

# Rationing of medical care: how medical care to be distributed in conditions of limited resources

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## Abstract

**Background.** Rationing of health care—restricting patients’ access to potentially beneficial health care interventions through non-market instruments—is a natural feature of all health care systems as they operate under resource constraints. The purpose of this study is to characterize rationing practices and the attitude of doctors themselves to it, with an emphasis on comparing Russia and the United States and on changes in the perception of rationing during the COVID-19 pandemic.

**Methods.** We conducted a bibliometric analysis of publications in the medical scientific literature since 1989 on the issue of rationing of medical care. To characterize rationing practices in Russia and the United States and the attitudes of doctors towards them, we used data from published studies and data from semi-structured in-depth interviews with 28 Russian doctors.

**Results.** Despite the increasing frequency of publications related to the topic of resource allocation over the past 20 years, studies using the term “rationing” are rare. Both Russia and the USA have practices of explicit and implicit rationing. In Russia they are more diverse and widespread. In both countries, doctors prefer implicit rationing and do not want open discussion of these issues. The practice of rationing is institutionalized. In Russian medical organizations its most common form is a chain of permissions for the use of resources. But most doctors believe they are not rationing care. The pandemic briefly brought the topic of rationing into the public sphere, but then its discussion was limited. The probable reason is that medical practice during the pandemic was carried out within the previous legal framework. Professional organizations have developed several recommendations for rationing, but their usefulness and level of acceptance by professionals and the public is unclear.

Conclusions The transition from implicit to explicit rationing is extremely difficult, but is necessary to ensure equitable patient access to scarce medical resources and the effective functioning of health care systems. A major barrier to the explicit and informed use of rationing instrument is the limited public acceptance of it and the reluctance of professional communities to make public decisions that maximize public benefit by prioritizing access to effective interventions.

### Keywords

rationing of medical care, health systems, resource allocation, COVID-19

**JEL codes:** I10, I18

## Introduction

The ideal of medical care is to provide it to everyone according to need, at a high technological level and for all possible conditions (Weale 1995). In fact, health systems that meet all three of these requirements have not been created. Resource constraints exist in any health care system, and these constraints necessitate limiting patient access to certain interventions. This limitation is usually referred to as rationing of medical care. In the private healthcare system, this restriction is carried out by a market mechanism: the ability to access certain medical interventions is determined by the ability of patients to pay. In healthcare systems with public financing (budgetary, compulsory health insurance), restricting patient access to certain types of potentially beneficial medical interventions is carried out by non-market instruments.

Rationing of medical care is not identical to the term “normirovanie” (provision in the normative range), which is familiar to Russian audience. Rationing can be explicit or implicit. Explicit rationing occurs when the regulation of patients’ access to certain types of medical services in conditions of their shortage is carried out on the basis of rules that are explicitly established in prescriptive documents. Methods for such rationing are procedures for the provision of medical care approved by authorities or professional communities, incl. queuing, medical and economic standards, clinical recommendations, etc. Implicit rationing occurs when the regulation of patients’ access to certain types of medical services in conditions of their shortage is carried out on the basis of either informal rules, or unreflected criteria, or as a side effect of restrictions declared for other purposes.

Rationing is a natural feature of all health systems as they operate under resource constraints. But discussion of the idea and practice of rationing, the explication of its criteria very often meets with rejection by both doctors and the general public. This is because the core principle of explicit rationing is to limit or eliminate the provision of costly, ineffective interventions. But the practical application of this simple principle faces serious obstacles (Purdy 1996). Extreme difficulties in adopting rationing arise from the unequal distribution of health care needs across the population and during the life of an individual. For example, while most patients receive adequate treatment for their illness, someone may be denied access to the only treatment for their illness because that treatment is not effective enough and/or too expensive, i.e. is of low value and therefore not provided. Such cases are rare, but there is no satisfactory solution for them, and they attract sympathetic attention. The COVID-19 pandemic has led to an acute shortage of test systems, specialized beds, equipment, and medicines necessary to treat this disease, and has made obvious the need to ration medical care for those sick. Reports of resource shortages and attempts at rationing have

been multiple during the pandemic. The purpose of this study is to characterize the practices of rationing and the attitude of doctors themselves to it using the example of two extremely different healthcare systems - Russia and the USA. We expected to find progress in rationing practices and acceptability, particularly during the COVID-19 pandemic.

