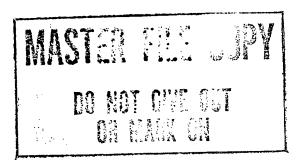


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## Soviet Civil Defense: Medical Planning for Postattack Recovery

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A Research Paper

NGA Review Completed

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SOV 84-10101X July 1984

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## **Soviet Civil Defense: Medical Planning** for Postattack Recovery

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A Research Paper

This paper was prepared by Office of Soviet Analysis. Comments and queries are welcome and may be directed to the Chief,

Strategic Forces Division, SOVA, on

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Soviet Civil Defense:
Medical Planning
for Postattack Recovery

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#### **Key Judgments**

Information available as of 1 April 1984 was used in this report.

Medical planning for the period following a nuclear attack is part of the Soviets' overall civil defense effort and includes various measures for the treatment of the leadership, essential work force, and general population. According to Soviet unclassified writings, it emphasizes the training and protection of medical personnel, stockpiling of medical reserves, mobilization of the Civil Defense Medical Service for wartime operations, and evacuation and relocation of urban medical facilities

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in the preattack period, medical and paramedical personnel would be mobilized by the Civil Defense Medical Service, and urban medical facilities would relocate or evacuate their patients. The Medical Service would then deploy to exurban areas to assist in the evacuation of the work force and general population. Medical assistance in the postattack period would consist of a two-stage evacuation of casualties from target areas—during the first stage, emergency treatment would be given by first aid detachments deployed close to the areas targeted, and during the second stage, more specialized treatment would be given in base hospitals located farther away.

Soviet medical planning and Soviet

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civil defense medical texts indicates that:

- Emergency relocation and evacuation plans exist for many medical facilities.
- Extensive measures have been taken to provide trained medical and paramedical personnel for the Civil Defense Medical Service.
- Measures have been taken to facilitate mobilization of personnel, transportation, and equipment for civil defense medical use during wartime.
- Large stockpiles of medical supplies for civil defense exist throughout the USSR.
- The USSR has 44 underground medical treatment and storage facilities, primarily in urban areas and designed to provide for limited treatment of patients and protection of some medical stockpiles.
- The Soviets routinely conduct civil defense training and exercises for medical personnel.
- Shelters, designed to protect medical personnel from the immediate effects of nuclear weapons, exist at many urban medical facilities.

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#### Soviet Civil Defense: Medical Planning for Postattack Recovery

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#### Introduction

In a nuclear war the number of surviving injured is likely to equal or exceed the number of those killed immediately. Tens of millions of casualties could require medical treatment in the postattack period. According to Soviet unclassified writings, the stated objective of the Soviet civil defense program is to provide sufficient medical resources for the protection of the population and treatment of the massive number of civilian casualties expected. Civil defense measures designed to "eliminate the medical consequences" of nuclear, biological, or chemical weapons are:

- Mobilization of civil defense medical personnel and facilities for treating mass casualties.
- Special civil defense training for all medical personnel.
- Provision of emergency medical supplies and transportation.
- Organization of sanitation and epidemic control teams to prevent the onset of infectious diseases.
- Medical evacuation of casualties from urban areas to relocated hospitals.
- Protection of medical personnel through sheltering.

Soviet medical manuals on civil defense estimate that the total loss of life in urban areas could reach 50 to 60 percent without sheltering. We have no reliable information, however, on what the Soviets estimate the total number of civilian casualties could be in a nuclear war. In 1979 we simulated the effects on the Soviet population of a hypothetical retaliatory attack by US forces under different alert conditions. The primary purpose of the simulation, which we are updating, was to assess the effectiveness of Soviet civil defense in reducing the magnitude of Soviet casualties in a nuclear war. For the purpose of analysis, we

assumed three different levels of civil defense preparation: little to none, sheltering only, and full sheltering and evacuation of urban centers. The population was neither specifically targeted nor avoided. Our assessment indicated that estimated Soviet casualties from prompt nuclear weapons effects and fallout would range from about 35 million (including 14 million fatalities) to 125 million (with 105 million fatalities) depending on the level of civil defense implementation and stage of US alert. Casualties from long-term and secondary effects were not included (see table 1).

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The Soviets' recovery from a nuclear war is heavily dependent upon their ability to provide postattack medical support to all sectors of the population. Our analysis of the available information indicates that the Soviets have invested heavily in planning, training, conducting limited exercises, and in providing personnel for the Civil Defense Medical Services.

This paper discusses Soviet plans for mobilizing, 25X1 protecting, and deploying medical resources for civil defense and assesses their potential effectiveness. It includes recent information on the scope of emergency planning for individual medical facilities, the role of military commissariats in medical resource allocation, protection of medical personnel, medical storage locations, and underground medical facilities.

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#### Peacetime Planning

Soviet civilian medical resources are controlled in peacetime by both the Ministry of Health and the Ministry of Medical Industry. The Ministry of Health manages treatment facilities—hospitals, polyclinics,

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Table 1
Estimate of Soviet Casualties and Fatalities
From a Hypothetical US Retaliatory Attack

Million persons

Civil Defense Preparations	US Forces on Generated Alert		US Forces on Day-to-Day Alert	
	Casualties a	Fatalities	Casualties a	Fatalities
Little or none	125	105	115	75
Shelters and best protective structures occupied	115	85	95	55
Full sheltering; evacuation of 90 percent of 300 cities	45	30	35	14

a Casualty totals include fatalities.

and small dispensaries—through departments of health at different administrative levels. It also supervises the extensive network of sanitary and epidemiological stations located throughout the USSR. The Ministry of Medical Industry is responsible for the manufacture of pharmaceuticals and medical equipment and supervises medical stockpiles (see figure 4).

The Civil Defense Medical Service is one of several services under the Defense Ministry's Main Directorate of Civil Defense. In peacetime the Medical Service consists primarily of staff personnel responsible for coordinating the civil defense efforts of the Ministries of Health and of Medical Industry. At all administrative levels of the Ministry of Health and probably the Ministry of Medical Industry are Second Departments responsible for integrating plans for conversion to wartime operations, formulating doctrine, and conducting civil defense medical exercises. Soviet medical facilities also have a Second Department headed by a physician responsible for planning and coordinating civil defense training and mobilization. Upon mobilization, the medical assets of the Ministry of Health would become part of the Civil Defense Medical Service.

