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LIFE SCIENCES

BIOMEDICAL AND BEHAVIORAL SCIENCES

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JPRS-UBB-86-014

31 JULY 1986

USSR REPORT

LIFE SCIENCES

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/12947

BRIEFS

IONIZING IRRADIATION OF FOOD--Extensive research on the effect of ionizing irradiation on the yield of sugar beets is being conducted at the Latvian SSR Institute of Biology. At the Salaspilssk atom reactor, specialists have been gamma-irradiating samples of sugar beet seeds under the supervision of Candidate of Biological Sciences A. Miller, and then the seeds were given to various experimental centers of the country's agriculture. These seeds, after exposure to such treatment, produce beet crops that are 18 quintals higher than regular seeds, and the sugar content of the root crops increases by 0.2 percent on the average. That is, an additional 400 kg of sugar may be produced per hectare under our climatic conditions. And, the expenditures for gamma-ray treatment of seeds are comparatively low. Ionizing irradiation may also be used to sterilize canned goods and to store fresh vegetables for a prolonged time. At present, stable methods of storing meat products have been developed. Also, the results have been positive for irradiation of fresh berries and fruits. Biologists are conducting their own research at the Pursk Experimental Station of Horticulture and at the Buldursk Sovkhoz Tekhnikum. The biologists have demonstrated that shelf life may be increased for strawberries, as an example, by 15 days. With gamma-irradiation of potatoes their sprouting can be delayed, even at a raised temperature. [By B. Liyelmezha] [Text] [Riga SOVETSKAYA LATVIYA in Russian 25 Feb 86 p 2] 12525/12947

CSO: 1840/1145

BRIEFS

BARLEY CELL SELECTION METHOD--At first, this barley variety cannot be distinguished by appearance from other spring barleys. Perhaps, the seeds are somewhat larger and the stalk somewhat stronger. Nevertheless, the "Istok" [source] variety is unusual: it has been developed by a cell selection method. Its developer, Candidate of Agricultural Sciences V. D. Navolotskiy, an associate of the All-Union Genetic Selection Institute, led me to roomy boxes in which sterile chambers had been set up. "Here, tiny embryos of cultured barley, crossed with wild barley, known as bulbous barley, were sown on artificial mediums," related the scientist. "They were fed until they sprouted. The chromosomes of the wild barley started to die off in this very important period. The little plant had to be treated with special preparations to restore the requisite set [of chromosomes]. Then, these little plants were transplanted into test tubes containing a nutrient solution. And, only after the plants became stronger were they placed into little pots with soil. The barley plants started a new life--in a greenhouse of a controlled climate station. The grown seeds were sown on plots, and parent pairs were selected for a future variety. Thus, gradually our first one,"Istok", earmarked for humid climate zones, was grown. Its qualities were confirmed at the variety testing stations. This variety is resistant to many diseases, does not fall down, and yields more than 50 quintals of grain per hectare." According to the scientists of the Institute, the cell selection method offers extensive potentialities to plant breeders. Four years were required to develop "Istok"--this represents only one third the time that is required for regular selection work with new varieties. [By Aleksey Belous, Odessa] [Text] [Moscow NEDELYA in Russian No 33, 13-19 Jan 86 p 10] 12525/12947

CSO: 1840/1142

UDC 631.48

CHANGE OF BIOLOGICAL ACTIVITY OF SOILS UNDER EFFECT OF DEFOLIATION COTTON PLANTS IN GISSAR VALLEY OF TAJIK SSR

Dushanbe IZVESTIYA AKADEMII NAUK TADZHIKSKOY SSR: OTDELENIYE BIOLOGICHESKIKH NAUK in Russian No 4, Oct-Dec 85 (manuscript received 6 Mar 85) pp 55-58

[Article by M. R. Khasanova, E. Kh. Khaydarov and S. M. Mirdzhalilova, Tajik Agricultural Institute]

[Abstract] A study of the effect of defoliants on the microflora of light sierozem soils under field conditions involved counts of microorganisms throughout the vegetation period, compilation of species characteristics of isolated cultures and determination of changes in the number of microorganisms on sectors upon which defoliants were used and on defoliant-free sectors. Predominance of bacteria in the soils was attributed to their high biological activity and powerful enzymic apparatus. The bacteria count varied greatly according to the habitat conditions, amount of organic food available, temperature and humidity. Bacteria growth increased in the spring because of availability of warmth, moisture and food and decreased in summer and autumn with the increase of temperatures and decline of food supply (spring--2.75 million colonies, summer--2.45 million colonies and autumn--1.84 million colonies). Bacteria count was reduced in the first batch of samples of soil upon which defoliants were used; bacteriological activity was not decreased in the second batch of soil samples and was stimulated in the samples taken in autumn. The Actinomyces count increased in samples upon which defoliants were used. High Actinomyces activity during low humidity and low temperature suppresses bacteria growth but Actinomyces growth is slight under conditions favorable for increased bacteria growth. High summer temperatures and decrease of bacteria count is accompanied by high Actinomyces activity. Climatic factors had a significant effect upon the development and species composition of fungi. Development and species composition are much lower in soil variants with use of defoliants (15,000 colonies) than in those without defoliants (50,000 colonies). Bacteria, Actinomyces and fungi species found in soil samples with and without defoliants are listed and discussed briefly. References 6 (Russian).

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CSO: 1840/2038

UDC 663.14:575.061.133

DIFFERENTIAL EFFECTS OF 2,4-D HERBICIDE ON QUANTITATIVE EXPRESSION OF TRAITS IN DIFFERENT RYE VARIETIES

Leningrad VESTNIK LENINGRADSKOGO UNIVERSITETA in Russian No 10, Issue 2, May 85 (manuscript received 2 Jul 84) pp 107-114

[Article by N. M. Gladysheva and V. G. Smirnov]

[Abstract] Two varieties of winter rye, Voskhod and Karlik (dwarf, homozygous for recessive genes), were tested for two generations for their responsiveness to the herbicide 2,4-D in terms of quantitative expression of various traits. The doses of 2,4-D employed were either the conventional dose of 1-1.5 kg/ha, or 2-3 kg/ha. The effects of 2,4-D on morphological characteristics and productivity indicators were variable for the two varieties, with Voskhod showing considerable more resistance to change. In addition, the effects of 2,4-D were dose related and cumulative with generations, i.e., treatment of the F_2 generation potentiated the effects. In general, productivity of both varieties decreased by 9.3-10.9% as a result of treatment with 2,4-D. Tabular data are provided on the specific effects on a variety of traits showing either positive or negative statistical dispersal. The effects on germination, grain count per spike, index of productivity, harvest/ha were negative in all cases, especially with the double dosage. References 23: 21 Russian, 2 Western.

12172/12947
CSO: 1840/2101

UDC 551.(52+584):630

AGRO- AND MICROCLIMATIC RESOURCES AND THEIR REGISTRATION IN ADAPTIVE PLANT GROWING

Kishinev IZVESTIYA AKADEMII NAUK MOLDAVSKOY SSR: SERIYA BIOLOGICHESKIKH I KHIMICHESKIKH NAUK in Russian No 1, Jan-Feb 86 (manuscript received 8 Jan 85) pp 16-29

[Article by Z. A. Mishchenko]

[Abstract] Realization of the USSR Food Program depends on intensification of agriculture and acquisition of more arable lands. This requires a scientific approach to the distribution of various cultures, zonal specialization and increased productivity. A new method was presented for regional evaluation of agroclimatic resources and application to adaptive plant growing using the Moldavian SSR as a model. Agroclimatic zoning based on frost and warmth areas was presented with consideration of day-night cycles. A large scale model of agroclimatic resources was presented for planning specialization of agricultural production on a given territory: planting optimization of grapes, fruit culture, adaptation of differential agrotechnical and meliorative measures and construction of adaptive agrocenoses. Figures 4; references 16: 15 Russian, 1 Western (by Russian author).

7813/12947
CSO: 1840/2069

BIOCHEMISTRY

UDC 616.155.392-036.11-07:[616.155.1-008.939.15-39+616.155.1-008.93:577.161.3

FREE-RADICAL OXIDATION OF LIPIDS IN ERYTHROCYTE MEMBRANES AND ENDOGENOUS ALPHA-TOCOPHEROL DYNAMICS IN BLOOD PLASMA OF ACUTE LEUKEMIA PATIENTS

Moscow GEMATOLOGIYA I TRANSFUSIOLOGIYA in Russian Vol 30, No 12, Dec 85 (manuscript received 26 Mar 84) pp 28-31

[Article by K. G. Karagezyan, professor, L. F. Bilyan, E. N. Osipova and A. S. Porosyan, Institute of Biochemistry, ArSSR Academy of Sciences; Institute of Hematology and Blood Transfusion imeni R. O. Yeolyan, ArSSR Ministry of Health, Yerevan]

[Abstract] Interaction between free-radical oxidation of lipids and dynamics of the endogenous alpha-tocopherol level in membrane erythocytes was studied in healthy blood donors (14), acute leukemia patients before treatment (27) and persons in remission (11) after appropriate treatment by the commonly known VAMP, AVAMP and TsAMP procedures and, in some cases, by use of combinations of prednisolone and 6-mercaptopurine. Free-radical oxidation of lipids was determined by the malonic dialdehyde yield in ascorbate- and NADPH-dependent oxidation systems. The studies showed an inversely proportional dependence between reduction of the alpha-tocopherol level in the acute leukemia patients blood plasma and the intensity of free radical oxidation of lipids in the erythrocyte membranes. The combined therapy recommended in the study inhibited the peroxide formation process in the erythrocyte membranes significantly and promoted restoration of the endogenous alpha-tocopherol level which facilitated a favorable course of acute leukemia and promoted possible remission. References 26: 9 Russian; 17 Western.