## Methods

To achieve this goal, we used a combination of several objects and research methods. We conducted a bibliometric analysis of the dynamics of publications in the medical scientific literature on the issue of rationing of medical care. To identify such publications, we analyzed MEDLINE data using a simple specific query “(rationing[tiab] OR health care rationing[mh]) AND XXXX[dp]”. To analyze the time trend in publications using broader terminology reflecting resource scarcity research, we applied a highly sensitive strategy: “(rationing[tiab] OR health care rationing[mh] OR triage[tiab] OR triage[mh] OR resource allocation[mh] OR scarce[tiab] OR priorit\*[tiab]) AND XXXX[dp]”. To highlight publications coming from the USA, we supplemented the first strategy: “AND (USA[ad] OR United States[ad])”. In these strategies, XXXX is the year of publication. The term “health care rationing” has been using in the MeSH publication classifier since 1989, “resource allocation” since 2002 and “triage” since 1976.

The content of the “address” field reliably identifies publications originating from the United States only after 1995 (as determined by us through a random check). We analyzed the literature related to the rationing of medical care in the Russian Federation and the United States since 2000. To do this, we used a specific query in MEDLINE adding an indication of the origin of the publications: “(rationing[tiab] AND (Russia\*[tiab] OR Russia[mh] OR Russian[la] OR United States[mh] OR USA[tiab]) AND 2000:2022[dp]”. We identified a total of 341 publications, and after screening, 36 were included in the analysis.

To search for studies on health care rationing during the COVID-19 pandemic, we used the query “«covid-19»[tiab] AND rationing[tiab]” in November 2022. A total of 250 articles were found, of which 26 were included in the analysis. All search results were expanded through the links of the found articles. We simultaneously checked the number of publications regarding rationing in Russian literature using the electronic catalog of the Central Scientific Library “Russian Medicine”.

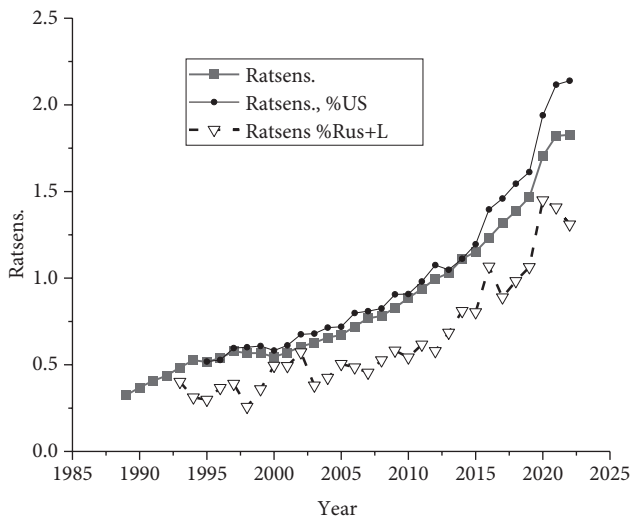
To identify changes in attention to the issue of rationing of medical care, we analyzed the time trend in the number of publications mentioning rationing. The MEDLINE database provides a good representation of the world’s biomedical literature. It changes and grows rapidly in volume. Therefore, as an indicator of the number of specified publications, we did not use their absolute value, but their share (as a percentage) of the total number of publications registered in MEDLINE in the corresponding year.

To characterize rationing practices in Russia and the USA, we used data from published studies on this issue. In addition, we conducted 28 semi-structured in-depth interviews with Russian doctors to explore their views on managing situations with limited resources and limited access to medical interventions. The sample included doctors (therapists, gynecologists), ordinary workers and managers, including chief doctors and their deputies. The pilot survey was conducted in 2017. Interviewees were selected in Moscow (2 organizations - a clinic and an emergency hospital) and a less economically prosperous region of the European part of the Russian Federation (city clinic, city hospital, central district hospital).