Because medical personnel and resources are limited, both the armed forces and the Civil Defense Medical Service compete for many of the same resources. The Soviets, therefore, face the problem of balancing the medical manpower, training, and transportation requirements of the military with those of the Civil Defense Medical Service. We believe they are attempting to resolve this problem by combining military commissariats and civil defense staffs.

Military commissariats are administrative organizations subordinate to the administration of the military district within which they are located. Their activities include supervising preinduction military training and indoctrination, issuing callups for military service and reserve training, maintaining records on reservists, and issuing deferments. They also are responsible for registering national economic resources suitable for military needs, conducting partial or general mobilization, and allocating civilian transportation for military purposes during mobilization.

military commissariats also play a role in the civil defense training, classification, and assignment of medical personnel and in the allocation of civilian transportation for civil defense needs. In 1978 the civil defense staffs of the Baltic republics, for example, were placed under the control of military commissariats. If such subordinations are the norm, they may be intended to balance the mobilization requirements of the armed forces with

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those of civil defense, including eliminating the possibility of conflicting assignments of medical resources that might occur with separate civil defense and commissariat staffs.

The Central Military Medical Directorate of the Ministry of Defense's Rear Services controls active duty and reserve medical personnel distinct from those allocated to the Civil Defense Medical Services by the military commissariats. Unclassified Soviet civil defense medical texts discuss the use of military medical resources for civil defense purposes in the postattack period. Although the primary mission of the military medical service is to support the military, we believe that some of its personnel and medical stocks may be available for civil defense. Military civil defense regiments also have limited medical treatment capabilities and could treat some civilian casualties in wartime. The Civil Defense Medical Service probably coordinates the use of military medical resources with the Central Military Medical Directorate during wartime.

Training. Almost all Soviet medical personnel receive extensive military and civil defense instruction at medical training institutes. A four-year combined military and civil defense training program at the State Medical Institute of Alma Ata is typical. Civil defense training at the Institute is mandatory for both males and females, and the courses include combined instruction in basic military subjects and civil defense topics. Among the civil defense topics taught are the treatment of nuclear, biological, and chemical casualties and the use of protective clothing. In some cases traditional military instruction is emphasized for men, while training for women concentrates on civil defense topics

Civil defense medical training also is given at other specialized institutes.

an extensive mandatory training program for nurses at the Vilnius Pedagogical Institute. The program featured two semesters of civil defense training and three semesters of medical training. Upon graduation, students were assigned to the military reserves as nurses by the military commissariat. A similar program also exists at the University of Uzhgorod. In addition, military commissariats generally supervise first aid,

civil defense, and premilitary training of Soviet youths in the Voluntary Society for the Cooperation of the Army, Air Force, and Navy (DOSAAF).

Postgraduate civil defense training of medical personnel is usually provided for by military commissariats and civil defense staffs. For example, some medical personnel are assigned to a course for resident physicians taught at the Balashikha civil defense school in Moscow Oblast. The course is taught twice a year and lasts about six weeks.

between 40 and 50 physicians graduate from the course each year. They probably are then assigned to

course each year. They probably are then assigned to military civil defense units. In some areas, military commissariats recall medical personnel to active duty every five years to receive two weeks of civil defense training. The training normally is conducted at the commissariat headquarters by full-time personnel from the commissariat's medical section.

Civil defense medical training also is given at urban medical facilities the amount of civil-defense-related medical training given at Soviet medical facilities varies; however, the reported norm is between 50 and 60 hours a year. The training is planned by the hospital civil defense chief and usually consists of classroom instruction on the organization of the Civil Defense Medical Service and general topics dealing with treatment of injuries associated with nuclear, biological, and chemical warfare. In addition, medical training for civil defense paramedical personnel in factories, schools, institutes, and similar enterprises usually is given by hospital civil defense instructors and Red Cross/Red Crescent Society volunteers.

The general population also receives civil defense medical training at workplaces, schools, and during military service. This training usually includes basic first aid, such as treatment for burns, artificial respiration, splinting of broken bones, and treatment for shock. Training for the general population also includes preventive measures to reduce casualties after