2791/12947
CSO: 1840/2044

BRIEFS

METALS EXTRACTED FROM SMOKE--Metallurgical production of the Khaydarkan Mercury Combine imeni 50th Anniversary of the Kirgiz SSR is now completely excluded from those that are harmful to the environoment. A powerful sanitary gas scrubbing shop has become operative at the largest enterprise in the industry. For the first time, in place of the unwieldy multistage filters for making the caustic smoke of the melting furnaces harmless, compact chambers in which light, plastic, small balls are suspended are now being successfully used. These small balls are the ones that trap the aggressive components. This innovation not only ensures the maximum scrubbing of gases, but provides a potentiality for extracting from the gases, at the same time, a significant amount of silver metal, as well as other valuable elements, which formerly went up the chimney literally. The residents of Khaydarkan, who are actively engaged in the movement to save natural resources, have introduced a recycled water supply at the shops, and have reclaimed a large part of the former mines and dumps. The environment here is being improved according to a goal-oriented, comprehensive program, developed by the ecological service of the enterprise. [By V. Upolovnikov, KirTAG correspondent, Oshskaya Oblast] [Text] [Frunze SOVETSKAYA KIRGIZIYA in Russian 5 Feb 86 p 3] 12525/12947

CSO: 1840/1145

UDC 019.941:002.01:631.175(575.2)

DYNAMICS AND PRODUCTIVITY OF SUBALPINE MEADOWS ON NORTHERN MACROSLOPE OF KIRGHIZ MOUNTAIN RANGE

Leningrad BOTANICHESKIY ZHURNAL in Russian Vol 70, No 10, Oct 85 (manuscript received 27 Aug 84) pp 1426-1428

[Article by E. P. Matveyeva, Botanical Institute imeni V. L. Komarov, USSR Academy of Sciences, Leningrad]

[Abstract] This is a review of a book, written by L. P. Lebedeva [published in Frunge by ILIM, 1984, 385 pp]. The book contains an introduction, 5 chapters, a conclusion, an index of Latin names of plants, a bibliography and an appendix. The introduction describes features of Khirghizia flora and vegetation and the impact on them of the geological history of Tyan-Shan, the climatic zonality of the region and the prolonged anthropogenic effect which has reduced the area of natural vegetation and the productivity of existing phytocenoses. Chapter 1 describes natural conditions existing in the region of the study. Chapter 2 describes the vegetation of the region. Chapter 3 describes the composition, structure and dynamics of subalpine grasslands. Chapter 4 describes the biological productivity of the region. Chapter 5 presents recommendations, based on long-term experiments (15 years), for improving the quality and productivity of these meadows. These experiments are summarized in the conclusion. Drawings of plants raised on control and cultivated sections during the experiments clearly show the improvement of plants during the experiment.

2791/12947
CSO: 1840/2042

UDC 613.9-057.874:614.715:669.4/5

EFFECTS OF INDUSTRIAL ATMOSPHERIC POLLUTANTS ON CHILDREN

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 6, Jun 85 pp 19-20

[Article by T. P. Filina, N. P. Goncharov and A. G. Shvetsov, Karaganda Medical Institute; Scientific Research Institute of Regional Pathology, Alma-Ata]

[Abstract] State of health assessment was conducted on some 3,500 children residing in areas with different levels of atmospheric pollution from a metallurgical plant, to obtain correlates between the degree of pollution and health and development of the children. The children ranged in age from 7 to 14 years, with the health examinations showing that morbidity in children from heavily polluted areas was 1.5-fold higher than among children in areas with the least pollution. Disease breakdown further demonstrated that the incidence of respiratory diseases in the former group was 1.5-fold greater than in the latter, and the incidence of infectious diseases and neurological problems--including sensory disorders--ranged from 2- to 2.5-fold greater. The adverse effects of the pollutants on the young body were also evident in the retarded physical development of children in high-pollutant areas, again underscoring the urgent need for effective pollution control.

12172/12947
CSO: 1840/2054

UDC 591.53;591.57

EFFECT OF DIFFERENT SALINITY AND TRANSPORT ON BLOOD SERUM PROTEINS OF YOUNG KURINSKIY BELUGA

Baku IZVESTIYA AKADEMII NAUK AZERBAYDZHANSKOY SSR: SERIYA BIOLOGICHESKII NAUK in Russian No 5, Sep-Oct 85 pp 91-96

[Article by A. G. Talybova and R. Yu. Abbasov, Institute of Physiology imeni A. I. Karayev, AzSSR Academy of Sciences]

[Abstract] The effect of transportation and transfer from fresh water into sea water on Beluga fry serum proteins was studied in an experiment including 86 Kurinskiy belugas (age 3-4 months). Five groups were studied. Group 1 was kept in fresh water (control). Blood was drawn from fish immediately after transfer to sea water (group 2), 1 day after transfer (group 3), 2 days after transfer (group 4) or 3 days after transfer to sea water (group 5). Blood was taken by caudoectomy and centrifuged at 3000 rev/min for 15 minutes. Total protein level was determined by the Lowry method. Transfer and retention of the fish in sea water for 3 days had significant effect on the serum proteins fractional composition. Statistically reliable differences were found in 8 of 19 blood fractions compared. Changes in 7 of the 8 fractions were in the zone of $alpha_2$-globulins. The percent level of beta-globulin transferrin increased. Fish kept in sea water showed a high level of transferrin regardless of the length of stay. The macroglobulin level decreased abruptly after a day's stay in sea water. Since macroglobulins inhibit endopeptidase and proteolytic enzymes in man and animals, it was assumed that their abrupt decrease in the fish after a day's stay in sea water activates endopeptidases and proteolytic enzymes and this may break down proteins. It was assumed that the albumin increase in the fish kept in sea water affects the maintenance of osmotic pressure in the blood. The increase in percent relationship of the blood albumin level amplifies ligand transport and this, in turn, leads to more rapid growth and development of fish in sea water than in those in fresh water. Figures 2; references 11: 8 Russian, 3 Western.

2791/12947
CSO: 1840/2010

BRIEFS

BOTULISM--Botulism is one of the most serious food poisonings. It occurs most often with consumption of home-prepared ham, sausages, fish and fish dishes. As a rule, botulism is not caused by fresh fish, but by frozen or cooled fish. Generally, fish is fried or boiled under home conditions. However, salted fish does not undergo heat treatment. And, if a toxin has formed in the fish before salting, this toxin cannot be destroyed even with high concentrations of salt. For this reason, there is a particularly high incidence of botulism after eating fish, which was caught and prepared by private individuals. We should remember this at markets when purchasing fish products, prepared by a suspect method. Home canning is widespread here. One wants to have home canned foods for the winter when vitamins are in short supply. But, often in canning foods at home, the rules of home canning technology are not observed: vegetables and fruits are poorly washed, and the sterilization process is inadequate. Most often the illness starts after the consumption of home canned fruit compotes--apple, cherry and apricot. This is related to the fact that in home canning the sterilization temperature does not exceed 100° and the spore-forming rods of botulism are not destroyed. The same thing occurs in the preparation of fresh smoked hams under home conditions. Many of us love mushrooms in all forms --salted and marinaded. However, they also may be the cause of food poisoning when they are improperly prepared. The illness starts in 2-3 hours, sometimes 24 hours later. Most often, it happens 12-14 hours after the poor quality products have been consumed. As soon as the first signs of the illness appear, one should see a physician immediately. The best thing to do is to take precautionary measures and avoid this serious illness. [By N. Romanchenko] [Text] [Tashkent PRAVDA VOSTOKA in Russian 11 Mar 86 p 3] 12525/12947

CSO: 1840/1162

UDC 576.895.421.06

ATTACK RATE OF DERMACENTOR PICTUS TICKS ON HUMANS

Minsk VYESTSI AKADEMII NAVUK BSSR: SERYYA BIYALAHICHNYKH NAUK in Russian
No 1, Jan-Feb 86 (manuscript received 28 May 85) pp 115-116

[Article by B. P. Savitskiy, Gomel State University]

[Abstract] A study was conducted between 1956 and 1983 to determine the attack rate of the tick Dermacentor pictus on humans, since it is the second most numerous tick in Belorussia. The data showed that of 181 cases examined in which ticks were found on the body, 11.6% were identified as D. pictus. Examination of clothing revealed the presence of 395 ticks, of whom 30.6% were D. pictus. In distinction to Ixodes ricinus most of the D. pictus ticks on the body were represented by hungry female imagos (85.7%), whereas males predominated among the ticks collected from clothing. Since D. pictus is active only 100 days of the year (vs. 180 for I. ricinus), these observations indicate that D. pictus is rather aggressive with respect to humans. It remains to be established whether they are important in transmitting disease to human under the conditions prevalent in Belorussia. References 6 (Russian).

12172/12947
CSO: 1840/2112

CURRENT EPIDEMIOLOGY OF PARATYPHOID B

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85 pp 18-20

[Article by A. A. Kurmangaliyeva, Kazakh SSR Ministry of Health]

[Abstract] Assessment of the current status of paratyphoid fevers in Kazakhstan has shown that the decrease in incidence has slowed down due to a variety of environmental factors. In general, 93.1% of the cases are usually diagnosed as paratyphoid fever B, with the A and C serotypes representing the rest of the clinical cases. Most of the outbreaks of paratyphoid fever occur in the summer and fall, while bacteriologic and serologic studies have implicated domestic animals as a significant reservoir of infection. Humans become infected as a result of ingestion of meat from sick cattle, or by drinking water contaminated with animal wastes. In interepidemic periods, the paratyphi B palhogen has been isolated from some 3% of domestic animals, while positive serologies were obtained in the case or 31.9% of the animals.

