



FMSO SPECIAL STUDY



No. 98-23

SEP 98

Viral Hepatitis and the Russian War in Chechnya

**by LTC (Ret.) Lester W. Grau
and William A. Jorgensen, DO, MC, USAR**

**Foreign Military Studies Office (FMSO)
CENTER FOR ARMY LESSONS LEARNED (CALL)
FORT LEAVENWORTH, KS 66027-1327**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE SEP 1998		2. REPORT TYPE		3. DATES COVERED -	
4. TITLE AND SUBTITLE Viral Hepatitis and the Russian War in Chechnya				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Foreign Military Studies Office (FMSO),Center for Army Lessons Learned (CALL),Fort Leavenworth,KS,66027-1327				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT see report					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 10	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



Viral Hepatitis and the Russian War in Chechnya

**by LTC (Ret.) Lester W. Grau
and William A. Jorgensen, DO, MC, USAR**

CENTER FOR ARMY LESSONS LEARNED

Director

Colonel Michael A. Hiemstra

Managing Editors

Mr. Gerard Gato, FMSO and

Dr. Lon Seglie, CALL

Editor plus

Layout and Design

Jenny Solon

FOREIGN MILITARY STUDIES OFFICE

Director

Dr. Graham Turbiville

DISCLAIMERS

The views expressed are those of the author and do not necessarily represent the official policy or position of the Department of the Army, Department of Defense, or the U.S. government.

The Secretary of the Army has determined that the publication of this periodical is necessary in the transaction of the public business as required by law of the Department. Use of funds for printing this publication has been approved by Commander, U. S. Army Training and Doctrine Command, 1985, IAW AR 25-30.

Unless otherwise stated, whenever the masculine or feminine gender is used, both are intended.

Please forward comments or questions to:

**DIRECTOR
ATTN: ATZL-SAS (GRAU)
FOREIGN MILITARY STUDIES OFFICE
604 LOWE DRIVE
FORT LEAVENWORTH, KS 66027-2322**

**COM: (913) 684-5954
DSN: 552-5954
FAX: (913) 684-4701 DSN: 552-4701
E-MAIL: graul@leav-emh1.army.mil**

BIOGRAPHICAL SKETCH

Lester W. Grau is an analyst for the Foreign Military Studies Office at Ft. Leavenworth, KS. His primary areas of research and study have been Russian/Soviet operations and tactics. He has devoted considerable attention to the problems of future war, the tactical and operational history of the Soviet-Afghan War, and contemporary peace enforcement operations. Grau received a bachelor's degree in political science from the University of Texas at El Paso and a master's degree in international relations from Kent State University. He is a graduate of the U.S. Army Defense Language Institute (Russian) and the U.S. Army Institute for Advanced Russian and Eastern European Studies. He retired from the U.S. Army in 1992 at the grade of Lieutenant Colonel. His military education included completion of the Infantry Officers Basic and Advanced Courses, the U.S. Army Command and General Staff College, and the U.S. Air Force War College.

MAJ William A. Jorgensen, U.S. Army Reserve, is assistant professor of Clinical Medicine, State University of New York College of Health Sciences, Syracuse, NY. He received a BS from Saint Bonaventure University and a D.O. from the University of Health Sciences College of Osteopathic Medicine. After completing his family practice residency at Womack Army Hospital, Ft. Bragg, NC, he served as the Primary Care and Community Medicine department chief at Munson Army Community Hospital, Ft. Leavenworth, KS.



The Foreign Military Studies Office (FMSO) is a research organization of the Center for Army Lessons Learned (CALL), located at the Combined Arms Center, Fort Leavenworth, Kansas. As a part of CALL, FMSO's basic mission of mid-term research and analysis has been strengthened by the development of a "crisis surge" capability. This capability draws on FMSO's in-house resources, external specialist networks, and CALL information management technologies to meet quickly developing analytical requirements. In this way, FMSO produces timely and authoritative security assessments tailored for specific warfighter needs.