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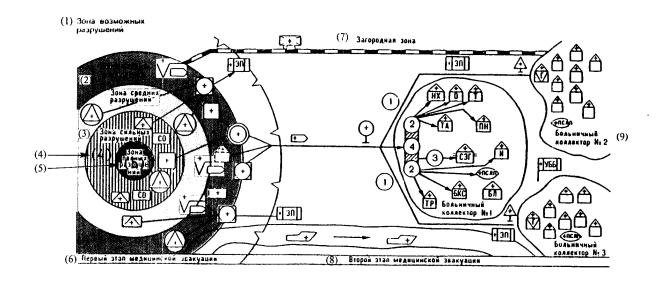
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a nuclear exchange—for example, how to use protec-	coordinates hospital mobilization with the civil de-	
tive masks and radiological and chemical measuring	fense staffs, military commissariats, and those facili-	
devices, decontamination, and general instruction on	ties, institutes, and schools, which may augment the	. 051/4
the effects of nuclear weapons.	mobilized hospital with paramedical personnel. We	25 <b>X</b> 1
Francisco Tradicio Abras bassas in a su se se	believe that mobilization of Soviet medical facilities is	
Exercises. Training through exercises appears to be	initiated by the military commissariats and, like other	0574
many medical	civil defense activities, is governed by changes in	25 <b>X</b> 1
facilities do in fact hold semiannual or annual exer-	Soviet armed forces readiness levels.	25 <b>X</b> 1
cises for paramedical teams. They are usually super-		
vised by personnel from military commissariats and	Wartime Organization	0.5374
civil defense staffs. a 30-	Soviet unclassified literature devotes much attention	25 <b>X</b> 1
day mobilization exercise called by the Odessa mili-	to the wartime organization of the Civil Defense	
tary commissariat. The exercise included setting up a	Medical Service. We think that the Medical Service	
Civil Defense Medical Service first aid detachment	would exercise operational control in wartime over the	
(OPM) and instruction on general civil defense topics.	medical assets of the Ministry of Health, the Ministry	
a civil defense	of Medical Industry, DOSAAF, and the Red	25 <b>X</b> 1
medical exercise with about 1,000 participants in	Cross/Red Crescent Societies. We believe it also	
Tokmak in the Kirghiz SSR.	probably would coordinate the allocation of medical	25X1
	resources with the Central Military Medical Director-	
many	ate during wartime.	25 <b>X</b> 1
medical facilities do not engage in field training		05)/4
exercises. For example, the All-Union Oncology Re-	The wartime structure of the Civil Defense Medical	25 <b>X</b> 1
search Center of the Academy of Medical Science in	Service would be based on the organization and	
Moscow— plans to relo-	personnel of the Public Health Departments and	25 <b>X</b> 1
cate to a state farm in Pyshlitsy—never has partici-	medical facilities at each administrative level under a	
pated in civil defense exercises or practiced relocation.	system of dual subordination. During wartime the	
Lack of field training at medical facilities could result	director of the local Public Health Department would	
in severe problems with carrying out relocation plans	become the head of the Civil Defense Medical Service	
in wartime. Although we have evidence that small-	for the area concerned and a member of the local civil	
scale civil defense medical exercises are widespread	defense staff.	25 <b>X</b> 1
throughout the USSR, we have no information that		
the Soviets have conducted a comprehensive integrat-	Treatment and Evacuation of Casualties. The Civil	
ed medical exercise to test the entire civil defense	Defense Medical Service has developed an elaborate	
medical network. Not having run such exercises, the	plan for medical operations in the event of a nuclear	
Soviets cannot be certain about the ability of the	attack. unclassified civil defense	25X1
system to accomplish its mission in wartime.	literature disclose that the plan is based on two stages	25X1
	of treatment and evacuation. During the first stage,	•
Mobilization. Urban medical facilities,	first aid and emergency treatment would be given in	25X1
are part of an elaborate mobilization-	or near zones of destruction; during the second stage,	25X1
alert notification system maintained by the local civil	evacuation to specialized hospitals in a hospital-base	•
defense staffs and operated in conjunction with mili-	area outside the target zone would take place (see	
tary commissariats. In Riga, for example, doctors on	figure 1).	25 <b>X</b> 1
duty in local hospitals are required to telephone the		
Riga civil defense staff once an alarm in the hospital		
duty office sounds. The duty doctor then alerts the		

hospital civil defense chief and the rest of the hospital staff. When alerted, the hospital civil defense chief

Figure 1
USSR: Concept of Medical Treatment in the Period Following
Nuclear Attack<sup>a</sup>



(1)	Zone	of	possible	destruction
-----	------	----	----------	-------------

- (2) Zone of light destruction
- (3) Zone of average destruction
- (4) Zone of severe destruction
- (5) Zone of total destruction
- (6) First-stage medical evacuation
- (7) Exurban zone
- (8) Second-stage medical evacuation
- (9) No 2 hospital collection point

Hygiene team

Detachment of hygiene teams

Rescue detachment [RD]

Medical platoon

Intact city hospital

Intact city polyclinic

Medical first-aid detachment

Medical company

Evacuation receiving center [ERC]

Ambulance water transport

Ambulance motor transport

Motor transport casualty loading point

Auxiliary distribution post

Ambulance train

Lead hospital [LH]

Specialized hospital (neurosurgery)

Medical distribution point [MDP]

Hospital-base administration [HBA]

Assembly point for the slightly wounded

Casualties sent from MDP to hospital

collection points

Transportable casualties sent from SEH
[screening-evacuation hospital] (LH) screening

to specialized hospitals

Casualties needing immediate specialized assistance, nontransportable casualties

Screening-evacuation hospital screening area

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<sup>&</sup>lt;sup>a</sup> This illustration is from an unclassified Soviet civil defense medical textbook.

In the first stage, first aid detachments (OPMs) would deploy to exurban areas after mobilization to constitute medical treatment facilities. An OPM comprises physicians, nurses, and paramedical personnel who would sort casualties and provide emergency lifesaving services, including decontamination of those exposed to radiation and limited hospitalization for the seriously injured. Casualties would be tagged according to the extent of the injuries, treated, and then, if their injuries required more specialized treatment, evacuated to base hospitals. An OPM is designed to handle about 300 casualties a day. OPMs would be deployed in uncontaminated areas as close as possible to target areas; they are heavily dependent upon radiological reconnaissance to avoid areas that are severely contaminated or in the path of fallout.

Soviet civil defense plans call for urban hospitals to provide cadres for OPMs, each with approximately 150 personnel, of which 25 would be doctors. Large hospitals would provide cadres sufficient for two OPMs, while smaller hospitals and polyclinics would provide cadres for one. Soviet planning also calls for the OPM to be augmented by teams of paramedical personnel from factories, institutes, and similar enterprises. In Kiev alone, we have reporting on 40 designated OPMs, each requiring augmentation by 125 paramedics.

The OPMs are to deploy and direct the operation of the medical teams, each consisting of approximately 24 paramedics who are students, workers, and members of the Red Cross/Red Crescent Societies. These teams would deploy to severely damaged areas, where they would receive casualties from civil defense rescue detachments and give first aid; then they would transport the seriously injured to the OPM, which would give more extensive medical care. For example, the All-Union Scien-

tific Research Institute for the Transport of Natural Gas in Kiev had two medical teams, each with four five-member squads. Upon mobilization one team would report to the Leninskaya Regional Hospital in Kiev; the other would aid evacuees and victims in or near potential zones of destruction.

In the second stage, specialized medical care would be given to casualties who had received emergency care from OPMs. This care would be given in hospital

bases formed from the more specialized hospitals and medical research and training institutes, which would have relocated to exurban areas. These bases, with specialized surgical sections for treating severe injuries, would be directly subordinate to oblast or kray civil defense medical services. Soviet unclassified sources assert that these bases could be as far as 10 to 12 hours' travel time from OPMs.