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UDC 616.981.49-036.2-084

EPIDEMIOLOGY OF SALMONELLOSIS: ORGANIZATION OF PREVENTIVE AND ANTIEPIDEMIC MEASURES

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85, pp 25-27

[Article by M. A. Tsoy, B. T. Zhumakarimova and G. A. Klimova, Scientific Research Institute of Epidemiology, Microbiology and Infectious Diseases, Alma-Ata]

[Abstract] The incidence of salmonellosis in Kazakhstan is on the increase. In addition, the difference between urban and rural incidence of the disease has decreased from 1:(2.7-6.7) in 1978 to 1:(1.6-1.8) at the present time. Salmonellosis has its peak case loads in summer and fall, with some 73% of the cases occurring in the summer. Analysis of the factors responsible for this state of affairs in Kazakhstan has demonstrated that it is primarily due to the low quality of veterinary service, and, particularly, failure of the veterinary laboratories to serotype the isolates, as well as to generally lax hygienic standards in the meat packing industry and at home. Improvement in the situation can only be attained by close cooperation and coordination of the efforts of veterinarians, physicians, and hygienists to make the population aware of the risks of salmonellosis and to take measures to control carriers and prevent food contamination. At the present time it appears that some 35% of acute intestinal infections in some oblasts are represented by salmonellosis.

12172/12947
CSO: 1840/2057

UDC 616.936-056.55

CLINICAL CASES OF MALARIA

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85 pp 72-73

[Article by Ye. A. Mizyakina, M. A. Dosabayeva, L. V. Kudryakova and A. S. Milovanova, Chair of Infectious Diseases, Alma-Ata Institute for the Advanced Training of Physicians, USSR Ministry of Health]

[Abstract] Description is provided of the clinical course of 11 cases of malaria affecting Soviet citizens, 26-35 years old, while traveling abroad in tropical countries (Peru, Congo). The patients were treated in Alma-Ata in the period 1977-1983, with 10 of the patients eventually diagnosed with tertian malaria and one with tropical malaria. While in and of themselves, the clinical manifestations and course were typical of malaria, diagnosis and appropriate therapy were delayed because of the physicians' unfamiliarity with the disease as a clinical entity. These findings indicate that, despite the fact that malaria has been liquidated in the USSR, physicians should maintain a high index of suspicion to prevent similar problems in the future.

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CSO: 1840/2057

UDC 616-001.-4-002.3-08+615.849.1

LOW-INTENSITY LASER IRRADIATION TREATMENT OF PURULENT WOUNDS

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 86 (manuscript received 13 Aug 84) pp 41-43

[Article by V. O. Lupaltsov, I. A. Dekhtyaruk, A. V. Lyakh, N. A. Grechishnikov, V. N. Zozulya and Yu. V. Tsuprov, Chair of Surgical Diseases, Pediatrics Faculty, Kharkov Medical Institute]

[Abstract] Several treatment modalities of purulent and necrotic soft tissue wounds were evaluated for efficacy in the case of 201 patients, 19 to 69 years of age. The implicated bacterial agents included hemolytic staphylococcus in 139 cases, streptococcus in 49 cases, and Gram negative bacteria in 16 cases. Comparison of the treatments employed showed that laser therapy (helium-neon LG-38, 328 nm, 50 mW, 10 min exposure/session) was effective in enhancing healing and led to discharge in an average of 12.1 days, while standard surgical procedures resulted in a discharge in 10.6 days. Other modes of treatment (cryotherapy--13.4 days; conventional treatment--18.4 days) were less effective. On balance, it appears that laser therapy of the affected wounds constitutes the optimal treatment of choice, taking into consideration the fact that surgery may be contraindicated in many cases. References 1 (Russian).

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CSO: 1840/2067

UDC 616-002.44-08.+615.849.19

TREATMENT OF TROPHIC ULCERS WITH HELIUM-NEON LASER

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 86 (manuscript received 24 Dec 84) pp 43-45

[Article by V. M. Lisiyenko and M. V. Severin, Chair of Surgical Diseases, Stomatological Faculty, Sverdlovsk Order of the Red Banner of Labor State Medical Institute]

[Abstract] Conventional or helium-neon laser therapy was employed in the management of 180 cases of trophic ulcer of the lower extremities due to varicose veins or the postthrombophlebitic syndrome. The patients included males and females 22 to 82 years of age. The laser therapy involved the use of a helium-neon laser LG-75-1 (632.8 nm, 25 mW) emitting a 4 mm diameter beam applied for 3-5 min once a day for 5-30 days. With laser therapy complete healing was obtained in 53.3% of the cases, with a greater than 2-fold reduction in the size of the lesion seen in another 46.7% of the cases. Moderate and small lesions showed healing in 10-15 days, with a mean hospital stay of 23.75 days. Conventional management led to complete healing in 15.4% of the patients, moderate improvement in 76.9%, and lack of clinical effectiveness in 7.7% of the cases. In addition, the average hospitalization with conventional treatment was about three days longer than with laser therapy. Recently, debridement with a CO_2 laser was employed prior to treatment with the helium-neon laser. The combined laser therapy was seen to lead to even better clinical results.

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UDC 616.33/34-089.844-031:611.341/-022.1-092.9

INFECTION OF PERITONEAL CAVITY IN ANASTOMOSIS OF SMALL INTESTINE FOLLOWING LASER RESECTION

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 2, Feb 86 (manuscript received 11 Nov 85) pp 45-48

[Article by B. S. Gudimov and Yu. M. Gain, Chair of Operative Surgery and Topographic Anatomy, Minsk Medical Institute]

[Abstract] Experimental intestinal anastomoses were performed on outbred dogs to assess laser resection vs. the Albert-Schmieden operation in terms of enterobacterial leakage into the peritoneal cavity. Using a Romashka-1 CO_2 laser (10.6 μm, 20-80 W output power, focused to 0.15-0.9 mm diameter) for resection of the small intestine followed by single-row suturing indicated that bacterial leakage persisted for a maximum of 3 days, whereas with the Albert-Schmieden procedure leakage persisted for 5 days. In addition, there was significantly less edema and inflammation at the site of the lesion resection. Defocused laser beam with an output of 10-14 J/cm^2 was also observed to possess marked bactericidal activity without any adverse effects on the irradiated tissues. Figures 2; references 19: 16 Russian, 3 Western.

12172/12947
CSO: 1840/2051

UDC 613.314.17-008.1±615.849.19

EXPERIMENTAL ASPECTS OF LASER THERAPY OF PERIODONTITIS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 6, Jun 85 pp 39-42

[Article by L. Ya. Zazulevskaya and G. V. Kogan, Chair of Therapeutic Stomatology, Alma-Ata Medical Institute]

[Abstract] Outbred rats with nutritionally-induced periodontitis were employed in a study designed to assess the mechanism of action of helium-neon laser therapy. Following irradiation with an LG-85 laser (8 mW, 20 sec exposure) of the affected area, the bony tissue was removed and subjected to IR spectroscopy. Comparison of the spectra for control and experimental samples indicated that the reparative processes induced by laser irradiation are largely due to the effects on the protein components. In particular, the data indicated that the hydrophobic domains of the protein molecules were affected and led to conformational changes, along with a concomitant increase in the production of normal proteins and enzymes, and in normalization of redox processes in the bone. As a result of a reduction in the rate of lipid oxidation, phospholipid-mediated binding and transport of calcium ions to the inorganic matrix was enhanced. References 5 (Russian).

12172/12947
CSO: 1840/2054

AMERICAN EXPERIMENTS ON LANGUAGE CAPABILITY OF DOLPHINS

Tbilisi MOLODEZH GRUZII in Russian 13 Mar 86 p 3

[Unattributed article: "Experiments Give Evidence: Dolphins Stimulated by a Computer"]

[Text] Dolphins are capable of understanding an artificial language, obeying "orders" issued to them by a computer which emits whistling sounds. Moreover, they can reproduce these sounds and associate them with the objects which the sounds designate.

The unusual "intellectual" capabilities of dolphins has attracted man's attention throughout history. Many ancient Greek myths about relations between dolphins and humans presumably have a basis. Recently, scientists have been taking an interest in their "whistling patter," an extremely complex and so-rapid a language that our comparatively inert ear is not able to interpret it. There is already a general acceptance of the notion that dolphins use this language to communicate among themselves.

Recently three American scholars--Herman, Richards, and Volz--published a lengthy study which reflected the results of their research into the question of whether dolphins understand the computer's artificial speech and associate the combination of sounds with objects and actions. The answer to the question was affirmative even though very rigorous standards were observed to ensure the purity of the experiment.

Once they became used to man, the dolphins Phoenix and Ake understood a set or changing combination of sounds synthesized by the computer. The animals in the experiment very quickly learned how to associate sounds with actions or objects. Some sceptic, of course will object: well, what's so surprising--my dog does the same thing. In fact, when you say to a dog "Bring it here," it is impossible to separate the words from the tone and circumstances which attend them, and, possibly, it is precisely this tone that is more understandable to the dog. In order to separate the words from the tone that accompanies them, a computer was introduced into the experiment.

The scientists taught the dolphins to understand phrases made up of several words: for example, "Phoenix, touch the ring, and with your tail toss the ring (into the air)." All in all, the vocabulary for the dolphins now

consists of 16 words designating objects, 11 words expressing actions, 4 direction indicators--to the right, to the left, to the surface, down deep--as well as those signifying the countermanding of an order, agreement (yes), negation, or disapproval. And it continues to enlarge. Sentences consist of words in a definite sequence which the dolphins rapidly mastered: a word signifying an object always precedes the word signifying the action to be carried out by them while the direction indicator precedes the object. Moreover, the direction indicator always corresponds to the dolphin's position at the point that the order is given. For example, the command "To the left ball mouth" means: "Swim toward the ball to the left of you and touch it with your mouth." The dolphins are capable of making immediate generalizations. For example, the word "ring" is perceived by the animals independent of the form, color, and position of this large plastic ring. The same holds true for the words expressing an action such as "swim through" which can mean "through a ring" or another object. Even when a phrase was pronounced that make no sense because of a mistake, for example "Toss the water," the dolphin Ake approached the faucet from which water was uninterruptedly flowing into the tank and made two or three taps with his head, as though wishing to toss a stream of water a certain distance. Then with a satisfied look, Ake moved away, in full view of the dumbstruck experimenters who had not prompted him to do this at all.