## Results

### Time trend of publications on rationing of medical care

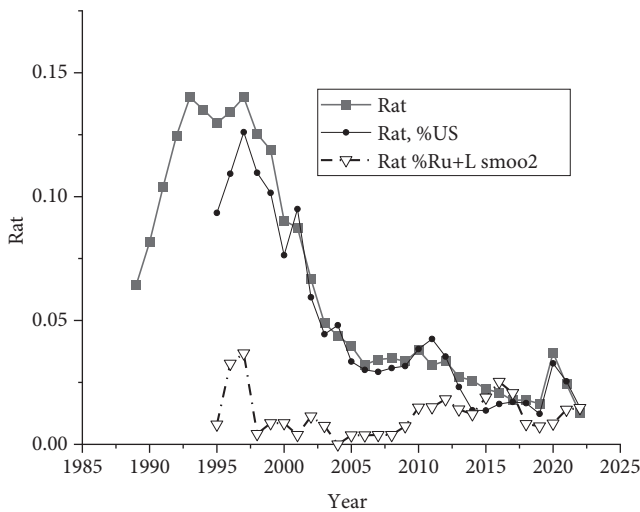
A high-sensitivity query search for publications on the rational use of limited resources in health care shows a steady increase in interest in this issue (Fig. 1). The speediest increase in the number of publications mentioning the rational use of resources was observed in 2020. But even after this, the share of such publications does not exceed 2% of the total number of publications in MEDLINE. It should be noted that the slowdown in growth in 2021 and 2022 may not be true, since some publications appear in MEDLINE with a delay of months, or even more than a year, and the assignment of keywords by bibliographers may also lag. Among publications originating from the Russian Federation, the share of publications on the rational use of limited resources in healthcare was less than in the entire body of publications, but began to increase noticeably after 2015, reaching a maximum in 2020, when it was almost equal to the world average (Fig. 1). In publications from the United States, the share of publications on the rational use of limited resources is close to the world average until 2015, after which it is consistently above the average frequency. In 2021, publications from the United States account for 20.4% of the total number of MEDLINE entries, but the share of publications on rational use of limited resources originating in the United States is slightly higher, at 23.7%.



**Figure 1.** Proportion of publications in MEDLINE that match the highly sensitive query (publications on the rational use of limited resources). Squares – the share of publications on the rational use of limited resources in MEDLINE; triangles – the share of such articles among publications from the Russian Federation; circles – the share of such articles among publications from the USA.

After the MeSH (Medical Subjects Headings) term “health care rationing” was introduced in 1989, reflecting growing interest in the problem, the frequency of publications mentioning rationing in health care increased until the mid-1990s, and then quickly decreased to the level of recent years (Fig. 2). Only after economic crises there is a slight increase in

publications on rationing, and the last peak is in 2020. In publications originating from the USA, the response to economic crises is seen somewhat better than in the world literature as a whole. In publications originating from the Russian Federation, the number of articles that meet the strict search for rationing in healthcare is negligible: out of 33 analyzed years, in 18 years there were 0-1, which does not allow us to assess the frequency and its changes. After 2015, 20 articles are found, of which, examining the abstracts we found that only 4 actually address the problem of using limited resources. An additional check in the catalog of the Central Scientific Library “Russian Medicine” reveals only two articles with “rationing” in the title for July 2022.



**Figure 2.** Proportion of MEDLINE publications matching the stringent query on health care rationing. Squares - the share of publications on rationing in healthcare; circles – the share of such articles among publications from the USA; triangles – share among publications from the Russian Federation. Due to the small number of publications, data on the Russian Federation are smoothed by averaging two adjacent values.

### Rationing in health care systems

Let us now consider the practices of rationing medical care using the example of two extremely different healthcare systems – the USA and Russia. The first has the highest spendings and significant inequality in access to care. In the second, costs are approximately two times lower than the average for OECD countries and equality of access to assistance financed from public funds is declared.

### Rationing of medical care in the USA

The most famous example of explicit rationing of health care in the United States is the so-called Oregon Project, which was an organization of medical care for the poor (under the Medicaid program) based on the funding of the most cost-effective interventions and refusing to fund less cost-effective interventions (Wopat 1992). This project remains a uni-

que example of how rationing can be carried out on the basis of public consent, and not be just a technical decision. In a less pure form, elements of rationing exist in US health care in the form of managed care programs for chronic diseases, in the form of restrictions on insurance coverage, and in the form of the gatekeeping function of the primary care physician (Purdy 1996). The presence of rationing elements is confirmed when patients who are dissatisfied with the amount of care provided go to court. Only 60% of intensive care unit (ICU) physicians say they provide all the care a patient needs regardless of cost (Ward et al. 2008). Moreover, when patients are admitted beyond ICU capacity, patients are triaged and only a few are admitted to the ICU.

An example of rationing is also the regulation of medical care for patients with hepatitis C. New antiviral drugs for the treatment of hepatitis C, which appeared on the market in 2015–2018, were expensive even for the American market. Therefore, clinical guidelines in the United States advised doctors on which patients to prescribe these drugs, even though almost every patient could be cured.

Explicit rationing requires extensive health technology assessment (HTA) practices. It can provide comparative data on the effectiveness, safety and cost of interventions that alone can guide the rejection of interventions that create less value and consume disproportionately more resources. Although the United States has been a pioneer in HTA, there is no national HTA program in the United States, although competencies are present in universities and the health care system.