A hospital base would include six to eight hospital-collection points. Each hospital-collection point would include a main hospital, casualty-collection points, and hospitals that specialize in various categories of injury. Collection points that are nearest the target areas also would have a special sorting and evacuation hospital. Less critically injured patients, who could be discharged or transferred to their homes, probably would be released upon order of the Civil Defense Medical Service, freeing as many beds as possible.

Casualties would be received and sorted at the sorting and evacuation hospital, medical distribution points, and evacuee reception points along access routes to the base area. After sorting according to injury and verification of the information on medical tags prepared at the OPM, casualties would be distributed among the hospital-collection points. The Soviets would attempt to colocate hospital-collection points so patients could be evenly distributed among main hospitals.

At the main hospital, the seriously wounded—that is, those with multiple injuries including radiation exposure—and those with contagious diseases would be hospitalized and treated. The main hospital is essentially a general hospital with additional assets for nuclear decontamination and shock treatment. Patients requiring treatment not available at the main hospital would be assigned to one of the specialized treatment hospitals, which are the principal therapeutic institutions of the collection point.

Although the OPMs probably could give rudimentary first aid to large numbers of casualties, we believe that the Soviets face significant uncertainties about •

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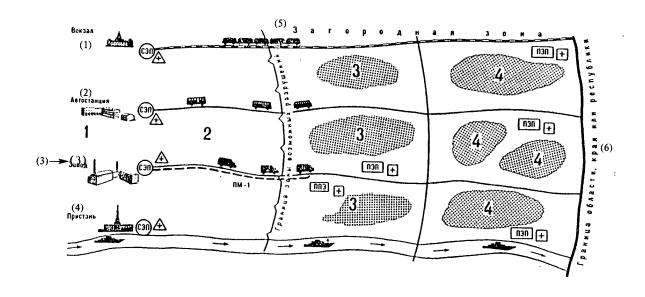
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the provision of more specialized medical care in the postattack period. Delays in transporting casualties from the OPMs to hospital bases could result in many fatalities. Moreover, the collection points at hospital bases could be overwhelmed with casualties during the medical evacuation. Shortages of trained personnel, medical supplies, or equipment in hastily established hospital bases could cause additional problems.	wartime tasks. For example, during the Sverdlovsk anthrax epidemic of 1979, sanepids ultimately were able to control the spread of disease, but the level of effort was quite large for the size of the outbreak—  That sanepids would have such large resources available to them in the postattack period is unlikely. Similarly, sanepids have been only partially successful in controlling epidemics	25X
		25 <b>X</b>
Sanitary-Epidemiological Operations. Sanitary-epidemiological units (sanepids) also would play a key role in Soviet civil defense medical operations. Sane-		25 <b>X</b>
pids are administered in peacetime by the Ministry of Public Health. Their peacetime responsibilities are innoculating and vaccinating the general public; insect and rodent control; water, dairy, and meat monitoring; and industrial and community hygiene. They usually are equipped with mobile laboratory and inspection equipment and are normally headed by a physician.	ties located in 26 cities plan to evacuate or relocate to exurban areas in wartime. Of these, 37 plan to evacuate while 76 plan to relocate. It is likely, however—because of the premium on trained medical personnel during a nuclear war—that all urban medical	25X 25X
	ments and hospital bases rather than merely evacuate	23/
would:  • Support OPMs and base hospitals in exurban areas and provide preventive health care.  • Be responsible for mass immunizations of the populace to curb infectious diseases that could result from radiation-induced suppression of the body's immune system.  • Ensure that massive amounts of uncontaminated water would be available for OPM and hospital base operations.  • Supervise the disposal of corpses and of large amounts of human waste to prevent the spread of	emergency relocation and evacuation plans at these medical facilities indicates that the Soviets are actively preparing for treatment and evacuation of casualties and sanepid operations in wartime.  25X1  Soviet medical facilities appear to be accorded a relatively high priority in evacuation and relocation operations. Unclassified Soviet civil defense medical manuals assert that relocated medical facilities would assist in the dispersal or relocation of the essential work force and the evacuation of the general population. Given adequate warning time, we believe that	25X
infectious diseases.  Sanepids from large urban areas would specialize.	civil defense medical facilities probably would relo- cate after the leadership had relocated to exurban command posts, but before the dispersal, evacuation, 25	25X 5 <b>X</b> 1
For example, in Kiev the Shevchenko Rayon sane- pid————————————————————————————————————	or relocation of the other segments of the population	25X
for rayon epidemic control. Another sanepid would be responsible for waste control, while a third would manage the disposal of corpses.  Kiev sanepids maintain current deployment plans and sufficient equipment to carry out their		25X 25X
assigned wartime missions.		25X
The Soviets face significant uncertainties about the		

ability of these teams to carry out their assigned

Figure 2
USSR: Medical Aid to the Population During Dispersion and Evacuation<sup>a</sup>



- (1) Train terminal
- (2) Motor-transport center
- (3) Plant
- (4) Docks
- (5) Exurban zone
- (6) Oblast, kray, or republic boundary
- A First-aid station
- + Physician immediate aid station
- NM-1 Foot route No 1
- Evacuation assembly point
- nna Intermediate evacuation point

- nan Evacuation receiving points
  - 1. City
  - 2. Zone of possible destruction
  - 3. Regions for locating dispersed workers and employees
  - 4. Places for locating evacuated people

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<sup>&</sup>lt;sup>a</sup> This illustration is from an unclassified Soviet civil defense medical textbook.

Leningrad, have been designed for conversion to emergency medical facilities during wartime. The design includes special electrical wiring, garage areas suitable for ambulances, and living areas that would become patient wards. Dual-purpose design of educational and other buildings could provide a large amount of space for relocated hospitals. We are unsure how many buildings incorporate such designs, however.

#### **Personnel Allocation and Protection**

In peacetime, medical personnel generally are either inducted into the armed forces upon graduation or are issued reserve military service booklets,

Each booklet, issued by military commissariats, contains a military specialty code, reporting location upon mobilization, and other service-related information. Military medical personnel upon completion of active duty are issued similar booklets. Although the Soviet law on universal military service varies the reserve retirement age according to rank, sex, and length of service

military commissariats generally carry male medical reservists on military reserve rosters until age 55, when they are assigned permanently to civil defense reserves. Female medical reservists usually are assigned to civil defense reserves at age 50.