In fact, dolphins quickly realize when they are given a mistaken order corresponding, for example, to a missing object. In this case they have been taught to squeeze a disk corresponding to the word "no," and they do this with great assurance. Mistakes on the part of the dolphins are extremely rare. They follow the word order and do not confuse commands.

Once the dolphins understand the artificial language so well, why shouldn't they be able to speak it--after all they are capable of very complex sound signals. So, Herman and his colleagues embarked on something even grander. They trained Ake to reproduce the complex sounds produced by the sound generator connected to the computer, and he accomplished this rather easily--for his progress at this, the gourmand was rewarded with a fish. The dolphin immediately proved capable of repeating the sounds that he understood, no matter what novelty, complexity, or meaning they presented. And finally, they were able to prompt the animal to connect the sounds which it had learned to produce with the objects that they designated. Five different objects were shown 167 times in a random order and the dolphin named them correctly more than 150 times.

The results of these experiments by American scientists contrast sharply with the almost complete absence among higher apes of a capability to imitate sounds. Apparently the dolphins, along with man, are the only mammals capable of copying sounds.

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EFFECTIVENESS OF NASOGASTRIC TUBE FEEDING IN BURN PATIENTS

Moscow KLINICHESKAYA MEDITSINA in Russian No 2, Feb 86 (manuscript received 25 Jun 85) pp 44-54

[Article by M. I. Kuzin, V. K. Sologub, A. V. Tarasov, M. R. Mordkovich and T. L. Zayets, All-Union Burn Center; Institute of Surgery imeni A. V. Vishnevskiy, USSR Academy of Medical Sciences, Moscow]

[Abstract] An analysis was conducted on parameters delineating the nutritional status of burn patrients in order to devise effective nasogastric feeding regimens. The analysis was based on total body fat estimates, total weight, percentage of weight loss, blood protein levels, and lymphocyte counts as an indicator of nutritional imbalance. The absorptive function of the intestinal tract--an important consideration in evaluating the effectiveness of nasogastric feeding--was analyzed by the uptake and blood and urine levels of d-xylose. Caloric needs were determined by indirect calorimetry, and various clinical chemistries were employed for individual organ and system assessment. Effectiveness of nasogastric feeding was subsequently monitored by determining body weight 2-3 times a week, evaluation of nitrogen balance twice a week, and performing indicated clinical chemistries at biweekly intervals. Figures 1; references 36: 12 Russian, 24 Western.

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UDC 617-001.17-085

TREATMENT OF BURN CASES IN AEROTHERAPEUTIC CHAMBERS WITH CONTROLLED ENVIRONMENT

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 2, Feb 86 (manuscript received 16 Jul 85) pp 49-51

[Article by V. V. Ishchuk, K. S. Kachmarik and D. A. Krupen, Brest Oblast Hospital]

[Abstract] Three types of Soviet aerotherapeutic chambers--ATU-1, ATU-3 and ATU-5--were used in the treatment of 42 patients with burns covering 30 to 55% of the body surface. The chambers, essentially isolation devices with either laminar air flow or designed as bacteria-free isolators, were found to promote more rapid healing of patients previously subjected to an antiseptic skin bath. A dry scab was formed within 6-12 h in patients with superficial burns, and within 12-24 h in patients with deep burns, resulting in the termination of plasmorrhexis. Within another 24-48 h tissue edema in the affected areas disappeared, manifestations of toxemia diminished, and the fever declined. Chemical removal of necrotic tissue was generally performed in 3 to 5 days, followed by autodermoplasty in 7 to 9 days. The use of the aerotherapeutic chambers shortened the duration of hospitalization of patients with superficial burns 1.8-fold, and of patients with deep burns 1.4-fold, further demonstrating its utility in the management of such cases. References 5 (Russian).

12172/12947
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UDC 617-089.001.5

PROGRESS IN SCIENCE AND TECHNOLOGY AND NEW SURGICAL MATERIALS

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 86 (manuscript received 15 Nov 85) pp 1-3

[Article by A. A. Shalimov and Yu. A. Furmanov, Kiev Scientific Research Institute of Clinical and Experimental Surgery, Ukrainian SSR Ministry of Health]

[Abstract] General scientific and technological advancements have also been accompanied by marked progress in new surgical materials. For example, a new hemostatic material has been prepared from oxidized cellulose that can be used in the form of gauze or viscose fiber material. This material also forms strong chemical bonds with a number of antibiotics and, in the case of kanamycin, has yielded materials that retain antibacterial activity for 10-14 days. Other advances include an absorbable suture derived from cellulose and designated oktselon [sic], that has successfully passed clinical trials despite initial reservations from a number of surgeons. Another Soviet contribution to surgery, and to microsurgery in particular, is the production of 8/0 to 11/0 sutures with galvanoplastically attached surgical needles. Their usefulness is further expanded by staining with bactericidal dyes. Obviously, much remains to be done in the way of surgical materials, such as Soviet production of prolonged action antimicrobial materials. However, the progress to date has been most encouraging.

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UDC 616-001.4-002.3-08

TREATMENT OF PURULENT WOUNDS WITH TRYPSIN IMMOBILIZED ON CELLULOSE-DRESSING

Kiev KLINICHESKAYA KHIRURGIYA in Russian No 1, Jan 86 (manuscript received 18 Apr 85) pp 51-54

[Article by N. P. Bychikhin, L. G. Vlasov, S. P. Glyantsev, S. N. Mednikov, V. V. Ryltsev, T. I. Samoylova and L. I. Ternovskiy, Chair of General Surgery, Arkhangelsk Order of the Red Banner of Labor State Medical Institute]

[Abstract] Comparative studies were conducted on a group of 118 male and female patients with purulent soft tissue wounds on the efficacy of conventional treatment and treatment including cellulose dressings with immobilized trypsin. Evaluation of the clinical course of the patients, who ranged in age from 18 to 69 years, demonstrated that macroscopic evidence of granulation became evident, on the average, in 2.57 $\pm$ 0.21 days in the case of the treatment with trypsin, but was delayed to 6.28 $\pm$ 0.38 days in conventional management. With the trypsin treatment, wound clearing was obtained in 4.59 $\pm$ 0.4 days, and without trypsin, in 9.41 $\pm$ 0.48 days. Finally, the time required for complete healing and the average hospital stay with trypsin were; respectively, 16.4 $\pm$ 1.44 and 9.12 $\pm$ 0.98 days, versus corresponding figures of 25.64 $\pm$ 2.5 and 12.91 $\pm$ 0.7 days for conventional therapy. In addition to these advantages, trypsin was deemed to act as a topical analgesic and anti-inflammatory agent, and to be non-allergenic. Figures 1; references 2 (Russian).

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MICROBIOLOGY

UDC 615.322:633.81-08:616-002.828

ANTIFUNGAL ACTIVITY OF ESSENTIAL OILS

Baku AZERBAYDZHANSKIY MEDITSINSKIY ZHURNAL in Russian No 4, Apr 85 pp 44-48

[Article by G. G. Ibragimov and O. D. Vasilyev, LenGIDUV (S. M. Kirov State Institute for the Advanced Training of Physicians, Leningrad]

[Abstract] Essential oils represent a group of novel antimicrobial and antifungal preparations with low toxicity, few side effects and high antibacterial activity. Fungistatic and fungicidic activity of essential oils was compared to the polyene antifungal antibiotic nistatin in respect to pathogenic yeast-like and mycellar fungi: Candida albicans, C. guillermondii, C. krusei, C. tropicalis, Aspergillus flavus, A. fumigatus, A. niger and trichophyton mentagraphytus. The following essential oils were tested: cypress, juniper, mint, carnation, cow parsnip, lemon tree, rose, carraway, thyme, eucalyptus, dill and anise. All of them exhibited fungicidal activity; the most active were essential oils of thyme, carraway and eucalyptus. The first two also showed excellent fungistatic activity. Thin-layer chromatography identified two possible components in thyme: thymol and carvacrole and two in carraway: carvone and carvacrole. References 3 (Russian).

7813/12947
CSO: 1840/2024

UDC 616.931-036.2(479.24):576-093.2

IMMUNOLOGICAL QUALITY CONTROL OF PROPHYLACTIC AKDS VACCINATION OF URBAN AND RURAL POPULATION IN AZERBAIJAN SSR

Baku AZERBAYDZHANSKIY MEDITSINSKIY ZHURNAL in Russian No 4, Apr 85 pp 72-75

[Article by D. Ya. Kasimova, S. S. Sadykova and A. I. Talalikina, Laboratory of Pediatric Droplet Infections (Chief - candidate of Medical Sciences D. Ya. Kasimova), Azerbaijan Order of the Labor Red Banner Scientific Research Institute of Virology, Microbiology and Hygiene imeni G. M. Musabekov (Director - Academician V. Yu. Akhundov)]

[Abstract] Passive hemagglutination reaction (PHR) was used in performing immunological quality control of the effectiveness of prophylactic vaccination with AKDS (adsorbed pertussoid-diphtherial-tetanus) vaccine. The subjects were randomly selected children 6 to 7 years old: 138 from Baku and 63 from one of the rural regions. PHR was performed using diphtheria and tetanus antigenic erythrocyte test kits. In Baku the protection level was 86.2% against diphtheria and 94.9% against tetanus; these levels corresponded to the numbers of children captured by past vaccination programs. In the rural region 71.3% of the test subjects showed zero titers against diphtheria and 50.7% had none against tetanus. This indicated that prophylactic vaccination had not been performed in rural areas. References 6: 5 Russian, 1 Western.