In the United States, rationing of health care is poorly received by society. So much so that the expression “R-word” is sometimes used. Research systematically reveals dissatisfaction among the U.S. population with the health care system, and a significant portion of the population agrees that universal access to health care is needed. However, when access management tools such as queuing are mentioned in interviews or questionnaires, support for these measures is very low (Blendon et al. 2006). Many physicians in the United States reject the possibility of rationing, and most argue that they provide their patients with all the care they need without regard to costs (Scheunemann & White 2011). In one representative survey of physicians, 67% of respondents supported price control measures, but 54% opposed the use of tools that use cost-effectiveness estimates in making medical decisions about providing certain types of care (Antiel et al. 2013). Detailed discussions about cost containment and reducing the use of low-value interventions are developing in professional groups, but they are difficult to make public because they easily cross the boundaries of political correctness (Reinhardt 2008).

## **Rationing of medical care in Russia**

A discussion of the practices of rationing medical care in Russian healthcare system must be preceded by a description of state guarantees of free medical care. The current situation is determined by the Federal Law “On the Fundamentals of Protecting the Health of Citizens in the Russian Federation” (No. 323-FZ dated November 21, 2011), according to which the availability and quality of medical care are ensured, inter alia, by the provision of a guaranteed volume of medical care by a medical organization in accordance with the Program state guarantees of free medical care to citizens (Article 10, paragraph 5). The latter prescribes average standards for the volume of medical care by type, conditions and forms of its provision. Subjects (Regions) of the Russian Federation establish their of medical care per resident and standards for the volume of medical care per insured person, taking into account the stages of medical care, the level and structure of morbidity, characteristics of the gender

and age composition and population density, transport accessibility, as well as climatic and geographical features of the regions, priority of financial support for primary health care.

When forming a territorial compulsory health insurance program, a Region of the Russian Federation takes into account the volume of specialized, including high-tech, medical care in inpatient and day hospital settings provided by medical organizations. A subject of the Russian Federation has the right to adjust the specified volume taking into account the real needs of citizens for medical care; therefore, territorial set of volumes of specialized medical care provided in inpatient and day hospital settings may reasonably be higher or lower than national set.

Law No. 323-FZ also defines the rights of citizens to drug provision, including by establishing state guarantees in the form of provision of drugs and specialized medical nutrition products covered by compulsory health insurance, budgetary allocations from the federal budget and the budgets of the Regions of the Russian Federation. Existing state guarantees of free medical care themselves are not forms of explicit rationing of medical care. Set volumes of medical care are the averaged indicators used for the purposes of planning the resource provision in territorial healthcare systems. They represent resource limitations on the ability to receive medical care at the macro level. But they do not explicitly set restrictions on patients' access to medical interventions at the micro level.

At the same time, some decisions on the organization of medical care and practices in its delivery are essentially forms of rationing or appears as the signs of it. Thus, in the 1990s, in an effort to preserve modern medical technologies that were available only in a small number of exemplary medical centers, the Russian government created a special funding line for "high-tech" (expensive) care. Later, regulation of access to this assistance was introduced through quotas allocated to the regions of the country. The number of such quotas was insufficient, primarily due to insufficient funding. This quota of high-tech medical care, restrictions on the provision of drug care for outpatient treatment (only to certain categories of citizens) and for treatment in hospitals (within the list of vital and essential drugs) represented a needed rationing. At the same time, a common practice was to supplement explicit rationing with implicit rationing, based on an assessment of need, age and treatment prospects.

Existing clinical practice guidelines (CPG) themselves are not the form of explicit rationing of medical care, nevertheless they creates conditions for the use of implicit rationing. Traditionally, Russian medical associations create their CPGs based on the best world examples. CPGs are developed under the leadership of the national Ministry of Health, which approves the CPGs, and they become mandatory. Existing practice led to the cases when CPGs could recommend interventions that were not provided free of charge and were not affordable for most citizens (Vlassov 2016). Thus, in the early 2000s, the Russian Society of Clinical Oncologists in their CRs offered two treatment programs - complete/optimal and minimal. This was a society's initiative to help doctors practicing in conditions of limited funding. However, there was no algorithm for selecting patients to provide scarce treatment. Nowadays a patient is referred to specialized medical care, including high-tech care, by decision of a medical commission based on medical indications based on the CPGs.