We are uncertain as to the number of medical personnel that would be allocated to the armed forces and civil defense after mobilization, but some would be available for civil defense after the needs of the armed forces were met. Even though the primary mission of medical personnel would be to support the military, some medical reserve personnel might be assigned to civilian hospitals after mobilization.

We estimate that the total number of medical personnel available to both the Soviet armed forces and civil defense in wartime would be about 4.0 million. There are approximately 1.1 million doctors in the USSR (see table 2); there are about 2.9 million medical personnel including *feld'shers* (physician's assistants), nurses, midwives, laboratory technicians, medical orderlies, and other assistants. We have no reliable figures for medical workers by category since those of 1975, when about 17 percent were *feld'shers*, 50 percent were nurses, and 33 percent were technicians, midwives, or other medical personnel.

# Table 2 Thousand persons Soviet Physicians, by Specialty

Specialty	Number	
Internal medicine	237	
Surgery	115	
Obstetrics/gynecology	62	
Pediatrics	120	
Ophthalmology	21	
Ear, nose, and throat	21	
Neurology	26	
Psychiatry	25	
Tuberculosis	23	
Dermatology	18	
Radiology	36	
Sports medicine	5	
Epidemiology	. 61	
Stomatology	92	
Dentistry	48	
General practitioners	153	
Total a	1,063	

a Includes approximately 100,000 military physicians.

Medical personnel are a key resource for postattack recovery. Consequently, protecting them in wartime would be a priority of civil defense. We have identified or have reporting on 91 medical facilities with personnel shelters. We believe that these shelters are designed primarily to protect medical personnel when warning time is inadequate to allow for relocation or evacuation of the medical facility. In medical facilities with limited shelter space, we believe that medical personnel would have priority over patients.

#### **Transportation**

The military and civil defense compete for transport as well as for medical personnel. During mobilization, the Soviets plan to draw transportation assets from the civilian economy to meet the needs of the armed forces and civil defense; allocations of transport would be made through the military commissariats

the Moscow Main Administration

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of Motor Transport would transfer 30 percent of its heavy trucks, 30 percent of its lifting machinery, and 70 percent of its fuel-carrying vehicles to the military. Most of the rest would be available for use in civil defense. We believe that, on completion of mobilization, the military commissariats would make additional transportation assets available for the medical evacuation and supply of civilians. Military commissariats also maintain rosters of civilian ambulances to be mobilized in wartime.

We estimate that the USSR has approximately 681,000 buses; 86,000 were built in 1982 alone. Although some of these buses would be used to support the military, many probably would be available for civil defense. Modification kits for converting buses to ambulances have been available since at least 1977, but we are uncertain as to the numbers and locations of these kits. The conversion process, reportedly requiring four to six hours, involves the addition of litters and medical equipment and the painting of windows. Once converted, a bus can accommodate 10 to 20 stretchers.

Soviet unclassified sources also mention the use of special ambulance trains and water transport to evacuate casualties. However, we have no information on the extent of planning for use of these transportation assets by the Civil Defense Medical Service in wartime.

#### **Medical Reserves**

The Soviets have extensive stockpiles of medical equipment and supplies for civil defense.

These range

from simple first aid kits stored in personnel shelters to wartime pharmaceutical stocks kept in medical depots. Most of the first aid kits are A-12 medical kits that contain basic supplies, antibiotics, painkillers, bandages, and stretchers. Such kits are carried by the OPM medical teams. Many shelters are stocked with first aid kits, but not all are equipped with medical stocks. In the late 1970s, the Soviets apparently changed shelter guidelines and deleted the requirement for medical kits. Those now in shelters may have been there before the change in criteria; however, a more likely explanation is that they are part of the equipment that a medical team would carry when it joins its designated OPM.

Medical treatment facilities are required to maintain a two-to-three-day supply of medical stocks for emergency use only. They are generally stored in hospital basements and are required to be rotated periodically. Warehouses and pharmacies also are required to maintain emergency stocks for treatment of chemical and biological casualties as well as other essential wartime medicines; they probably have wartime plans to provide medical supplies to relocated hospitals.

there are special civil defense medical reserve supply depots only for wartime use. Outside Odessa there are three groups of wartime reserves capable of supporting 7,500 patients in relocated hospitals. The Odessa stocks reportedly are under the direct control of the civil defense department of the Ministry of Public Health.

Although the Soviets maintain extensive medical stockpiles, we are uncertain as to how long these supplies would last under conditions of nuclear war. Even during peacetime the Soviets experience periodic shortages of medical supplies in certain areas, and stockpiles in other areas are not inspected and rotated. Also, Soviet medicines generally are of a lesser quality than those commonly found in the West. Moreover, certain drugs, available only from Western sources, presumably would be unavailable to the Soviets during wartime.

#### **Underground Medical Facilities**

ties located primarily in urban areas. Most are modestly equipped dispensaries in special basement-type shelters in hospitals and polyclinics. Others have extensive underground facilities. The Odessa Regional Clinical Hospital's facility was constructed in 1967. It reportedly has 25 to 30 small treatment rooms, contains reserve medical supplies and equipment, is connected to the main building by a network of underground passageways, and is hermetically sealed.

underground portions of this hospital also are connected by subterranean passageways (see appendix C).