7813/12947
CSO: 1840/2024

BRIEFS

CANCER ORIGIN THEORY--On 27 March 1986 the USSR State Committee on Inventions and Discoveries registered a discovery, made by the associates of Doctor of Biological Sciences N. Shapiro and Candidates of Biological Sciences M. Marshak and N. Varshaver at the Institute of Molecular Biology. In the early seventies, when the discovery was made, the two most widespread theories on the origin of cancer were considered incompatible--the mutation and the virus theories. The first theory lays all the blame on special "cancer" genes in the cells of man and animals. A change in these genes (mutation) can lead to the malignant growth of cells. Opponents of the mutation theory believed that these genes are introduced by specific tumefacient viruses. The discovery, made by the authors, has seemingly unified both theories--it was found that tumefacient viruses not only introduce cancer genes into a cell, but also cause hereditary changes in the cell's own genes. Of course, the discovery still does not present the whole picture--a dangerous enemy has still some unexplained secrets. However, the concepts of the malignant growth patterns have become more reliable. In addition, it has become evident to physicians and biologists that viruses represent a dangerous environmental factor for heredity, and this is why the prevention of viral infections and the carrying out of genetic control of live viral vaccines are so important. Further study of the discovered phenomenon is important for medicine, veterinary science, and genetic engineering. [By I. Novodvorskiy] [Text] [Moscow IZVESTIYA in Russian 28 March 86 p 2] 12525/12947

CSO: 1840/1142

BRIEFS

SPIDER TOXIN FOR VACCINE--The republic's zonal zoocombine has become an enterprise where the weight of a year's production is measured in grams, and its value in hundreds of thousands of rubles. A nameplate with 'Insectarium' on it hangs on a low building. Here, scorpions are "billeted" in several tens of thousands of little glass flasks. Next to these is a unique feedlot where mealybugs are raised--a delicacy for the dangerous arthropoda. The temperature is controlled. The stimulus for the collection of venom is a 6-volt electric pulse. The scorpion starts to "defend himself" and on its stinger a micron drop of very valuable raw material appears. The venom is generally collected into a water-filled jar. After the venom is boiled down, the fine powder is used in pharmacology. "Over half of the scorpion species that exist in our country are found in the sands and wildernesses of Kazakhstan," said Doctor of Biological Sciences O. Bogdanova to the KazTAG correspondent. "The black scorpion is the most dangerous of these. There is only one antidote--a serum from the toxin. The Tashkent Scientific Research Institute of Vaccines and Serums recently started working on the production of an anti-scorpion preparation. The first batch of medicinal toxin--500 milligrams--was sent by specialists of the Alma-Ata Insectarium to a Uzbek scientist."
Venom of tarantulas and steppe spiders is also produced at the combine. The life cycle of spiders is short--only several months. For this reason, the venom is collected right at the trapping sites. To avoid a reduced population of spiders, the so-called "milking" is performed after the spiders have made their cocoons. The milking operation requires a special skill and is dangerous. About four thousand black steppe-spiders have to be milked to produce one gram of venom. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 4 Apr 86 p 4] 12525/12947

CSO: 1840/1143

UDC 613.63:618.17-083:616.69.083:577.1

SENSITIVITY OF MEN AND WOMEN TO EFFECT OF CHEMICAL FACTORS

Baku AZERBAYDZHANSKIY MEDITSINSKIY ZHURNAL in Russian No 5, May 85 pp 36-40

[Article by V. A. Aliyev, Department of Hygiene of Children and Adolescents (head-professor A. M. Mamedov), Azerbaijan Order of Labor Red Banner State Medical Institute imeni N. Narimanov (rector-professor Ya. D. Mamedov]

[Abstract] The activity of enzymes performing energy metabolism and electron transport in the respiratory chain and anabolism and catabolism processes in cells of the blood system of men and women petroleum processing workers is described and discussed. Enzymic activity was studied by cytochemical methods. Subjects included basic petroleum processing device operators (96 women and 74 men ranging in age from 19-30 years with work experience ranging from 4 months to 10 years). The control group included 133 persons of corresponding age-sex groups who were not involved in petroleum processing work. The cyto-enzymic studies refuted the assumption that women workers are more sensitive than men workers to the effect of toxic substances. On the whole, the men in the study were found to be less resistant to the effect of chemical factors encountered in petroleum processing work. It was assumed that specific features of functioning of the female body (menstruation, pregnancy and birth), causing stress and reconstruction of homeostasis systems, promoted improvement of adaptational mechanisms in the process of evolution, which mechanisms were coded in the gene pool. It is speculated that sexual differences may cause differences in cell metabolism. References 12: 11 Russian, 1 Western.

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HISTORY, CURRENT STATUS AND ANTICIPATED USE OF ALKALOID-BEARING PLANTS IN CENTRAL ASIA AND RESEARCH TRENDS

Leningrad RASTITELNYYE RESURSY in Russian Vol 22, No 1, Jan-Mar 86 (manuscript received 13 Mar 85) pp 3-11

[Article by K. Tayzhanov, Institute of Plant Substance Chemistry, Uzbek SSR Academy of Sciences, Tashkent]

[Abstract] A review is provided of the historical aspects of research on alkaloid plants in the USSR, especially as it pertains to Central Asia, current status of such investigations, and trends for the future. Of the some 5500 alkaloid plants that have been studied, 271 species have been analyzed in detail by 1984 and yielded some 954 alkaloids. Many of them have found use in medicine, biological research and in agriculture, and the scope of their uses is expanding. However, despite the fact that so much is now known about the alkaloid flora of Central Asia many areas have not yet been inventoried and, based on some cursory studies, it appears that considerably more alkaloid plants remain to be identified. Additional concern will have to be shown to assure replacement of this valuable resource, and studies are now underway for culturing them under controlled conditions. References 93 (Russian).

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ANALGESIC EFFECTS OF FLAVONOIDS DERIVED FROM RHODODENDRON LUTEUM, HYPERICUM PERFORATUM, LESPEDEZA BICOLOR AND L. HEDYSAROIDES

Leningrad RASTITELNYYE RESURSY in Russian Vol 22, No 1, Jan-Mar 86 (manuscript received 24 Jan 85) pp 12-21

[Article by Ye. A. Vasilchenko, L. N. Vasilyeva, N. F. Komissarenko, I. G. Levashova and V. S. Batyuk, All-Union Scientific Research Institute of Drug Chemistry and Technology, Kharkov]

[Abstract] In view of the demonstration that many analgesic substances have been isolated from plant sources, further search was conducted among substances with similar activities among flavonoids derived from Rhododendron luteum, Hypericum perforatum, Lespedeza bicolor and L. hedysaroides. Trials conducted with cutaneous heat-pain test in mice demonstrated that total flavonoid extracts possessed analgesic activity. Maximal analgesia was obtained with intraperitoneal injection of 100 mg/kg of a given extract, which resulted in elevation of the pain threshold by 38-78% within 15 min. Preliminary impression was that the analgesic effects were primarily due to the quercetin component in each extract. These observations indicate that the flavonoids may serve as a new source of analgesics, perhaps topical in effectiveness, with the specific advantage of being non-narcotic. Figures 1; references 102: 1 Chinese (in English), 2 Polish, 42 Russian, 57 Western.

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EFFECTS OF NUTRITIONAL FACTORS ON LIPID METABOLISM IN PHOSPHORUS INDUSTRY WORKERS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 7, Jul 85 pp 41-43

[Article by A. A. Mamyrbayev, B. K. Zhubandykova, B. K. Kerimbekov, Zh. K. Dzhantasov and N. Sh. Shaldybayeva, Kazakh Branch, Institute of Nutrition, USSR Academy of Medical Sciences, Alma Ata]

[Abstract] Blood chemistries were monitored on 150 workers in the Chimkent "Fosfor" Production Association, in order to determine the effects on lipid metabolism of working with yellow phosphorus. The data showed that in the selected group of workers, exposed to yellow phosphorus, the concentration of total lipids (8.15 $\pm$ 0.36 g/liter), nonesterified fatty acids (2.99 $\pm$ 0.3 mmoles/liter) and cholesterol esters (171.04 $\pm$ 15.0 mmoles/liter) was raised to a statistically significant level in comparison with control values. Following a 24-day regimen on vegetable oils in place of animal fats and high in fruits and vegetables, supplemented with vitamins A, E and C and trace elements, the blood values for the total lipids, nonesterified fatty acids and cholesterol esters were reduced to control values (5.54 $\pm$ 0.32 g/liter, 1.76 $\pm$ 0.16 mmoles/liter, and 151.04 $\pm$ 11.21 mmoles/liter, respectively). These observations indicate that proper diet can be a significant factor in reversing phosphorus-induced lipid metabolism disorders by normalizing hepatic metabolism. References 2 (Russian).

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UDC 616-099-073.584:547.422.22

CHROMATO-MASS-SPECTROMETRIC DETERMINATION OF TOXIC AGENTS IN BIOLOGICAL SAMPLES

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 2, Feb 86 (manuscript received 17 May 85) pp 38-41

[Article by M. T. Dmitriyev professor, I. Ye. Kuntsevich, candidate of medical sciences, Ye. G. Rastyannikov, candidate of chemical sciences, and A. G. Malysheva, candidate of biological sciences, Scientific Research Institutes of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences; Moscow Rayon Sanitary Epidemiologic Station, Minsk]

[Abstract] LKB-2091 (Sweden) chromato-mass-spectrometer was used in an analysis of various biological samples (blood, sputum, hair, exhaled air, urine, etc.) for toxic agents in relation to exposure to domestic and industrial environmental pollutants. The technology was found suitable for such an analysis, and demonstrated the following agents in body fluids and tissue samples: paraffins, isoparaffins, olefins, cycloparaffins, dienes, aromatic hydrocarbons, aldehydes, ketones, alcohols, and organosulfur compounds. The presence of such chemicals in body fluids and tissue samples allows for a realistic assessment of actual exposure and intake of chemicals in the environment, and of the actual health risk. The method is obviously an approach that should be included in mass screening procedures to establish the relationship between environmental levels of chemical pollutants and clinical disease. [Note: see also, abstract by these authors from article in RASTIT. Resursy No 1, Jan-Mar 86] Figures 2; references 6: 4 Russian, 2 Western.