The U.S. Army Training and Doctrine Command (TRADOC) established the Soviet Army Studies Office (SASO) in 1986 to provide open-source research about the Soviet military to assist doctrine and curricula development for TRADOC. With the end of the Cold War, SASO became FMSO and began supporting a wider audience--broadening its horizons beyond Eurasia and reorienting its resources toward regional military and security issues around the globe.

Today, FMSO Foreign Area Officers and civilian area specialists assess a variety of international military and security concerns that have the potential to affect U.S. interests. These include the warfighting and peacetime activities of foreign militaries, emerging foreign politico-military issues, multi-national combined operations with respect to interoperability and compatibility, and the Army's military-to-military contact program. FMSO personnel travel abroad extensively in support of military-to-military contact programs and research projects. In addition, FMSO analysts actively participate as adjunct instructors at the U.S. Army's Command and General Staff College and the School of Advanced Military Studies.

Published products include studies and articles by FMSO's full-time analysts stationed at Fort Leavenworth, its cadre of reservists with foreign-country expertise, members of the international military community, and academic specialists who wish to contribute articles and studies on the warfighting experience, doctrine, or security concerns of their respective regions. FMSO's Blue Cover publications are supplemented with articles in numerous professional journals, including two FMSO-sponsored journals, ***Low Intensity Conflict***, and ***Law Enforcement and European Security***, which are published internationally.

These publications provide U.S. Army commanders, policymakers, planners, and the general military community with a specialized body of professional knowledge. FMSO is committed to the future of open-source and international military academic research in support of Army leadership.

Viral Hepatitis and the Russian War in Chechnya

by LTC (Ret) Lester W. Grau and William A. Jorgensen, DO MC USAR

The ill-equipped and ill-prepared Russian Army that staggered into and out of the war in Chechnya experienced several critical health problems. The all-too-familiar Russian problem of lack of field sanitation was again apparent as 95% of the infectious disease among the Russian combatants was passed through fecal-oral transmission.¹ A modest 3.7% of infectious disease was passed through airborne transmission and the other 1.3% were other modes of infection. Over half of the intestinally-related infections (53.2%) were from viral hepatitis while 27.7% were from shigellosis and 20.1% were from enterocolitis.² Outbreaks of diphtheria, cholera, malignant anthrax, and plague also threatened the health of the Russian soldiers.³ There were approximately 400 diagnosed cases of cholera in Chechnya in 1994.⁴ Acute viral hepatitis and cholera were the two major diseases that Russian medical personnel had to contend with. Both are endemic to squalid living conditions and confined living space found in ill-regulated field camps and deployment areas.

Initially, Russian laboratory personnel deployed to Chechnya lacked the diagnostic tools needed to differentiate among hepatitis A, B, C, D and E--a necessary distinction so that proper preventive measures could be taken within the deployed forces. The Russian military introduced an Israeli diagnostic system from the "Organics" firm and a Russian diagnostic system from Nizhny Novgorod which allowed these laboratory personnel to develop a methodology for identifying the various types of hepatitis.⁵ The results of their findings are shown on the following table:

Disease	Chechnya	Northwest region (Leningrad military district and Baltic Fleet)	Southern region (Black Sea Fleet)
Hepatitis A	86.1%	64.9%	63.9%
Hepatitis B	4.3%	14.9%	8.2%
Hepatitis C	0.5%	2.0%	1.6%
Hepatitis E	0%	0.9%	0%
Combined hepatitis infections	1.0%	13.7%	16.5%
Nondifferentiated hepatitis (nonA, nonB, nonC, nonD, nonE)	8.1%	3.6%	9.8%

Table 1: Percentage of types of hepatitis in the Russian Armed Forces by region.⁶

Viral Hepatitis and the Russian War in Chechnya

During the war, Russian soldiers frequently lacked clean drinking water, clean clothing, hot rations, and bathing facilities. Personnel experienced problems with lice, skin diseases, and a rapidly growing population of rats. Hepatitis A normally results from drinking contaminated water or from inadequate waste disposal which contributes to the fecal-oral mode of transmission. This lack of field sanitation among Russian forces in Chechnya stands out when compared with the military hepatitis percentages found in the northwest region (the Leningrad Military District and Baltic Fleet-the area around St. Petersburg) and the southern region (the Black Sea Fleet in Crimea). While the rate of troops sick with acute hepatitis A is lower for the war in Chechnya than the war in Afghanistan (95%),⁷ it is still much higher than those areas where the troops can stay cleaner and have access to clean drinking water.