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## Appendix A

#### Medical Facilities With Emergency Plans

Peacetime Location	Installation	Plan Type	Wartime Location or Distance From City
Alma Ata	Railroad Hospital	Evacuation	Burundy
Baku	Institute of Genetics	Evacuation	An experimental station 4 km from Mir Bashir
Batumi	Merchant Marine School and Hospital	Evacuation	Makharadze
Bendery	City Hospital	Relocation	Unknown
Chernovtsy	Railroad Hospital	Relocation	Unknown
	Children's Hospital	Relocation	Unknown
	Unidentified hospitals	Relocation	Hospitals in Kitsman and Zastavna
Dnestrovsk	City Hospital No. 2	Relocation	Unknown
Dushanbe	Republic Polyclinic	Relocation	Unknown
Frunze	Alamedinskaya Central Hospital	Relocation	Unknown
Gorkiy	Pharmacy No. 84	Relocation	Unknown
Irtyshsk	County Hospital	Relocation	School No. 2
Kharkov	Hospital No. 27	Relocation	Unknown
Kiev	Institute for Advanced Stomatological Training	Evacuation	Borisopol
	City Hospital No. 24	Relocation	Unknown
	25th City Hospital	Relocation	Kalinovskaya
	Military Hospital No. 408	Relocation	Unknown
	Public Health and Epidemiological Center	Evacuation	Unknown
	Two Hospitals in Podolsky Rayon	Evacuation	Unknown
	Children's Hospital	Relocation	150 km
	Medical Institute	Relocation	Borisopol
	City Hospital No. 1	Evacuation	Unknown
	City Hospital No. 2	Relocation	Outside city
	Bacteriological Institute	Pelocation	Near Gorenko
	Institute of Medical Cosmetology	Relocation	In the direction of Zolotonosha
	Scientific Research Institute of Common and Municipal Hygiene	Evacuation	30 to 40 km
	Scientific Research Institute of Microbiology and Viruses imeni Academic Zabolotnogo	Evacuation	Rural site outside Kiev
	Scientific Research Institute for Microbiology, Epidemiology, and Parasitology	Evacuation	Unknown
	Unidentified hospital in Darnitskiy Rayon	Relocation	Unknown
	Two unidentified hospitals in Zhovtnevyy Rayon	Relocation	Unknown
	Three unidentified hospitals in Zhovtne- vyy Rayon	Relocation	Unknown

## Medical Facilities With Emergency Plans (continued)

Peacetime Location	Installation	Plan Type	Wartime Location or Distance From City
	Two hospitals in Zaliznychnyy Rayon	Relocation	Unknown
	Hospital in Leninsky Rayon	Relocation	Unknown
	Two hospitals in Moskovskiy Rayon	Relocation	Unknown
	Three hospitals in Pecharskiy Rayon	Relocation	Unknown
	Two hospitals in Podolskiy Rayon	Relocation	Unknown
	Two hospitals in Radayanskiy Rayon	Relocation	Unknown
	Two hospitals in Shevlenkovskiy Rayon	Relocation	Unknown
Kishinev	Psychiatric Hospital	Evacation	8 to 10 km
	Second City Hospital	Relocation	Unknown
	Railroad Hospital	Relocation	Unknown
Leningrad	Optical-Mechanical Union Hospital	Relocation	To a school in Tarashovo
	First Aid Hospital No. 10	Relocation	School in Olgina
	Children's Hospital No. 21	Relocation	Pskovskoye Ozero
	Dental Clinic No. 26	Relocation	Unknown
	Scientific Research Institute imeni Professor N. N. Petrov	Evacuation	Unknown
	Public Health and Epidemiological Center	Evacuation	Roshchino
	Oblast Hospital	Relocation	Agricultural school
	Contagious Disease Hospital	Relocation	Gatchina
	First Medical Institute	Evacuation	Podprozhye
	Psychoneurological Clinic	Relocation	Vyritsa
	Institute of Respiratory Diseases	Relocation	Krasnaya
	Scientific Research Institute of Vaccines	Relocation	Krasnaya
	Polyclinic No. 3 Smolenskiy Rayon	Relocation	Unknown
	Medical Institute	Evacuation	Sosnovo
	Pavlov Institute of Physiology	Relocation	Unknown
	Chemical and Pharmaceutical Institute	Evacuation	Unknown
Lvov	Medical Institute	Relocation	Unknown
Minsk	Central Microbiology Laboratory for the Frunshenskiy District sanitation and epi- demiological station	Relocation	Buravaya
Moscow	Second Moscow Medical Institute imeni N. I. Pirgov	Relocation	To a small kolkhoz outside Moscow
	Moscow Rescue and Transportation Base	Evacuation	Unknown
`	Moscow Medical Institute No. 1 and Skilofsovskiy Institute	Relocation	Unknown
	67th Moscow City Hospital	Relocation	Unknown
	Consultation Polyclinic	Evacuation	Unknown
	All-Union Oncology Research Center of the Academy of Sciences	Relocation	Unknown
	Central Hospital of the RSFSR Ministry of Health	Relocation	Unknown
	Central Institute of Tuberculosis of the USSR	Evacuation	Unknown
	Polyclinic No. 177	Relocation	Tolstopal'tsevo

### Medical Facilities With Emergency Plans (continued)

Peacetime Location	Installation	Plan Type	Wartime Location or Distance From City
	Moscow Clinical Hospital No. 31	Relocation	Tolstopal'tsevo
	State Institute of Oncology imeni P. A. Gertsen	Relocation	Unknown
	Institute of Bio-Organic Chemistry imeni M. M. Shermyakin	Evacuation	100 km
	Research Institute of Psychology	Evacuation	Unknown
	Institute of Neurology of the Academy of Medical Science	Evacuation	Udmurt ASSR
	City Psychiatric Hospital No. 12	Evacuation	300 km
	Institute of Human Morphology of the Academy of Medical Science	Evacuation	Unknown
	Central Research Institute for Stomatology	Evacuation	Unknown
	Medical Clinic No. 74	Relocation	20 km
	Institute of General Pedagogical Psychology	Relocation	Unknown
	All-Union Scientific Research Institute of Technology and Blood Substitute and Hormone Preparations	Evacuation	Mozhaysk
	Institute of Higher Nervous Activity and Neurophysiology	Evacuation	Dushina
Mozdok	Central Regional Hospital	Relocation	Unknown
Odessa	Pirogov Medical Training Institute	Relocation	Unknown
	City Tuberculosis Hospital	Evacuation	Unknown
	Ilichevskiy Polyclinic	Evacuation	Unknown
	Children's Clinic of the Medical Institute of Odessa	Evacuation	100 km north of Odessa
	First City Hospital	Relocation	Rasdeline
	N. E. Pirosov Medical Institute	Evacuation	40 km
	Oblast Oncological Clinic	Evacuation	Unknown
	Odessa Vitamin Plant	Evacuation	Unknown
)sh	Oblast Hospital	Relocation	Dzhalalk-Abad
Perm	Soviet Rail Union Laboratory	Evacuation	Verashagino
Riga	City/Republic Hospital	Relocation	Vecmuiza
	Unidentified polyclinic	Relocation	Unknown
	Sanitary-epidemiological station	Relocation	Unknown
	Skin and Venereal Disease Dispensary	Relocation	Unknown
	Sixth City Hospital	Evacuation	Unknown
	First City Clinical Hospital for Emergency Treatment	Evacuation	Unknown
	Polyclinic No. 2	Relocation	Unknown
Rostov-na-Donu	Institute of Microbiology, Epidemiology, and Hygiene	Relocation	50 km
Strasitiny	Central District Hospital	Relocation	Unknown
Γallin	Sanitation Department Avtobaza	Relocation	Rapala
Vsevolozhsk	Central District Hospital	Relocation	Unknown