The attitude towards rationing of medical care in Russian society is ambivalent. Despite the chronic underfunding of the healthcare system compared to the existing needs for medical care, there is no discussion in the society regarding the provision of extremely expensive interventions to certain groups of patients. Thus, the cost-effectiveness of new anticancer drugs and the possibility of balancing the budget by limiting or eliminating interventions with low value and high price are almost not discussed in the professional

environment and in the media. Access to new anticancer drugs appears to be the greatest good by definition. Doctors in the Russian Federation by law do not have the right to restrict a patient's treatment if this could lead to a reduction in life expectancy, despite the patient's preferences, even the interventions that doctors consider useless. Accordingly, doctors in the Russian Federation are more willing to perform potentially life-prolonging interventions in dementia patients than their European colleagues (Dowling et al. 2022).

Authors believe, that there are HTA competencies in the Russian Federation, but for a long time the practice of HTA has been not used. Even where cost-effectiveness analysis was prescribed by regulatory documents (when assessing drugs included in the list of vital and essential preparations (Government of the Russian... 2014)), it is applied formally.

The results of our interviews with doctors are consistent with the conclusions from the analysis of published data: the practice of rationing is institutionalized in Russian medical organizations, but most doctors believe that they do not ration care. In this way they are similar to their American colleagues (Ward et al. 2008). A common form of rationing is a chain of permissions to use resource. The role of medical commissions in this case is extremely large, as follows from some assessments received from the heads of medical institutions: *"When we see that we have a problem with the referral of patient to something which is in a short supply, or the same one doctor sends patients for MRI without the proper indications, then it turns on to administrative regulator. In the form of a commission. The commission examines the validity of referrals for one or another type of research... with which there may be problems with accessibility - these are CT, MRI, vascular duplex scan. In fact, the commission meets every day. Every day, throughout the day, the doctor can bring a request..."* explains the chief medical officer of one of the Moscow clinics. As interviews show, this practice was formally introduced to verify the correctness of the doctor's prescription: *"The commission deals not only with those who excessively refer for testing, but also selectively looks at the referrals of other doctors. He takes the cards and checks them randomly. The commission confirms only 70% of appointments. Sometimes more."* Regarding the restrictions imposed, doctors emphasize that if the test is really needed, approval can be obtained from the commission. Prescribing tests that are not indicated can lead to sanctions against physician by management: *"I can prescribe additional tests if the diagnosis is unclear, but this costs to myself. They can point out to me harshly that it is inadmissible, or they can tell me gently. Either way, I'm under attack. So is it worth the risk?"*

The described forms of prescription control lead to increased organizational and paper work for the doctor, and this alone can impede access to expensive interventions. Some physicians working in the outpatient setting admitted that following all orders gives them the impression that they are working collectively against the patient's interests. In large hospitals, clinical pharmacologists are available to optimize pharmacotherapy. Their work, aimed at eliminating scientifically unsubstantiated therapy and optimizing therapy prescribed by recommendations, evokes positive responses from Moscow doctors. Moscow doctors, especially those working in outpatient setting, are positive about the restrictions imposed by the CPGS, since they protect them from very demanding patients. Physicians generally describe peer decisions as a good, beneficial practice. Surgeons in hospitals also note the usefulness of CPG restrictions in conserving resources. Other physicians point out that CPGs are flawed, prescribing unnecessary tests and procedures that increase the resource consumption and burden of patient management, such as pre-admission and discharge tests.

In provincial medical institutions cost control, according to respondents, is less formal and more dependent on the actions of managers and the ability to comply with the budgetary regulations and the requirements of insurance companies. If in the 1990s and early



2000s such algorithms were due to a shortage of funds, the need to limit the consumption of resources so that they were enough for those most in need, to save consumables and equipment life, then the situation was formalized by the financing of medical activities within the framework of the Program state guarantees.

Doctors, despite the expressed belief that all patients are equal, still recognize the presence of priority patients: seriously ill patients, mothers with children, bosses and others recommended by management or colleagues. Elderly patients are mentioned only when compared with those receiving preferential care. Most doctors were reluctant to discuss preferences, with some pointing to younger, sicker patients as a priority group for receiving care: *“Young and unclear patients are given preference over everyone else. For example, bleeding, a sharp decrease in hemoglobin... If a person is 30 years old and his hemoglobin is decreasing, you need to understand why exactly... Here you can go beyond the standards... We approve all diagnostic appointments for such a patient faster... We let them in first...”* - notes the chief medical officer of the Moscow clinic.