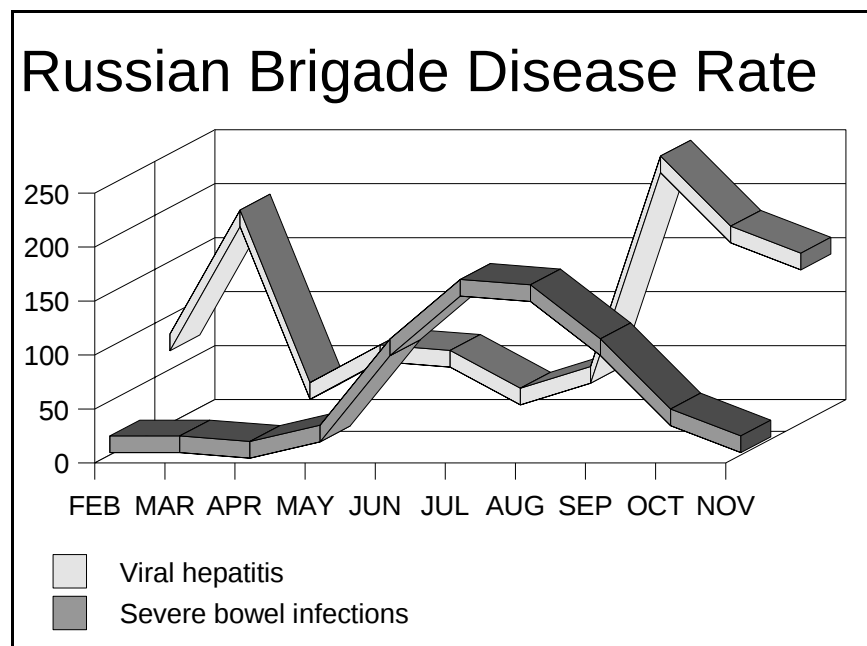


Figure 1: Disease rate in Chechnya in 1995

Although complete casualty and disease records for the war in Chechnya have not been released, the records maintained by the medical company of a separate brigade headquartered in Khankala⁸ (in the eastern suburbs of the capital city of Grozny) show the cyclical nature of hepatitis and intestinal infections such as shigellosis and enterocolitis. The results are shown in figure 1. The summer increase in acute intestinal infections preceded the fall spike in hepatitis by two to three months and was a precursor to the hepatitis infection.⁹ The peak of 240 hepatitis cases in October in this one brigade is remarkable. The confined living conditions of the cold weather months undoubtedly aided in the spread of hepatitis. The Russian Ministry of Defense struggled to maintain

Foreign Military Studies Office

field units in Chechnya at 60% strength, and Russian brigades were lucky to muster 1,500 personnel. The loss of over 200 personnel to disease would practically render a brigade combat ineffective. Apparently there were several times during 1995 when the Khankala brigade was not combat effective due to disease alone.

When hepatitis strikes a unit, it can be evenly spread across the unit, but more likely it will concentrate in pockets within that unit. Thus, the brigade might lose its fire direction center, its maintenance section, a key maneuver element or its headquarters to the disease. The effect of such disease pockets is far more crippling to a unit since it is harder to cover the loss of a critical section rather than the loss of personnel spread evenly across several sections. The Russian Army in Chechnya, faced with chronically undermanned units, shortages in clothing, rations and equipment, a determined enemy fighting on its own territory, severe battle losses,¹⁰ and an increasingly unpopular war could little afford to lose more personnel to preventable disease.

