

FIRST INTERNET CENTRE OF DISTANCE EDUCATION ON ANTIMICROBIAL THERAPY IN RUSSIA AND FORMER USSR



ANTIBIOTIC.ru

Irina V. Andreeva, MD, PhD
Assistant Professor
Department of Clinical Pharmacology
Smolensk State Medical Academy
214019, Russian Federation, Smolensk,
28 Krupskaya Street, P.O. Box 5
Phones: +7-0812-611301 or +7-0812-611327
Fax: +7-0812-611294
E-mail: site_editor@antibiotic.ru
www.antibiotic.ru

I. Andreeva

V. Rafalski

O. Stetsiouk

B. Makushkin

A. Andreev

L. Stratchounski

Institute of Antimicrobial Chemotherapy, Smolensk, Russian Federation

Background

World experience shows that traditional forms of post-graduate education do not completely meet needs of professional development of physicians. It is especially evident in low income countries with large territories. *E-Learning* (so-called distance education (DE) using Global Information Network) is of a priority setting and perspective form of improving physicians' professional level.

Objective

To summarize experience in development of first distance education Internet program on antimicrobial therapy (AT) in low income countries (Russia and former USSR) with support of international organizations and societies.

Materials and Methods

First Internet centre of DE in Russia and CIS was founded under the auspices of the Institute of Antimicrobial Chemotherapy (IAC), the Department of Clinical Pharmacology of the Smolensk State Medical Academy with support of the United States Pharmacopeia (USP) and the United States Agency for International Development (USAID) on the basis of the web-site for medical professionals «Antibiotics and Antimicrobial Therapy» <http://www.antibiotic.ru>, recognized as conforming to the principles of the HON Code foundation in 2003.



Linux and Solaris operating systems are used for organisation of domain's hosting www.antibiotic.ru; RDBMS PostgreSQL and MySQL are applied for management of the web-site's content.

Java was used as a basis for creating the system. J2SDK 1.3.x and 1.4.x from Sun Microsystems Inc. served as a software basis on working stations, powered by the Intel x86 class processors. After building and adjusting the system, it was moved to the Sun Netra T1 target platform with the Sun SPARC processor, connected to the Internet. In both cases Jboss 3.x served as a EJB server, with Tomcat 4.x as a servlet controller. As a DBMS either hsqldb or PostgreSQL is used, and as to the target platform SAP DB is used. The out-of-box DE system supports Russian and English language interface.

Results

The program of DE starts with the preliminary testing on-line and consists of 20 questions randomly selected from database of 143 questions on antimicrobials, clinical microbiology, AT and ect. This testing allows to determine the basic level and detect the most crucial gaps in knowledge of AT in Russian health care professionals. The average percent of right answers on preliminary tests passed by 311 physicians was 61.9%. Less than 2% of doctors gave more than 80% right answers.

The body of the DE program consists of 29 specially developed topics divided into 3 levels («Basics of clinical microbiology», «Antimicrobials» and «Choice of antimicrobials and clinical cases»).

Every topic is composed of the detailed study plan, educational materials

(slide lection with comments, practical guidelines), control questions, tests and clinical cases.