## Appendix B

#### Civil Defense Medical Storage

#### Locations

Location	Installation	Type of Supplies
Belogorsk	Medical section of general depot	Wartime reserves
Birobidzan	Medical section of general depot	Wartime reserves
Butovka-Donetsk	Hospital in coal mine	Wartime reserves
Bendery	Railroad Kindergarten	Medical kits
Chernovtsy	Civil Defense Medical Supply Depot	Wartime reserves
	Electronic Machinery Production Association	Medical kits
Chelyabinsk	Chemical Pharmaceutical Plant	Wartime reserves
Chita	Medical section of general depot	Wartime reserves
Donetsk	Medical mine storage area	Wartime reserves
Dushanbe	Hospital shelter in mountainside	Wartime reserves
	Underground medical storage facility	Wartime reserves
	Republic Polyclinic	Wartime reserves
	Central Depot Warehouse	Wartime reserves
	Medical supplies stored in mountains	Wartime reserves
Frunze	City Hospital No. 7	Wartime reserves
Galerkany	Resort facility	Medical kits
Gomel	Medical depot	Wartime reserves
Gorkiy	Pharmacy No. 84	Wartime reserves
	Unidentified pharmaceutical warehouse	Wartime reserves
Grdzhonikidze	Medical warehouse	Wartime reserves
Irkutsk	Medical section of general depot	Wartime reserves
Irtush	County hospital	Wartime reserves
Karaganda	Two unidentified underground hospitals	Wartime reserves
Kaunas	Medical section of general depot	Wartime reserves
Kekhra	Military civil defense warehouse	Wartime reserves
Khmelnitskiy	Electromechanical plant	Medical kits
Khabarovsk	Medical section of general depot	Wartime reserves
Kiev	City Hospital No. 24	Wartime reserves
	25th District Hospital	Wartime reserves
	Children's Hospital	Wartime reserves
	Stroydormash plant	Wartime reserves
	Bakery plant	Medical kits
	S. P. Korolev Radio Instrument Plant	Medical kits
	Research Institute UKRNIIPLASTMASH	Medical kits
	Design Institute GIPROKHLOR	Medical kits

25X1

Medical kits

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Automotive repair plant

# Civil Defense Medical Storage Locations (continued)

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Location	Installation	Type of Supplies
Kishinev	Experimental factory of the Institute of Practical Physics of the Academy of Sciences of the Moldavian SSR	Medical kits
Klaipeda	Republic Hospital	Wartime reserves
Kohtla-Jarve	City Hospital No. 1	Wartime reserves
Kuchiyeri	Military Civil Defense Unit	Wartime reserves
Kuybyshev	Medical section of general depot	Wartime reserves
Leningrad	First Aid Hospital No. 10	Wartime reserves
	81st Polyclinic ,	Wartime reserves
	Telephone Exchange	Medical kits
	Syasstroi Cellulose and Paper Combine	Medical kits
	Shipbuilding Institute and Admiralty	Medical kits
	Scientific Research and Design Institute for Mechanical Processing and Nonferrous Metals	Medical kits
	Polyclinic No. 31	Wartime reserves
	Civil Defense Hospital storage facility	Wartime reserves
	Volna Sewing Enterprise Branch	Wartime reserves
	Special Planning, Designs, and Technology Bureau for Electrotreatment	Medical kits
	Bureustnik Production Association	Medical kits
	Scientific Research Institute imeni Professor N. N. Petrov	Medical kits
	Planning Bureau for Computers	Medical kits
	Krasnoye Selo medical warehouse	Wartime reserves
	Experimental turbine construction plant	Medical kits
	Central Scientific Institute of the Merchant Marine	Medical kits
	Institute of Water Transportation	Medical kits
	13th Stomatological Clinic	Wartime reserves
	Production Association Azimut	Medical kits
	First Medical Institute	Wartime reserves
	Military Medical Academy imeni S. M. Kirov	Wartime reserves
	All-Union Design and Technology Bureau	Medical kits
eningrad	Baltic Shipyard imeni S. Ordzhonikidze	Medical kits
	State Institute of Applied Chemistry	Medical kits
	Central Civil Defense Railroad Storage Area	Wartime reserves
	Equipment Assembly Plant imeni Molotova	Medical kits
	Medical section of general depot	Wartime reserves
vov	Main plant of the "Elektron" Production Association	Medical kits
	Pharmacy near City Clinical Hospital No. 1	Wartime reserves
linsk	Central microbiology laboratory of the Frushenskiy District sanitary and epidemiological station	Wartime reserves
	Polyclinic of the First City Clinical Hospital	Wartime reserves
Moscow	First City Hospital	Wartime reserves
	67th City Hospital	Wartime reserves
	National Economic Achievements Subway Station	Medical kits

