Abstract. The article is devoted to the problem of post-penitentiary maintenance of tuberculosis patients released from prison. It is shown that despite significant progress in the fight against tuberculosis in the penal system, there is a range of unresolved problems, one of which is the lack of continuity in the interaction of civil and penitentiary sectors of anti-tuberculosis service. The number of appealing of tuberculosis patients released from prison for further observation and treatment in specialized medical institutions of the Ministry of Health of the Russian Federation are given. The ten-year dynamics of appealing is analyzed, which indicates an insufficient proportion of tuberculosis patients who continued active treatment after release from prison. The number of such patients does not exceed 75% and ranges from 50.8% to 73.4%. The authors believe the lack of medical literacy of patients, their belonging to marginal layers of Russian society, as well as the lack of proper control over former prisoners with tuberculosis are reasons for this phenomenon. The negative circumstances noted in the article are powerful factors influencing the spread of tuberculosis in the population as a whole. A brief history of the issue is given, previously made proposals to solve the existing problem are analyzed. The legal assessment of the situation is given. The analysis of ways to solve the problem, which the authors see in the introduction of information technologies, allowing in the future to carry out automated control of tuberculosis patients movement, and to create a single information space common to penitentiary and civil medicine.

Keywords: tuberculosis, penal system, medical service, information system.

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из которых является недостаточный уровень преемственности при взаимодействии гражданского и пенитенциарного секторов противотуберкулезной службы. Приведены цифры обращаемости больных туберкулезом, освободившихся из мест лишения свободы, для дальнейшего наблюдения и лечения в специализированные медицинские учреждения Министерства здравоохранения Российской Федерации. Проанализирована десятилетняя динамика обращаемости, которая свидетельствует о недостаточном удельном весе больных туберкулезом, продолживших активное лечение после освобождения из мест лишения свободы. При этом число таких больных не превышает 75 % и колеблется в пределах от 50,8 до 73,4 %. Причинами данного явления авторы считают недостаточную медицинскую грамотность больных, их принадлежность к маргинальным слоям российского общества, а также отсутствие должного контроля над бывшими заключенными – больными туберкулезом. Отмеченные в статье негативные обстоятельства являются мощным фактором, влияющим на распространение туберкулеза в популяции в целом. Приведена краткая история вопроса, проанализированы ранее сделанные предложения по решению существующей проблемы. Данная юридическая оценка сложившейся ситуации. Проведен анализ путей решения проблемы, которые авторы видят во внедрении информационных технологий, позволяющих в перспективе осуществлять автоматизированный контроль движения больных туберкулезом, создать единое информационное пространство, общее для пенитенциарной и гражданской медицины.

**Ключевые слова:** туберкулез, уголовно-исполнительная система, медицинская служба, информационная система.

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Currently, the penitentiary health service demonstrates significant progress in prevention, diagnosis and treatment of tuberculosis in prisons (Sterlikov, S. A. (ed.) 2017, pp. 38–42). Anti-tuberculosis service of the penal system is characterized by a systematic approach, a clear algorithm of actions, high efficiency, superior, according to some authors, the effectiveness of anti-tuberculosis service of the civil health sector (Polovinkina, T. A. 2011, pp. 66–67; Shilova, M. V. 2014, pp. 156–158). Medical service of the penal system has a wide network of tuberculosis medical and correctional institutions and specialized hospitals (Nechaeva, O. B. & Sterlikov, S. A. 2017, pp. 58–64). From year to year, the main indicators of tuberculosis in the penitentiary system have been improved. For example, the mortality rate due to tuberculosis decreased from 81 cases per 100,000 persons in 2011 to 9.8 cases per 100,000 persons in 2017.

Meanwhile, the problem of prison tuberculosis is still far from being solved. Thus, tuberculosis incidence in the penal system is significantly higher than the corresponding level in the system of the Ministry of Health of the Russian Federation (Tuberculosis in the Russian Federation, 2012–2014. Analytical review of statistical indicators used in the Russian Federation and in the world 2015, pp, 166–173). The risk of contracting tuberculosis in prison is much higher than in the general population (Russkikh, O. E. 2007, pp. 38–39; Tuberculosis surveillance and monitoring report in Europe 2017: surveillance report 2017, pp. 26–27). In some years, the proportion of new cases of tuberculosis detected in penitentiary institutions reached 27% of the total number (Shilova, M. V. 2014, p. 37). Currently, it is 8.5%, which is also significant.