Russian medical analysts tried to determine the causes and solutions to the scourge of hepatitis. They examined the records of hepatitis patients in the above brigade as well as the military hospital at Vladikavkaz. Their analysis showed that hepatitis is a fairly democratic disease. It struck officers and conscripts roughly in proportion to their population in the force. It showed no preference for personnel from any particular geographic region or those from the city or countryside. It further showed no preference for soldiers living in tents or in dugouts or those who ate out of a common kettle or from individual plates. For 90.2% of the patients, this was their first bout with hepatitis. Of the patients, 97.7% contracted acute hepatitis in Chechnya, while the remaining 2.3% contracted it prior to arrival in Chechnya.¹¹

The main culprit in the transmission of hepatitis was the water. The local water supply was disrupted and repaired several times and although water was sporadically pumped through the pipes, it was not necessarily clean. Medical company water testing in the above-mentioned brigade revealed an increase in the average e coli count during the summer and fall. In June it stood at 18 parts per 1,000, whereas it had increased to 55.8 parts per 1,000 in September. Immuno-enzymatic testing of the brigade's water supply showed viral contamination of 43.8% of the water trucks, trailers, and Lister bags. Antigens for hepatitis A were present in 50% of the contaminated samples and rotavirus were in 37.5% of the contaminated samples. The brigade chlorinated its water irregularly and not always well. Surveys showed that 86.5% of the patients never cleaned their canteens and 56% of the patients never used their canteens. About 25% of the patients did not use the issue halazone tablets to purify their drinking water because they objected to the taste. About 6% of the patients used some sort of filter for their water. Of the patients, 59.6% drank tap water, 40.4% drank boiled water or tea. Surveys showed that patients had drunk untreated water rarely and only under extreme circumstances. Some 26.9% of the patients (primarily officers) had refused to use tap water the entire time that they were in Chechnya. Yet 96.2% of the patients had used tap water for washing and brushing their teeth (the other 3.8% had not bathed in Chechnya because of the lack of opportunity). Contaminated tap water was a main culprit. Patients who had been careful to drink only boiled water were infected by dishes and serving utensils which had been washed in contaminated tap water. Bacilli from the human intestinal tract were present in 60-80% of the wash water tested. A disturbing 3.9% of the patients worked in food handling or water distribution.¹²

Viral Hepatitis and the Russian War in Chechnya

Russian Army medical personnel have drawn some lessons from their duel with hepatitis in Chechnya. They are:

1. Deployed personnel must be screened early to detect any onset of disease. Suspect personnel must be tested using the “Organics” system which works well in the field.
2. Personnel testing positive for hepatitis A, B and C (which can be determined in three and a half hours) need to be sent to the military hospital for four or five days observation in an isolation ward.
3. Laboratory testing needs to focus on the detection of specific antigens for the various types of hepatitis rather than just e coli (which predominantly indicates the presence of hepatitis A).
4. Bacilli from the human intestinal tract are easy to detect in a standard water sample, but enteroviri are present in water in much lower concentrations (a thousand times or more lower), so the water sample needs to be concentrated and that concentrate then needs to be analyzed by modern sensitive methods since smaller concentrations of enteroviri may result in infection.¹³

Based on the Russian example, the U.S. Army needs to continue its vigilance in protecting the water supply of its soldiers and taking preventive measures to combat disease. Food handling procedures and water purification and distribution procedures need to be understood and implemented in garrison long before deployment. When the unit is alerted for deployment, these procedures need to be reviewed and the practices reinforced. When a unit is deployed into a combat zone, food handling and water purification standards must be rigidly enforced. Leaders at every level must ensure that field sanitation is always practiced and the fighting strength of the force is preserved. Junior NCOs are particularly crucial in enforcing sanitation standards. No commander can afford to lose fifteen percent of his force to a preventable disease.¹⁴★

This article was first published in the January 1997 edition of *Red Thrust Star*.

ENDNOTES

1. For an earlier look at the impact of poor field sanitation on Russian forces, see Lester W. Grau and William A. Jorgensen, **“Medical Support in a Counter-Guerrilla War: Epidemiologic Lessons Learned in the Soviet-Afghan War,”** *U.S. Army Medical Department Journal*, May/June 1995, 41-49.

