spend their time outdoors. Elderly people should be encouraged to render mutual aid to each other but the state should eliminate poverty among them, at least, by providing social benefits to cover expenses on transport and communication. A number of social workers who get paid by the government should also be increased;

– managing health risks for elderly people involves introducing stricter preventive measures with respect to this population group due to active social and medical aid provided at home;

– medical and social workers should return to providing elderly people with care at home or in close proximity to places where they live. This can be done, first of all, be developing "in-patient hospital at home" which makes medicine an integral part of a person's everyday life due to constant health monitoring, either with artificial intellectual devices worn constantly by a person or by consulting and partner relations with medical workers (immunization, therapeutic exercises, detection of diseases which haven't been treated, improved drug therapies). We have already noted that telemedicine devices detect alerting symptoms typical for communicable diseases (fever, saturation, complaints about cough, running nose, pains in the lumbar spine, reduced diuresis etc.) in online mode and give an opportunity to minimize infection risks promptly and effectively. The discussion participants believe that the immunity of elderly people is to a great extent a derivative from improved interactions between medical personnel and relevant workers without medical education (speech therapists, psychologists, IT-specialists, social workers, city-managers, and paid workers who render assistance to those in need in specific situations);

– any considerations on how to minimize health risks caused by infections for elderly people are based on eliminating despondency by taking care of oneself. Unfortunately, a simple talk with an elderly person as the most universal and available care and way to relieve stress is a non-banal banality which requires social advertising and pedagogical innovations. Elderly people's communities organized near their places of residence are a powerful resource for health risk mitigation which, regrettably, has been forgotten. If supported by local authorities, elderly people's communities are able to raise resistance to stress, safety, stability, and self-confidence due to mutual support. Complex care which elderly people take of themselves is the most effective practice to minimize infection risks.

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