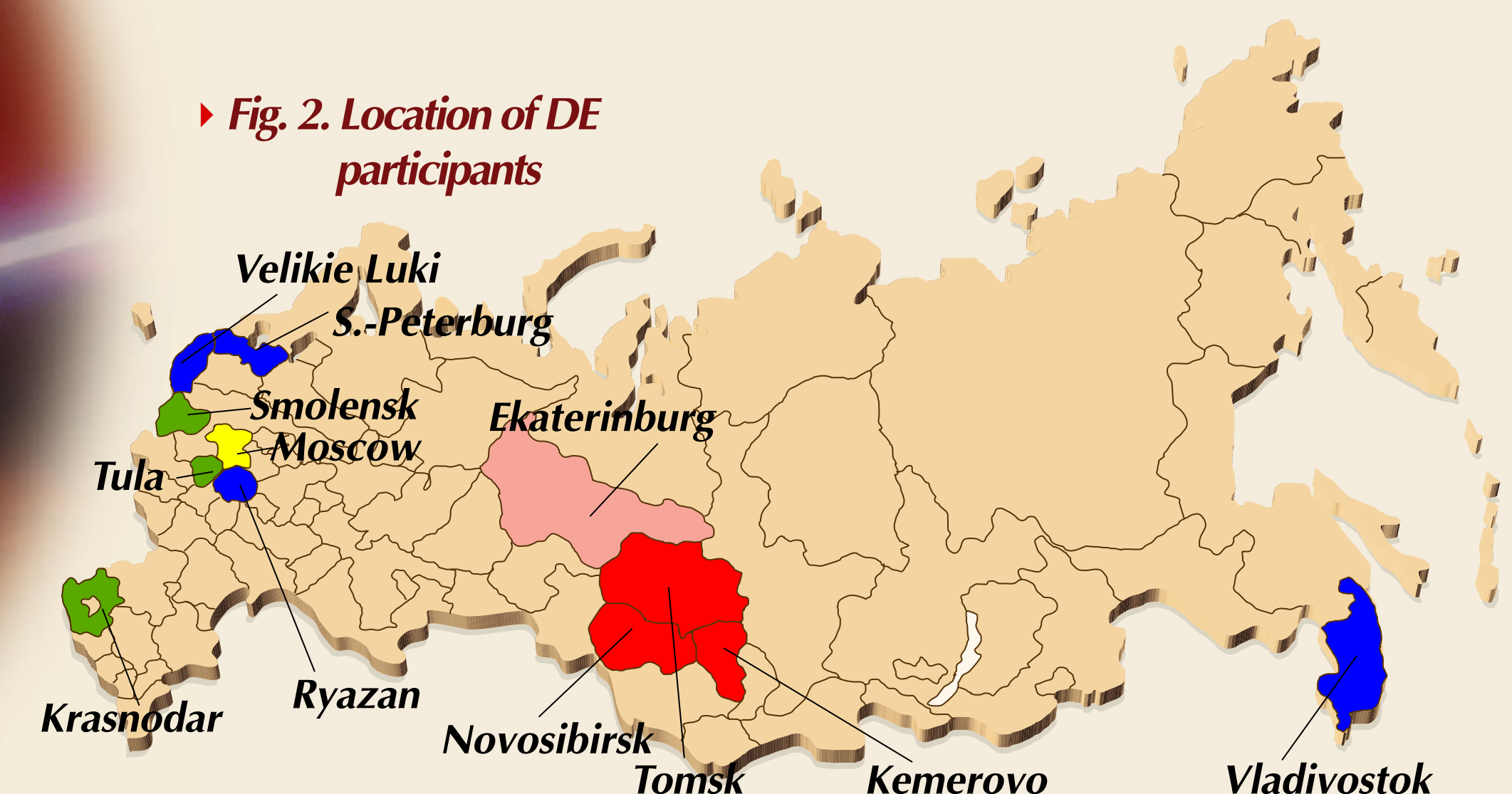
In addition to the specially prepared topics DE ground base utilizes 4 full-text practical guides, 14 issues of the journal «Clinical Microbiology and Antimicrobial Chemotherapy», 31 practical guidelines and informational letters, 25 articles and presentations from Russian and international conferences from the www.antibiotic.ru library.



After completion of each topic, «students» are offered control tests so that tutors can assess the level of knowledge. Upon completion of each level an intermediate examination is conducted (on-line tests and practical tasks). In total 196 clinical cases and 710 test questions to be answered on-line, were designed. After successfully passing the final examination healthcare professionals are awarded official certificates (fig. 1) confirming the improvement of knowledge in the field of AT. Since the implementation of the project, 71 doctors from 12 Russian regions have been trained using DE technology (fig. 2).