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CSO: 1840/2051

UDC 581.6

CHROMATO-MASS-SPECTROMETRY OF VOLATILE PLANT SUBSTANCES (AEROSTIMULANTS)

Leningrad RASTITELNYYE RESURSY in Russian Vol 22, No 1, Jan-Mar 86 (manuscript received 4 May 85) pp 79-83

[Article by M. T. Dmitriyev, Ye. G. Rastyannikov and A. G. Malysheva, Scientific Research Institute of General and Communal Hygiene imeni A. N. Sysin, USSR Academy of Medical Sciences, Moscow]

[Abstract] An LKB-2130 (Sweden) chromato-mass-spectrometer was used to assess volatile substances emitted by a variety of plants, in a search for putative physiological stimulants. Helium was passed through a flask containing the plant samples with adsorption of the volatile components on a tenaks [sic] column, consisting of poly-2,6-diphenyl-para-phenylene oxide. The volatile components were then thermally desorbed at 280-300°C for 20 min, and subjected to analysis. Experience with this approach demonstrated its utility in the analysis of complex volatile mixtures emitted by plants. [Note: see also, abstract by these authors from article in ZDRAV, BELORUS No 2, Feb 86] Figures 3; references 12: 11 Russian, 1 Western.

12172/12947
CSO: 1840/2043

UDC 615.2/.3.015.4.07

PRACTICAL ASPECTS OF PHARMACODYNAMICS

Moscow KLINICHESKAYA MEDITSINA in Russian No 2, Feb 86 (manuscript received 6 Mar 85) pp 146-152

[Article by Ye. B. Berkhin, Altay Medical Institute imeni Lenin's Komsomol, Barnaul]

[Abstract] Brief consideration is given to pharmacodynamics as the scientific subdiscipline dealing with the effects of drugs on the body. These effects come about as a result of drug interaction with receptors on cells that determine dose-response relationships, selectivity of drug action, and mediate the actions of agonists and antagonists as well. Pharmacogenetics is considered both from the viewpoint of quantity of receptors, as well from the rate of drug metabolism. Toxicology is presented as an extension of pharmacologic activity, and also follows from the fact that drugs evidence selectivity as far as receptors go, rather than specificity. The selectivity principle also underlies side effects, which in some cases includes psychogenic complications.

12172/12947
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UDC 612.014.421:681.323

USE OF CONTROL COMPUTERS IN ELECTROPHYSIOLOGICAL STUDIES

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL in Russian Vol 67, No 1, Jan-Feb 86 (manuscript received 20 Jun 85) pp 56-59

[Article by G. I. Poletayev, V. A. Makarov and Ye. Ye. Nikolskiy, Department of Biology (head-professor G. I. Poletayev), Department of Medical and Biological Physics (head-docent Ye. Ye. Nikolskiy) Kazan Order of Labor Red Banner Medical Institute imeni S. V. Kurashov; Department of Radiophysics (head-professor V. V. Sidorov) Kazan Order of Lenin and Order of Labor Red Banner University imeni V. I. Ulyanov-Lenin]

[Abstract] Use of computer complexes (UIVK), based on the Elektronika D2-28 computer and intended for facilitating a wide range of electrophysiological studies, is described and discussed. The VIUK is used in microelectronic research to study excitation transfer in the nueromuscular system but it can also be used to solve many clinical and diagnostic problems involving registration and analysis of biopotentials of the heart, brain, muscles etc.. Use of the complex permits automation of all basic stages of research. A block diagram of the device is presented and described and the data collection system is described. Regimes of operation of the device used to analyze various problems related to electrophysiological studies are described and discussed. Data input and output procedures are described. The effectiveness of this computer system greatly exceeds that of other electrophysiological methods of study. It saves data processing time and permits the use of the most advanced methods of mathematical analysis of data. It provides high quality results and saves work time. Figures 2; references 3 (Russian).

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CSO: 1840/2039

METABOLIC BASIS FOR DIETARY RECOMMENDATIONS UNDER ALPINE CONDITIONS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 7, Jul 85 pp 35-38

[Article by A. A. Aldashev, Alma-Ata Institute for the Advanced Training of Physicians, USSR Ministry of Health]

[Abstract] An evaluation was made of metabolic changes occurring in individuals at altitudes of 600 to 4000 m above sea level, in order to devise dietary recommendations for such environments. Biochemical data showed that elevated altitudes were accompanied by enhanced gluconeogenesis, a decrease in the albumin:globulin ratio as a result of depressed albumin synthesis and elevated globulin levels, and enhanced lipid peroxidation. Blood concentrations of various vitamins were depressed, usually in conjunction with diminished urinary excretion, indicating greater utilization. The metabolic changes suggested the need for diets supplemented with a balanced amino acid composition, antioxidant vitamins, and easily assimilated carbohydrates (mono- and disaccharides). Observations on a cohort subjected to such dietary modifications for 1 to 1.5 years indicated that the optimal dietary protein:fats:carbohydrate ratio is 1:0.9:5. Such diets should be recommended for new arrivals to high altitude environments, although they appear not to be critical after 3-4 years. References 4 (Russian).

12172/12947
CSO: 1840/2056

UDC 616-07:681.31/:615.838

COMPUTER DIAGNOSIS TESTED IN HEALTH RESORT

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 1, Jan 86 pp 37-42

[Article by V. K. Vakulin, A. M. Pochtarenko, and N. T. Adamov: "Use of Computers in Organizing the Diagnostic Work of a Sanatorium"]

[Text] An objective evaluation of the results of sanatorium-health resort treatment of cardiovascular diseases is one of the important problems of health care (2, 7, 8). Evaluation of the state of a patient suffering from these problems has its own specific nature, which, as experience shows, is still not adequately taken into account in clinical practice. Medical tests must be fairly precise, simple, and easily carried out by a nurse under the conditions of every sanatorium. They should not take a great deal of time from the patients for the procedure and writing it up. Computer equipment can help solve these urgent problems (1, 3, 4, 5, 6).

In 1981 the Arkhipo-Osipovka Sanatorium created an automated office of functional diagnostics (AOFD), whose work was based on the use of an Elektronika-60 microcomputer. The low cost, small size, high reliability, and simplicity of using the equipment were the reasons for its adoption in practice. The computer was placed in an office with an area of approximately 15 m^2, on a small table, in a unit with a display, a memory on magnetic tape, a printer, and a device for input-output of punched tape.

In creating the AOFD, the basic direction of work chosen was mathematic processing of the data of clinical-instrumental and certain other examinations in order to evaluate the state of health of patients (see table). From the table it is clear that the most widespread methods of studying the cardiovascular system and respiratory organs and objectivizing certain aspects of the psychoemotional state were used.

The doctor of the office, after finishing instrumental examination, enters into the machine the results of one method or another of physiological examination of the patient under conditions of a step-by-step dialogue through the display. The information received and processed by the machine is output to the video terminal and the printer and presented in the form of a sheet with the developed results, which characterize both the qualitative and quantitative indicators of one examination or another (cards 1, 2). For psychological testing, the patient is invited into the AOFD office and by depressing

two keys ("Yes" and "No"), sequentially answers the questions asked (cards 3-5). It is easy for the doctor treating the patient to get his bearings in all of these indicators (even with little experience) and correctly interpret them in order to put together the most rational course of sanatorium-health resort treatment.

Table 1--Use of Computer in Evaluating the Condition of Sanatorium Patients

Methods Used in Examination	Number of Patients Examined		Age, in Years					Indications for the Examination
	Male	Female	Below 30	31-40	41-50	51-60	61+	
Electro-cardiography	151	123	39	46	64	101	24	Disruptions of rhythm and conduction (medical history of)
Khalfen test	337	444	51	218	283	138	51	Disruptions of the emotional background, vegetative dystonia, increased lipid exchange
Spirography	156	130	16	36	99	106	29	Any changes in the respiratory organs
Eysenck test	387	436	8	125	281	321	88	Pathology of the nervous system, VSD [transliteration] of all types
Taylor test	109	141	12	37	77	97	27	Pathology of the nervous system, selective VSD

Cardiological problems were adopted in the practical work of the AOFD with the help of Latvian Cardiological Center. The first program was an automated system for analyzing EKGs. The productivity of the program is more than 20 EKGs per hour. Using the computer, 274 EKGs from various groups of patients of the sanatorium, staff members, and a control group have now been interpreted. Some changes or other of the EKG were found for all but 39 of the 274 patients (apart from the control group).

Card 1

Program for Diagnosing Arrhythmia of the Heart

Date: 23.12.1983

Name (last, first, middle)
Chebotarev, A. M.

Age: 42

Disease History No 3938

Conclusion: Sinus arrhythmia
Incomplete blockade of the right limb [nozhka] of the bundle of His

Computer Center of the Arkhipo-Osipovka Sanatorium
Study of the External Respiration Functions

Date: 16.12.1983
Name: (last, first, middle) Shcherbov, G. F.
Diagnosis: Chronic pneumonia
Physician: Tomilova, Ye. K.
Sex: Male. Weight: 92 kg. Height: 163 cm, Age: 52, Temperature: 19 deg.
Atmospheric pressure: 770 mm Hg.