The conditions that contribute to the spread of tuberculosis in the penal system, according to penitentiary scientists, include: overcrowding, poor sanitary and hygienic conditions, social disadaptation of citizens in custody, unbalanced nutrition and stress. In addition, a very significant cause of tuberculosis spread in prison is of convicts’ reluctance to be treated and to follow medical prescriptions (Yudin, S. A. 2014, p. 134). However, some prisoners deliberately contribute to tuberculosis spread (so-called mastyrshchik).

It should be noted that many authors emphasize close relationships of indicators reflecting the epidemic situation of tuberculosis in civil and penitentiary sectors of the health system. Naturally, effective continuity in joint and coordinated work of these systems, which today needs to be improved, should be a priority for the fight against tuberculosis. According to S. A. Yudin, more than half of the specialists, interviewed by him, consider the existing level of interaction between civil and penitentiary anti-tuberculosis service to be low and ineffective (Yudin, S. A. 2014, p. 134).

Meanwhile, the integration of civil and departmental systems of anti-tuberculosis service is the key to success of clinical maintenance for patients (from disease detection and diagnosis of its features, to the completion of treatment after release of a person), who have served a sentence of imprisonment. The Standard Minimum Rules for treatment of prisoners, approved by the United Nations, state that medical care should be organized in close connection with local or state health authorities.

Such integration is very important, as the epidemic situation of tuberculosis in the penitentiary health sector has a significant impact on the fight against tuberculosis in society as a whole.

The penitentiary health sector requires introduction of new effective forms of treatment process organization and strict continuity maintenance of patients with tuberculosis.

The purpose of this study is to analyze the existing problem of continuity in work and the level of integration of anti-tuberculosis services in civil and penitentiary health sectors.

It is known that among many issues related to the treatment of tuberculosis while serving
a sentence, there is the problem of a specific prison society existence (epidemic significant category of prisoners). These are patients with tuberculosis, released from prison. A significant proportion of them does not go to anti-tuberculosis institutions after the end of their sentence and does not continue treatment.

The authors give different percentage number of such patients: from 40% to 80% (Russkikh, O. E. 2008, p. 13; Shilova, M. V. 2007, p. 14).

In the period from 2006 to 2017, from 50.8% to 73.4% of active tuberculosis patients released from prison applied for record in medical organizations of public health (figure 1).

![Figure 1. Dynamics of proportion of tuberculosis patients released from institutions of the Federal Penitentiary Service of Russia and arrived in medical organizations of public health, Russian Federation, 2006–2017](image)

From 2006 to 2013, there was an increase in the proportion of tuberculosis patients released from prison and who were on record in public health organizations. This is probably due to the implementation of international projects to fight against tuberculosis, which inevitably raised issues of interdepartmental cooperation. The maximum value of the indicator was noted in 2013, and in recent years it has been decreased. This indicates the expediency of intensifying measures to strengthen interdepartmental cooperation on continuity of treatment and dispensary observation of patients with tuberculosis.

According to O. E. Russkikh, who investigated fates of released patients with tuberculosis, in a year only 37.3% of persons after release were on the dispensary record, in two years 22.4% of persons, and in 3 years 7.5% of persons. That is, the majority of patients (former convicts) do not show initiative to preserve their health. They stop treatment and change their place of living (Russkikh, O. E. 2008, p. 52). Studies show that these people are socially disadaptated and have low general and hygienic culture (Tulenkov, A. M. 2014, p. 6). These are representatives of marginal strata of Russian society, prone to vagrancy, parasitism, and drug and alcohol abuse. Naturally, the antisocial behavior of such patients significantly increases the risk of chronic forms of tuberculosis and increases probability of drug resistance to anti-tuberculosis drugs. This category of patients is one of the main sources of infections; it contributes to the spread of tuberculosis among the general population.

Despite the fact that this problem was identified in the USSR and was further developed in Russia (Russkikh, O. E., Stakhanov, V. A. & Polushkina, E. E. 2007, p. 8), until now the practical organization of treatment and preventive care for tuberculosis
patients released from prison is still insufficiently studied, as well as approaches to penitentiary and civil health sectors interaction in order to organize effective anti-tuberculosis measures among the contingent subordinated to the FPS of Russia.