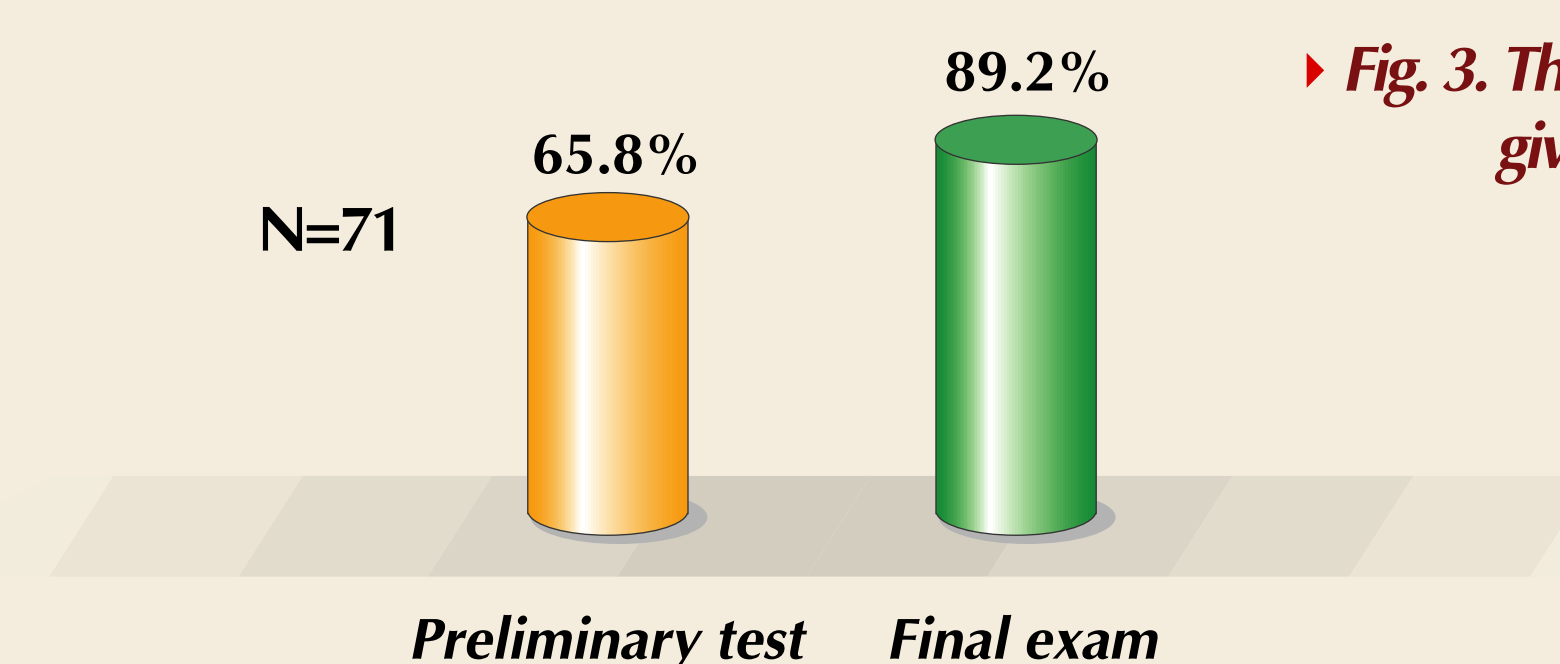
► Fig. 1. Official certificate

► Fig. 2. Location of DE participants



Analysis of the DE results revealed the obvious increase in the number of the correct answers given by «students» during their preliminary test, level tests (A, B, C) and the final exam, confirming the effectiveness of the DE (fig. 3).

► Fig. 3. The percent of correct answers given by «students»



Conclusion

1. DE using mainly advanced informational technologies (e.g. Internet) is demanded form of improving medical knowledge of health care professionals.
2. Realization of such programs in low income countries is possible with the support of international organizations and societies.
3. *E-Learning* program is effective form of increasing the level of physicians' knowledge in AT.

PS: Students' opinion about DE course:

«...I would like to appreciate the course that is so well and clearly organized! I didn't expect and was really surprised by the quality and scope of the information and how quickly a student can get the answer to his question from his tutor...»

«On the whole, the course produces a very favorable impression. Feel really nervous before the final examination...»