In general, in the capital and provinces, doctors described their practice not as rationing, but as daily service to patients while overcoming existing restrictions. Only a few protested against the restrictions imposed by the CPGs or the closed lists of preparations. Almost all doctors rejected rationing in the interests of the patient with the best prognosis and pointed to the priority of care for acute patients with a serious condition. *“The choice between patients is possible when there is a very serious dying patient, and the patient next to him came on his own legs. Then you will throw maximum strength at a seriously ill patient in order to save him from the death... One can walk, and the other is in a coma. Who to save? You will save someone who is in a coma... And the one who came on his own can sit and wait...”* a respondent from a Moscow hospital notes in his interview. These verbalized preferences are similar to the understanding and assessments of European and American colleagues (Strech et al. 2008; Berney et al. 2005; Butler 1999).

This point of view, only at first glance, appears to contradict the idea of prioritizing interventions based on excluding severely unpromising patients. When there is a shortage of physicians, interventions in critically ill patients become a priority, and labor-intensive interventions should be limited (Butler et al. 2022).

At the same time, our respondents also recognized the presence of implicit rationing, carried out according to other principles. A special role in choosing those whom doctors give preference to is played by the so-called “compliant” patients, who are characterized by adherence to treatment and willingness to follow all doctor’s instructions. Doctors also resort to informal rationing in cases with relatives or high-status patients, *“when their own people are pushed ahead of everyone else... brother, neighbor.....”* (from an interview with the chief medical officer of the clinic at the central regional hospital).

## Rationing during the COVID-19 epidemic

The COVID-19 pandemic has led to a rapid increase in the need for health care for which national health systems and hospitals were not prepared. Doctors on the front line, who do not have sufficient protection and other resources, are faced with the need to provide care to seriously ill patients, including providing artificial ventilation, with a lack of artificial lung ventilation devices (ventilators). Their efforts to provide care without ventilating elderly patients were met with public horror.

The pandemic has brought the topic of rationing medical care into the public sphere. Initially, attention was focused on ventilators, partly because their use played a key role. Dra-

matic reports from Italy soon eclipsed by reports from other countries (Nacoti et al. 2020). In medical journals and newspapers, reports of shortages became anonymous (Rosenbaum 2020). Soon, more attention was paid to rationing in US publications than in European reports (Orfali 2020; Emanuel et al. 2020). Providing care for older adults has been and continues to be a focus of research into the tragedies of this pandemic. Firstly, because places where older people live concentrated have become places where mortality is concentrated. Secondly, because the shortage of ventilators and the almost unsuccessful treatment of the oldest ventilated patients naturally led to the idea of preferentially providing ventilators to younger patients (Rosenbaum 2020; Craxi et al. 2020).

The preference for helping young people is traditional. It is based on the idea of equality - young people should also have the chance to live long (to live out their life cycle). But during this epidemic, the judgment was simpler: since the elderly often die, then providing them mechanical ventilation is a waste of resources. This reasoning is close to military medical. Traditionally, in military medicine, priority for urgent care has been given to those wounded at high risk of death or permanent damage, subject to the prospect of survival. During World War II, another idea appeared: since the seriously wounded are unlikely to return to duty, assistance should be given first to the lightly wounded, who will return to duty faster and help win the war faster. Of course, this method of action has never been justified by research and serious calculations. It was more or less practiced in armies, being based on plausible reasoning. During the epidemic, the idea of denying mechanical ventilation to the elderly when necessary was met with understanding by society, but the reaction of geriatricians and medical ethicists was critical (Bonneuil 2021; Farrell et al. 2020b; Boreskie et al. 2020; Naughton et al. 2021). Geriatricians understand that they need to focus not on age, but on concomitant diseases and frailty, for the assessment of which there are tools (Boreskie et al. 2020; Wilkinson 2020; Aliberti et al. 2021; Ryan 2022). The population is also not alien to this understanding. A representative survey of Dutch people in the spring of 2020 found that the majority trusted decisions about preferential care to doctors or expert committees, and supported prioritization in favor of vulnerable groups and those with a prospect of survival, but did not support prioritization based on fixed personal characteristics, such as age (Dieteren et al. 2022). In a similar but more detailed study, the British supported rationing based on chances of survival and the protection of vulnerable people, including pregnant women, but also supported restrictions on access to mechanical ventilation for criminals and people unnecessarily involved in activities associated with a high risk of contracting COVID-19 (Chan et al. 2022).