The problem is complicated by the fact that penitentiary medicine is a departmental structure that exists as if “in parallel” to the Ministry of Health of the Russian Federation, using departmental orders and regulations in its activity and having independent reporting.

To ensure the continuation of tuberculosis treatment for this category of persons after their release from prison, scientists have proposed various schemes for activities organization of the anti-tuberculosis service. Thus, the algorithm of departments integration on interaction in anti-tuberculosis work and recommendations for improvement of dispensary service for former convicts with tuberculosis were developed and presented in works of O. E. Russkikh (2007, p. 38; 2008, p. 8–12; Russkikh, O. E., Stakhanov, V. A. & Polushkina, E. E. 2007, p. 52). He suggested sending data on patients with tuberculosis to the antitubercular dispensary one month prior to expected release, and 10 days prior to release to send copies of medical documents to the address where the patient will live. A special route map was developed for the patient. The psychological service of the medical correctional institution was recommended to carry out motivational work (interviews, testing, role-playing games).

In case that former convicts with tuberculosis do not arrive to anti-tuberculosis facilities during 10 days after release, O. E. Russkikh proposed to provide the forced arrival of such patients for their treatment by court order. The author used the decree of the Government of the Russian Federation № 892 “On the implementation of the Federal law “On prevention of tuberculosis spread in the Russian Federation” (adopted on 25.12.2001) (paragraph 10 – after release a patient with tuberculosis is obliged to address in medical and prophylactic specialized anti-tuberculosis institution for dispensary record within 10 days from the date of arrival to his residence; paragraph 11 – in case of violation of the order of dispensary supervision by patients, they are subject to obligatory survey and treatment in a judicial proceeding according to article 10 of this Federal law).

In addition, referring to the Code of administrative violations and the Law of the Russian Federation “On the police”(adopted on 18.04.1991), the author argued that the system of the Ministry of Internal Affairs of Russia should ensure arrivals of persons, evading appearance and representing a direct danger to others, in health care institutions.

However, despite the extreme clarity and simplicity of the scheme of interaction between penitentiary and civil medical services, the Ministry of Internal Affairs of Russia and courts, the algorithm proposed by the author has not received practical application. There are several reasons for this: the lack of personal responsibility of the released tuberculosis patient to the population and desire to prevent infection spread; and gaps in the legislation. Until recently, the poor integration of civil and penitentiary anti-tuberculosis services has been facilitated by:

- insufficient funding of the medical service of the penal system;
- lack of necessary information exchange between anti-tuberculosis services in the systems of the Ministry of Health of Russia and the Federal penitentiary service of Russia;
- absence of a single information space that provides continuity of tuberculosis patients maintenance.

Therefore, one of the ways to solve the existing problems may be the search for new approaches, including the use of modern information technologies. Information and analytical systems allow to reliably assess the quality of medical care, conduct the necessary medical monitoring, significantly increase the information content and efficiency of the information available to medical specialists.

The creation of a single information space will allow:
to maintain a single database of tuberculosis patients;

to fill in and, if necessary, adjust the results of examinations and treatment;

to ensure that the necessary statistics are maintained;

to provide monitoring, management and feedback;

to support input and correction of information;

to ensure quick actions and ergonomics.

Currently, the principles of the information structure of the tuberculosis monitoring system have been practically developed, the basis of which are electronic registers of personalized information about patients and aggregated statistical data. It should be noted that the work of this system will concern both the Ministry of Health of the Russian Federation and Departmental penitentiary medicine. It is assumed that the electronic personalized and aggregated registers will be used to form statistical reports concerning the system of anti-tuberculosis care, drug and resource provision for tuberculosis patients (including the penal system).

Thus, the ultimate goal of the national monitoring system formation to fight the spread of tuberculosis (as part of the national monitoring system of socially significant diseases) is to create a target information space on the basis of regional and state statistics. As a result, a unified approach to the management of the system of anti-tuberculosis measures will be provided, and information about patients released from prison will be automatically transferred to the database of the unified information system, which will help to overcome existing difficulties and will finally be able to solve existing problems.

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