### Civil Defense Medical Storage Locations (continued)

25X1

Location	Installation	Type of Supplies
	State Union Scientific Research Tractor Institute	Medical kits
	Institute of Steel and Alloys	Medical kits
	Regional Construction Directorate No. 12	Medical kits
	Residential shelter at House No. 17 at Yermolovy	Wartime reserves
	All-Union Oncology Research Center of the Academy of Sciences	Medical kits
	Fourth City Clinical Hospital	Wartime reserves
	KGB-Central Committee civil defense shelter and escape tunnel	Medical kits
	Medical section of general depot	Wartime reserves
	Pharmaceuticals Research Institute	Wartime reserves
Murmansk	Murmansk Medical Warehouse	Wartime reserves
Nemenchine	Civil defense medical storage facility	Wartime reserves
Nakhodka	House of Culture of the Merchant Marine School	Medical kits
Novosibirsk	Medical section of general depot	Wartime reserves
Odessa	City Hospital No. 1	Wartime reserves
	Regional Clinical Hospital	Wartime reserves
	Cinema equipment plant Kinap	Medical kits
	Electrotechnical Institute of Communications	Medical kits
	Two underground hospitals near Ovidipol	Wartime reserves
	Blood storage and transfer facility	Wartime reserves
	Medical storage area at Rosa Luxembourg and Krasnyii Perelok	Wartime reserves
	Medical storage area at Kirova and Karla Marxa	Wartime reserves
	Medical storage area at Mira Prospect and Checherina	Wartime reserves
	Medical storage area at Polevaya and Yubileinaya Salkez	Wartime reserves
	Jute factory	Medical kits
	City Hospital No. 1	Wartime reserves
	Tool Research Department of the Odessa Planning and Design Technical Institute	Medical kits
	Special Design and Technology Bureau for Compression and Refrigeration Machine Building (SKTBKKM)	Medical kits
	Hospital No. 6	Wartime reserves
	Central Clinical Hospital	Wartime reserves
	Krasnozhamenka civil defense training site	Wartime reserves
	Institute for Food Processing	Medical kits
	Military Hospital No. 411	Wartime reserves
Omsk	Medical section of general depot	Wartime reserves
Okhta	Scientific Production Association Plasto Polimer	Medical kits
Paide	Underground medical storage facility	Wartime reserves
	Auto Base No. 10	Medical kits
	Pharmaceutical manufacturing plant	Wartime reserves
Pereyaslav-Khmelnitskiy	VIP rest home	Wartime reserves
Perm	Soviet Rail Union Laboratory	Wartime reserves
Rakvere	Estonia Union for Drainage and Swamp Reclamation	Medical kits

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## Civil Defense Medical Storage

Locations (continued)

Location	Installation	Type of Supplies
Riga	Polytechnic Institute	Medical kits
	Central Statistical Administration	Medical kits
Sigulda	Medical storage facility	Wartime reserves
Slobodsky	Medical warehouse	Wartime reserves
Stantsiya-Orasheny	Medical reserves depot	Wartime reserves
Sverdlovsk	Medical section of general depot	Wartime reserves
Tamsulu	Grain storage depot	Medical kits
Tashkent	Medical section of general depot	Wartime reserves
Tbilisi	Civil defense medical storage located at the 367th Military Hospital	Wartime reserves
Tiraspol	Electromash plant	Medical kits
Tokmak	Construction Enterprise No. 3	Medical kits
Ulanade	Medical section of general depot	Wartime reserves
Ussuriysk	Medical section of general depot	Wartime reserves
Vladivostok	Medical section of general depot	Wartime reserves
Vsavolozhsk	Central district hospital	Wartime reserves
Vostochnyy	Medical section of general depot	Wartime reserves
Yoegeva	Medical storage facility	Wartime reserves

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Appendix C

**Underground Medical Facilities** 

25X1

Alma Ata

Unidentified hospital under construction

**Beltsy** 

First Republic Hospital (Moldavia)

Butovka-Donetsk

Hospital in coal mine

Donetsk

Medical facilities of rayon leadership

Dushanbe

Hospital shelter in mountainside Underground medical storage facility

Frunze

City Hospital No. 7

Irtyshsk

County Hospital

Karaganda

Two unidentified underground hospitals

Kiev

25th District Medical Hospital

Krasnovodsk

Underground hospital

Krasnoyarsk

Medical Preparations Plant

Leningrad

Polyclinic No. 31

Volna Sewing Enterprise Branch Clinic

Children's Hospital No. 21 13th Stomatological Polyclinic

First Medical Institute

Scientific Research Institute of Vaccines and Serums

Unidentified military hospital

Minsk

Central microbiology laboratory of the Frusheniskiy District sanitary and

epidemiological station

Unidentified hospital complex

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Moscow 57th City Hospital

Institute of Poliomyelitis and Viral Encephalitis

First City Hospital

Unidentified hospital near Finland Metro Station

Central Blood Bank Burdenko Hospital 67th City Hospital

Residential shelter with dispensary at House No. 17, Yermolovy

Central Hospital of the RSFSR Ministry of Health

Fourth City Clinical Hospital

Nemenchine Unidentified hospital on northeast side of city

Odessa Central Clinical Hospital

Regional Clinical Hospital

Hospital at W. Bogdana and Khmelnitskovo Underground dispensary in Govtenyy Rayon Two underground hospitals near Ovidipol Underground patient transfer point

First City Hospital

Paide Underground medical storage facility

Riga Unidentified hospital with underground medical facilities at Artilerijas

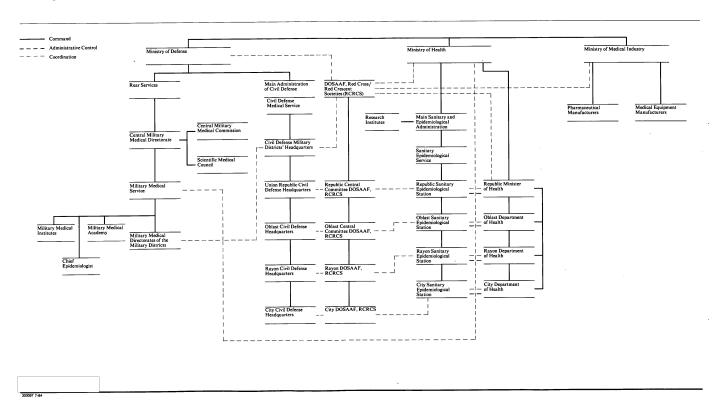
Iela and Krasotain Iela

Saratov All-Union Scientific Research Antiplague Institute (MIKROB)

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Figure 4
USSR: Organization of Medical Resources for Civil Defense



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