The special experience of this epidemic - the need for rationing and the difficult health care situation - was presented to the public. Doctors tended to the opinion that rationing should be carried out in silence (Rosenbaum 2020). The anonymity of reports about the refusal of mechanical ventilation and about rationing events in general was due to the fact that almost everywhere medical care was provided within the framework of normal legislation, almost nowhere martial law restrictions or anything similar limiting the responsibility of doctors were imposed (Rosenbaum 2020). Every failure to provide a potentially life-saving intervention to a patient was a potential source of legal action and major problems for the hospital (Ferorelli et al. 2020). As a result, we know nothing about the statistics of rationing during the epidemic. We don't even know the statistics on how hospitals are provided with protective equipment. From the Russian Federation to the United States, doctors and nurses anonymously reported that they were prohibited by hospital administration from speaking to the press or reporting shortages and difficulties.

The content of discussions about rationing has some national specificity. In the US, patient redistribution between healthcare organizations was limited by (Nurok et al. 2022). There, discrimination against minorities and socially vulnerable groups became an important topic in discussions (Orfali 2021; Ryan 2022). In Europe there is more diversity of problems and their interpretations, and rationing seems to be a more acceptable object than in the United States. In Italy, doctors, hospitals, regional systems have turned from the problems of individual patients to the problems of communities, to the maximum of public good along with the expansion of intensive care unit capacity (Nacoti et al. 2020; Tonetti et al. 2020). It is important that in society the idea of rationing of care to increase the public good and save lives was widely supported, while egalitarian strategies were not (Dowling et al. 2022).

The organization of the health care system and the experience of citizens in contact with the distribution of resources affected both the attitude of citizens to the problem and the actions of the health care system, the content and processes of developing CPGs for the provision of health care, including its rationing (Orfali 2020).

In general, clinicians and ethicists working on CPGs take a utilitarian approach. Their main goal is to create procedures that will replace vague, momentary rationing decisions hidden from the public eye (Lahey 2020; Rosenbaum 2020). Even if we leave aside the new nature of the disease and the lack of specific treatment, the very speed of development of the situation in the country as a whole and in individual hospitals was such that doctors were not ready for the decisions that the situation required of them, they suffered from fatigue, stress, and fear (Butler et al. 2020; Čartolovni et al. 2021). Usually, doctors use the same criteria for hospitalization and placement in the ICU for years, day after day. During the epidemic, the criteria for hospitalization had to be changed sometimes daily, the algorithms for managing patients at home, in observation wards, in intensive care wards, and the rules for transferring between them (Rosenbaum 2020) had to be changed. An important aspect of rationing, especially during an epidemic, is the limitation of the patient's autonomy, even if he is conscious. Surrogate consent is almost impossible to obtain. Existing US do-not-resuscitate policies were impossible to implement. All these difficulties fell on the shoulders of doctors and nurses, who were forced to make decisions for which there were no rules (Sultan et al. 2021; Truog et al. 2020; Emanuel et al. 2020). New sorting algorithms proposed in CPGs developed in 2020 and later have become increasingly complex. For example, some CPGs propose separating the rationing decision-making process from the care delivery processes, i.e. actually require the participation of an additional qualified doctor. Others suggest making rationing decisions collectively with the participation of support specialists. To ensure the correctness of decisions, it is proposed to create procedures for monitoring rationing decisions and procedures for appealing and updating it (Truog et al. 2020). These and other recommendations for rationing make the very use of these CPGs problematic in situations of hospital overload and anti-epidemic isolation, i.e. when the problem is most acute (Supady et al. 2021; Bellone 2020).

## Discussion

In modern healthcare systems, including in the United States and the Russian Federation, the practice of implicit rationing, carried out daily under other names, continues, since it is more convenient for decision makers. The hidden side of this “advantage” is the shift of responsibility for decisions to the doctor, who, in turn, masks the rationing with medical

arguments. At the same time, both administrators and doctors do not want an open discussion of rationing, since the fact of failure to provide potentially useful treatment can lead to negative consequences for the healthcare system, medical organizations, and doctors involved in such cases.

Implicit rationing practices have two kinds of divergent consequences. On the one hand, they contribute to the sustainable functioning of medical organizations in conditions of insufficient resources compared to the needs and demands of patients in receiving medical care. On the other hand, such practices are destructive to both physician morale and the quality of medical care. The transition from implicit to explicit rationing is extremely difficult, but is necessary to ensure equitable patient access to scarce medical resources and the effective functioning of health care systems.