Original Spirography Data [transliterated]

KDD-44	AD-22	PO2-26	AZhYe-54
AVD-36	AVY-6	AFZh-46	AFV-26
PFK-33	VFV-75	KFD-5	AF-30

Computed Indicators

Indicators [transliterated]	Actual	Normal	Actual Indicators as a % of Normal
	Spirography		
ChD [respiratory rate]	14.7	20	
DO	973.4	1156.5	84
MOD [respiratory minute volume]	14276.7	7864.6	182
MP-O-2	309.6	254	122
ZhYeL [vital capacity]	2389.3	5782.6	41
KI O-2 [oxygen utilization factor]	26.9	40	67
ROVY	265.5	1734.8	15
ROVD	1150.4	2891.3	40
ROVD/ZhYeL	48.1	50	96
DO/ZhYeL	40.7	20	204
ROVY/ZhYeL	11.1	30	37
MVL [maximum pulmonary ventilation]	26.5	101.2	26
FZhYeL [forced vital capacity]	1840		
FZhYeL/ZhYeL	85.2		
OFVY	1040		
TIFFNO	48.1		
PSDV	11.1	17.5	63
RD	12.3	93.3	13
RD/MVL	46.2	92.2	50
KR	1.9	12.9	14
AV [alveolar air]	12076.7		
AV/MOD	84.6		
DE [respiratory equivalent]	4.5	2.5	182
VI	6	1.4	439
IKV	-.4		
VFV	.75		

Indicators [transliterated]	Actual	Normal	Actual Indicators as a % of Normal
	Basal Metabolism		
OO [basal metabolism]	2150.9	1795.5	120

Conclusions

Extremely low	ROVY, MVL, KR
Significantly low	ZhYeL, KI 0-2, OFVY, TIFFNO, PsDV, RD/MVL
Moderately low	
Low	DO, ROVD, IKV
Normal	ChD, MP 0-2, AV/MOD
High	
Moderately high	OO
Significantly high	MOD
Extremely high	

Significant hyperventilation
Significant disruptions of elasticity
Extreme disruption of bronchial permeability
VN2 combined type (obstructive)

Card 3

Main Administration No 4 Under the RSFSR Ministry of Health
Computer Center of the Arkhipo-Osipovka Sanatorium

Test--Program of Psychological Study of Extroversion and Neuroticism

Date: 28.01.1984 Name (last, first, middle) Kushkhova, R. I.
Test A 1.310. KVV

```
          1         2         3         4         5
12345678901234567890123456789012345678901234567890123456789012345678901234567
    11010110101111111111101001010111111001011000111101010000 1
```

Conclusion:

Degree of Introversion--Pronounced
Degree of Neuroticism--Fairly pronounced
Indicator of Lying--Negative
SPE-10 SPN-25 SPL-2

Main Administration No 4 Under the RSFSR Ministry of Health
Computer Center of the Arkhipo-Osipovka Sanatorium

Test: Program of Psychological Study of Extroversion and Neuroticism

```
          1         2         3         4         5
12345678901234567890123456789012345678901234567890123456789012345678901234567
    00110011111101010000111001110011101010010000101001011110 1
```

Conclusion:

Degree of Introversion--Moderately pronounced
Degree of Neuroticism--Pronounced
Indicator of Lying--Positive

SPE-15 SPN-21 SPL-6

Card 4

Main Administration No 4 Under the RSFSR Ministry of Health
Computer Center of the Arkhipo-Osipovka Sanatorium
Taylor Psychological Test

Date: 08.09.1983
Name: (last, first, middle) Sergeyev, A. M. 1.506
Diagnosis: Nervous exhaustion
Physician: Barbatko, L. N.
Anxiety Index = 12
Level of Anxiety--Average with a tendency toward low
Qualitative characteristics of anxiety indicators:
For body condition--25 percent
For nervous-mental activity--20 percent
For social-labor situation--29 percent
Indicator of Lying--2 negative

Main Administration No 4 Under the RSFSR Ministry of Health
Computer Center of the Arkhipo-Osipovka Sanatorium
Taylor Psychological Test

Date: 26.08.1983
Name: (last, first, middle) Sergeyev, A. M. 1.506
Diagnosis: Nervous exhaustion
Physician: Barbatko, L. N.
Anxiety Index = 22
Level of Anxiety--Average with a tendency toward high
Qualitative characteristics of anxiety indicators:
For body condition--38 percent
For nervous-mental activities--45 percent
For social-labor situation--50 percent
Indicator of Lying--2 negative

Card 5

Main Administration No 4 Under the RSFSR Ministry of Health
Computer Center of the Arkhipo-Osipovka Sanatorium
Khalfen Test

Date: 18.5.1984
Name: (last, first, middle) Matsukova, L. V.
Diagnosis: VSD [transliterated]
Physician: Tomilova, Ye. K.

Character Traits

Indecisiveness--2
Susceptibility to phobias--4
Rapid fatigue--3
Lack of trust in own powers--4
Inertia--2
High work capacity--3
Ambition--4
Strong-willed characteristics--4
Faith in own strengths and capabilities--3
Deadline pressure [Bac podgonyayut sroki]--1
Point total--0
Character type--3
Negative indicator of lying--3

Determining the reserve capacities of our patients and their physical ability to work would be impossible without an objective evaluation of the indicators which characterize the physiological functions of the body at rest, during physical stress, and during the recovery period. Hence, 64 patients, in accordance with the indicators discovered, underwent examination on a bicycle ergometer (one of the most labor-consumptive operations). A procedure of measured gradual increases in the difficulty of the load was used, with intervals for resting.

The following cardiological program was used to find patients suffering from ischemic heart disease in mass examinations under conditions of self-interview or questionnaire (the Khalfen test). Two hundred and five out of the 781 examined showed signs of possible ischemic heart disease. The diagnoses of 183 patients underwent additional clinical and instrumental testing. The use of this program significantly reduced the time ordinarily spent on preliminary diagnosis of ischemic heart disease.

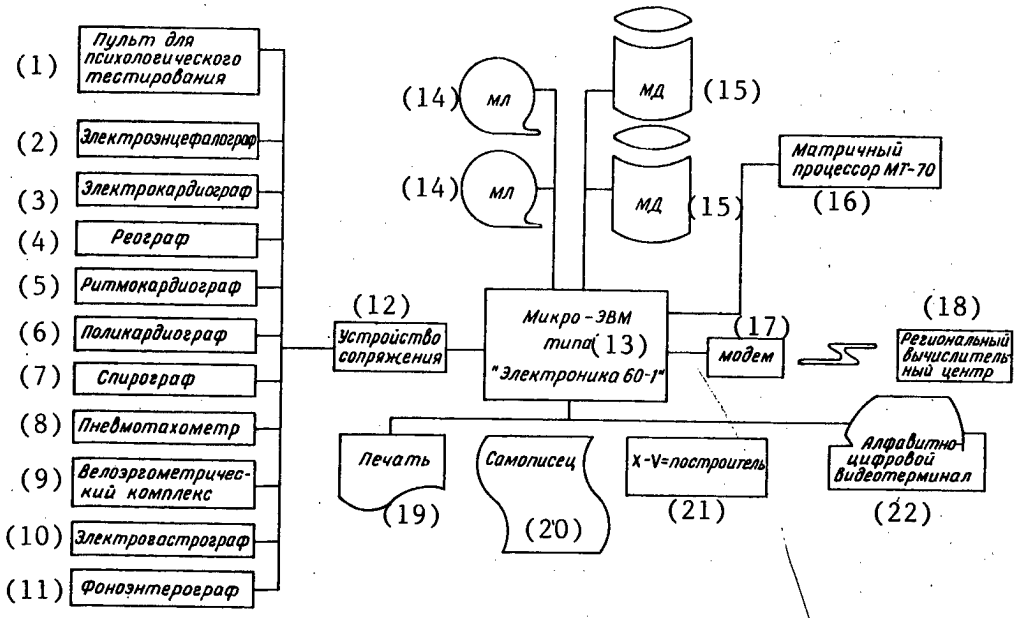
It would be incorrect to respond to questions of rehabilitation without studying the external respiratory functions, since diseases of the cardiovascular system are frequently accompanied either by concomitant or competing changes of the lungs. The computer was used to study the external respiratory functions of 489 patients (before and after treatment) of staff members. Various deviations of external respiratory functions from the norm were discovered in 212 patients on entering the sanatorium. Interpretation of the external respiratory function data on a computer was carried out not only in order to obtain information on the ventilation of the lungs and disruptions of bronchial permeability, but also to establish the reasons causing the deviations from the norm. It is easy to see that obtaining this expanded characterization of the disruptions in external respiratory functions made it possible to select the most rational treatment strategy.

As experience and the data in the literature attest, in resolving the question of the somatic state of patients it helps to have an evaluation of the psychoemotional condition. In order to do this, two automated programs were used (adapted by the Leningrad Psychoneurological Institute imeni V. M. Bekhterev) which have not yet become widely used in health resorts. Tests using the

Eysenck Scale (823 observations) have proved that a significance proportion of people who come to sanatoriums and health resorts for treatment suffer to one degree or another from protracted neurosis of the asthenic type.

The Taylor psychological test (250 observations) served as an objective evaluation of the negative emotional strain (a state of anxiety or fear).

The computer center of the Arkhipo-Osipovka Sanatorium has accumulated substantial experience of working with the computer and creating new programs. We believe it is worthwhile to make wider use of modern computer technology in clinical practice. An expanded structural schematic of a possible arrangement of an AOFD constructed on the module principle is presented in the figure. The nucleus of this system is a microcomputer of the Elektronika-60-1 type with a set of the necessary peripheral devices. In order to increase the computing capacities of the complex, we suggest hooking up an additional M-70 processor. The transmitters of original data would be medical recording apparatus put together in accordance with the specific diagnostic tasks needed, also taking into account the specialty of the sanatorium.



Structural Schematic of the Arrangement of an AOFD

Key:

1. Psychological testing area
2. Electroencephalograph
3. Electrocardiograph
4. Rheograph
5. Rhythmocardiograph
6. Polycardiograph
7. Spirograph
8. Pneumotachometer
9. Bicycle ergometer complex
10. Electrogastrograph
11. Phonoenterograph
12. Linking device
13. Microcomputer of the Elektronika-60-1 type
14. Magnetic tape
15. Magnetic disk
16. MT-70 matrix processor
17. Modem
18. Regional computer center
19. Printer
20. Automatic recorder
21. X-V = plotting device
22. Alphabet-numerical video terminal

The use of computers for processing medical-biological information in AOFDs can go in three directions: first--automated information processing (physician/operator-computer); second--completely automatic input and processing of the information received (patient-medical apparatus-computer); third--automatic input of information and the possibility of interaction by the physician-operator in the process of automatic processing of the information received.