2. P. I. Ogarkov, V. V. Malyshev, S.A. Tsutsiev and N. V. Mikhaylov, **“Epidemilologicheskaya kharakteristika i laboratornaya diagnostika virusnykh gepatitov v federal’nykh voyskakh na territorii chechenskoy respubliki”** (Epidemiologic characteristics and laboratory diagnosis of viral hepatitis among federal forces deployed in the Chechen Republic), *Voенно-медицинский журнал’ (Military-medical journal)*, August 1996, 48.

3. Petr Altunin and Ivan Ivanyuk, **“Meditsina na perednem krae”** (Medicine at the forward edge) (an interview with Colonel General Ivan Chizh, Chief of Military Medicine for the Russian Minister of Defense), *Krasnaya zvezda (Red Star)*, 14 June 1995, page 2.

4. Nikolay Gritchin, **“Vzryv epidemiy v Chechne mozhet udarit’ po vsej Rossii”** (The epidemic explosion in Chechnya may strike all of Russia), *Izvestia (News)*, 22 February 1995, page 1.

5. Ogarkov, et al, 48.

6. Ibid., 51.

7. Grau and Jorgensen, 43.

8. Probably the 205th Separate Motorized Rifle Brigade.

9. Ogarkov, et al, 50.

10. For a discussion of dead and wounded in Chechnya, see Lester W. Grau and William A. Jorgensen, **“Handling the Wounded in a Counter-guerrilla War: The Soviet/Russian Experience in Afghanistan and Chechnya,”** *U.S. Army Medical Department Journal*, March-April 1997.

11. Ogarkov, et al, 52-53.

12. Ibid., 52.

13. Ibid., 53-54.

14. The authors thank Mr. Robert Love for his excellent translation assistance with Russian medical terms and concepts and Mr. Tim Thomas for his commentary on the article. Both men work for the Foreign Military Studies Office at Fort Leavenworth.

CALL/FMSO PRODUCTS “On-Line”

Thanks to the explosion in the Internet technologies, many soldiers are using Internet providers or on-line services, such as CompuServe or America OnLine. For those of you that have not yet attempted to contact CALL, there are two ways to access information from CALL/FMSO on-line: E-mail and the World Wide Web (www). CALL has transitioned to a Web-based access to the CALL data base (DB) (CALLDB) as of 1 August 1996. The CALL and FMSO Home Page addresses are:

<http://call.army.mil>
<http://leav-www.army.mil/fmso/fmso.htm>

Along with FMSO Studies, CALL also offers the following products:

☛ **CTC Bulletins, CTC Observations and Trends Products:** These products are periodic publications that provide current lessons/TTP and information from the training centers (see Combat Training Center (CTC) Branch Section).

☛ **Special Editions:** Special Editions are newsletters related to a specific operation or exercise. Special Editions are normally available prior to a deployment and targeted for only those units deploying to a particular theater or preparing to deploy to the theater.

☛ **News From The Front! Bulletin:** This bulletin is a bi-monthly product that contains information and lessons on exercises, real-world events, and subjects that inform and educate soldiers and leaders. It provides an opportunity for units and soldiers to learn from each other by sharing information and lessons with the Total Force.

☛ **Training Techniques:** Accessed from the CALL Homepage. The Army's first on-line publication. It is focused at TTP for brigade and below.

☛ **Handbooks:** Handbooks are “how to” manuals on specific subjects (i.e., rehearsals, inactivation).

☛ **Initial Impressions Products:** A product developed during and immediately after a real-world operation (Bosnia) and disseminated in the shortest time possible for follow-on units for use in educating personnel and to support training prior to deployment to a theater. Training products (i.e., vignettes) may also be produced to support the follow-on unit to focus training activities.

Many customers are sending in their requests for information to CALL by E-mail, which is the simplest way to communicate with CALL. By sending an E-mail note to the CALL mailbox (please include your street address), you can register for future electronic publications, make requests for information or publications, or send in your own observations, tactics, techniques and procedures and articles. CALL's and FMSO's current E-mail addresses are:

call@leav-emh1.army.mil
fmso@leav-emh1.army.mil

Support CALL in the exchange of information by telling us about your successes so they may be shared and become Army successes!