The critical challenge of implementing explicit rationing in a system with significantly limited resources is that while rationing will achieve improvements in system performance and population health outcomes, the proportion of costly, less effective interventions rejected will be so large that most costly interventions such as modern anticancer agents will be excluded. The Medicaid funding available in Oregon was large enough that the program discussed above did not limit interventions such as advanced chemotherapy. In countries with significantly lower levels of health care funding, the situation will be fundamentally different: explicit rationing will lead to the need to reduce citizens' access to many interventions that have low cost-effectiveness, and such a reduction can become a factor of social tension.

The distribution of limited healthcare resources will be acceptable to society if this distribution is transparent, controlled by a legal institution, if decisions are made on principles acceptable to the majority, comply with the principles of law, modern scientific data, and address a specific rationed intervention (Daniels 2020; Fink 2020; Perin & De Panfilis 2021; Ehmann et al. 2021). This is important to keep in mind because the idea of resource allocation attracts different stakeholders. For example, it is proposed to use rationing of donor organs to force vaccination - by denying transplantation to the unvaccinated, and limiting the provision of other interventions to them (Appel 2022; Robertson 2022).

Access to health care in the modern world is seen as a right. Care must be provided on the basis of voluntary informed consent. Ideally, the decision about medical intervention should be shared between the doctor and the patient (shared decision making). Only explicit rationing, accepted by public consent and detailed by standards, is compatible with such medical care, i.e. not assigned to the doctor. The need for more developed legislation regarding the rationing of health care was obvious long before this pandemic (Di Costanzo 2020). Despite this, intensive care services were unprepared for the severe events of the epidemic. Hospitals, the healthcare system as a whole, and society were even less prepared for the catastrophic load. Plans in 2005 to develop preparedness for a possible pandemic failed everywhere (WHO 2005; WHO 2017). Part of these plans is the development of the CPG. They are needed, and since March 2020 a number of them have been developed and already updated (Vergano et al. 2020; Farrell et al. 2020a; Leclerc et al. 2020; Jöbges et al. 2020; dos Santos et al. 2020; Sprung et al. 2020; SEMICYUC 2020; Ehmann et al. 2021). It is important that representatives of patients and the population took part in the development of the CPG. This experience is invaluable, and these CPGs will become an element of preparedness for future epidemics. Interest in rationing and tolerance for it are growing during the epidemic just as during the war. Unfortunately, professional and public interest in rationing is declining. We can only hope that the perception of rationing and the move towards more open,

carefully calculated rationing will settle to a new level and there will be less implicit rationing in health systems.

There is a pessimistic view of this problem, predicting that modern society may be unable to develop good rationing rules that are acceptable in a situation where the life of an individual is in question (Calabresi & Bobbitt 1978). This may be true, but this does not relieve us of necessity to develop at least acceptable rules, promote a better understanding of the essence of rationing in the public consciousness, and create better conditions for the work of doctors “on the front line” (Bellone 2020).

A certain amount of research into the problem of rationing has been carried out as part of preparedness for a possible epidemic (Daugherty Biddison al. 2019). The Italian experience showed that those hospitals that were organizationally prepared for a surge in hospitalizations better withstood the period of overload (Tonetti et al. 2020). Developing preparedness for new epidemics involves more than just supplies and organizational decisions. This should include both training health care workers and educating citizens about preparedness plans and technical solutions. In 2020, many assumed that the lessons of the COVID-19 pandemic would lead to the accumulation of resources and greater preparedness of healthcare organizations (Arabi et al. 2021). Unfortunately, as we are already seeing today, important issues of the day are distracting governments from increasing their preparedness for new epidemics. There is still much work to be done by doctors and politicians to prepare international and country health for future epidemics so that the unacceptable implicit rationing that the world practiced before the epidemic and practices today disappears.

## Conclusion

Despite the increasing frequency of publications related to the topic of allocation of scarce resources in health care over the past 20 years, studies using the term “rationing” are rare. During the COVID-19 pandemic, there was a short-term surge in attention to rationing. A number of clinical recommendations have been developed for the management of patients in resource-poor settings, which, when applied to a pandemic, use rationing technologies in various forms. Rationing of medical interventions exists and is inevitable. For its effective functioning - achieving the maximum public good - public consent and explicitness of rationing are necessary. Without the latter, a fair and rights-respecting health care system is impossible. However, to effectively deliver health care beyond COVID-19, rationing not only must be effective and equitable, it must be supported by society. This may be difficult to achieve in systems like the Russian and American ones, where imposing restrictions on access to health care is unacceptable for reasons outside the health care system. If it is not possible to develop a public discussion about rationing in order to educate the population and intensify its attitude towards medical care, then practice will return to implicit rationing, and problems associated with the inability to provide increasingly more expensive therapies will inevitably increase.

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