The choice of direction is made depending on the specific tasks needed and the existing methodology and equipment. Having examined the technical capacities of computers and determined the diagnostic significance of a number of automated programs, we consider it worthwhile to adopt AOFDs in the practice of treatment-prophylactic establishments.

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OPINIONS ON COST ACCOUNTING POLYCLINICS

Moscow IZVESTIYA in Russian 17 Mar 86 p 3

[Article in column "Reader's Opinion: For, Against, Own View": "Poor Millionaires."]

[Text] L. Ivchenko's article [IZVESTIYA No. 21, 1986] discussed the situation in cost accounting polyclinics. These medical institutions provide qualified aid, but although they have significant profits, they are not allowed to independently spend a single ruble. The polyclinics suffer great difficulties with buildings and equipment. On occasion they are even deprived of the little they have managed to acquire or build with their own means . . . .

In short, cost accounting only exists on paper.

This publication aroused a great response from readers. Today we are printing a few of the letters we received.

AVOID LINES

I have long been intending to write to the USSR Ministry of Health concerning the fact that the time has come to open cost accounting polyclinics and even hospitals in every oblast center. What advantage would this provide? First, those who are genuinely ill will receive the attention they deserve, and these are mainly the elderly who are often brushed aside. Many among them would be happy to pay for qualified treatment. Second, this would eliminate the lines at budget polyclinics, and physicians would be able to give greater attention to the rest.

K. Sonin, veteran of the Great Patriotic War, Irkutsk.

HELP THE PHYSICIAN

Current salaries prompt the physician to worry less about raising his qualifications and spend more time searching for ways to earn a living. Every physician is a person after all, he has a family and financial problems. And a physician's work (like any intellectual work) does not end the moment he closes his office door.

The network of paid polyclinics must and should be expanded so that a person does not have to travel to the other end of the world to see a good physician.

A system for compensating a physician's work could be created using the fees paid for services, making it advantageous for him to work hard and raise his qualifications.

D. Demekhin, Petrozavodsk.

I AM FOR COST ACCOUNTING

In our polyclinic there is nowhere to hang your coat and nowhere to sit down in the waiting room, patients still have their coats on when they go in to see the physician, for each one there is a long line, there are not enough chairs, and people wait for two to three hours . . . . There are not enough physicians, a few sections have existed for several years without their permanent physician . . . . And when your turn finally comes, you cannot talk calmly with the physician because the line is anxiously waiting behind your back. And the physician is already tired and in a hurry himself.

Therefore I am wholly in favor of paid medical services. In the final analysis these millions go towards our health and also help develop free public health.

I. Shepelev, Party veteran and disabled veteran of the Patriotic War, Rostov-na-Don.

I DO NOT AGREE!

I was not the only one troubled by your article "Poor Millionaires." What is it urging us to do? You just think that instead of making physicians give treatment as they are supposed to, we intend to increase the number of paid polyclinics 1.4 times in the 12th Five-Year Plan, which means that the best specialists will go there. In that case, who is going to treat me and my five children?

One of our social achievements is free medical services. And this is being infringed upon! Paid polyclinics disrupt the socialist system, they should be closed.

A. Korchevskiy, Vitebsk.

Editor's Note. Are cost accounting medical institutions good or bad? Do they attract the most qualified personnel? Why does a doctor of sciences or professor not see patients in rayon polyclinics? One of the most senior employees of the Ministry of Health, head doctor of the Moscow Cost Accounting Polyclinic No. 2, V. Yankovskiy, answers readers' questions.

"First of all, a differentiation must at once be made. Those needing highly-qualified consultation and those wishing to receive it are not the same thing. There are people who are lower than a professor or doctor of sciences who are not recognized as physicians at all. It is not necessary for every patient to immediately be examined by specialists.

"The government provides people with the most qualified aid when it is required, according to medical evidence, be they sent to a cardiological, surgical or other center. In addition, at each scientific medical institute or VUZ, as a rule, there exist consultative polyclinic departments where highly-qualified specialists with academic degrees and titles work. They also hold consultations in the cost accounting polyclinics when they have some free time from their main work. They are not permitted to hold two jobs, therefore they cannot see patients in ordinary polyclinics if there is no consultative fund there (and in the majority of cases there is not). It is very fortunate that such a fund exists in the cost accounting system and that it is possible to make greater use of the knowledge and experience of specialists.

"Thus, both types of medical aid, paid and free, do not contradict each other. And, of course, they harm neither the government nor the people. Moreover, we could take even greater advantage of our opportunities, for example, medical services could be organized for entire collectives of workers through a noncash transaction with enterprises or departments. This has already happened."

How can this be done? The editorial board received a response from the Main Administration of Public Health of the Moscow gorispolkom concerning measures to be taken in connection with the publication of "Poor Millionaires." But alas, there was no response to the main question, what to do to ensure that polyclinics become cost accounting not only in word but also in deed. It is understandable that the problem is not simple, everything does not depend on the mentioned administration. Perhaps the USSR Ministry of Health can find a solution?

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CSO: 1840/1151

DEVELOPMENTS IN GERONTOLOGY AND GERIATRICS

Tbilisi ZARYA VOSTOKA in Russian 18 Mar 86 p 4

[Article edited by N. Cherkezishvili: "Goal - Active Longevity"]

[Text] During recent decades, in connection with the "aging" of the population of the USSR, there has been a significant increase in interest in gerontology and geriatrics, the science which studies the mechanisms and essence of aging, age-related changes at different levels of vital activity of the body, particulars of diagnosis and treatment of illnesses and questions of medical and social services for the elderly and senile.

Particular attention has been given in the decisions of the plenums of the CPSU Central Committee and decrees of the CPSU Central Committee and USSR Council of Ministers to the further efficient use of the country's labor potential and to ensuring the extended preservation of health, ability to work and longevity of the population.

The Republic Scientific Procedural Center of Gerontology and Geriatrics, which has been in operation since 1976 at the Scientific Research Institute of Experimental and Clinical Therapy of the Georgian SSR Ministry of Health, is engaged in scientific research and practical activity in this field. The supervisor of the center, director of the Scientific Research Institute of Experimental and Clinical Therapy, Corresponding Member of the USSR Academy of Medical Sciences, Professor Nodar Kipshidze, answers the questions of a correspondent from ZARYA VOSTOKA.

"Nodar Nikolaevich, could you tell us briefly about the history and future development of gerontology and geriatrics in Georgia."

"Questions of aging and longevity, attempts to find sources of eternal youth and the extension of human life have aroused great interest throughout history. In Georgia these questions have attracted the attention of physicians as far back as ancient times and the Middle Ages and have been reflected in the scientific treatises of the medical workers of the Middle Ages before us.

"In recent decades gerontological research, which has been widely developed in the USSR, has been coordinated by the Scientific Councils on Gerontology and Geriatrics of the USSR Academy of Medical Sciences. A comprehensive, all-union government program, "Extending Life", has been created. At present

in our republic gerontological and geriatric sections are in operation at the Republic Problem-Solving Commission of the Georgian SSR Ministry of Health and the problem-solving council for gerontology and geriatrics of the Georgian Academy of Sciences.

"We have a geriatrics department at our institute. A laboratory of social gerontology has been established. Scientific studies concerning questions of standards of living and life styles, state of health, morbidity, fatality and practical nutrition are conducted here, and urgent problems of age-related and profession-related efficiency, medical and social services for the elderly and senile and longevity are studied."

"Who in actual fact provides the population with geriatric aid?"

"Since geriatric aid in our country is not singled out as an independent service, in the same way as pediatrics, the USSR Ministry of Health adopted a decision concerning imparting a geriatric orientation to the entire general medical and prophylactic network, which provides a significant volume of medical aid to elderly and old people. This means that it is necessary to increase the knowledge of physicians in specialties, primarily physician-therapists, in all questions of gerontology and geriatrics. To this end, an ongoing seminar on the preparation of physician-therapists concerning these issues has been organized at the scientific procedural center of the institute. The lectures are conducted by highly-qualified specialists from the institute and individual departments of the Tbilisi Medical Institute."

"What is the situation in our republic concerning the creation of specialized offices directed toward work of this type?"

"At present in Georgia two geriatric offices are in operation, at the 21st Tbilisi Polyclinic and at the 2nd Sukhumi Polyclinic. For 1986 and 1987, an order of the republic's Ministry of Health stipulates the creation of 20 geriatric offices at polyclinics.

"These offices carry out organizational-procedural and medical-prophylactic work and also conduct medical-instructional propaganda among the population concerning questions of gerontology and geriatrics. Procedural aid to geriatric offices is provided by the scientific procedural center at our institute, whose task includes dissemination of special literature and the introduction into practice of new methods of prevention, diagnosis and treatment of illnesses in the elderly."

"How is hospital aid to the elderly organized in our republic?"

"At our institute, as I have already mentioned, there is a geriatrics department in operation. The organization of a republic-wide network of hospitals for providing geriatric aid to the population is proceeding successfully. However, it should be noted that Georgia's retirement homes for the elderly and hospitals for disabled veterans of the Patriotic War are also geriatric institutions, since the majority of their patients is beyond retirement age. Various specialists from our institute regularly hold

consultations, give examinations and provide the necessary assistance concerning questions of diagnosis, treatment, work therapy and diet to the employees of these medical and social institutions. Our scientific procedural center for gerontology and geriatrics systematically monitors the work of providing medical aid to retirement homes for the elderly and disabled veterans. The Institute of Therapy has assumed the supervision of the Tbilisi retirement home for recipients of special pensions.

"In September of last year a delegation of scientist-gerontologists from our institute visited the gerontology center at the Budapest Medical Institute. Our Hungarian colleagues acquainted them with the organization of medical and social aid to the elderly population. The experience of the Budapest gerontologists greatly helped us in the creation and development of effective hospital aid for the elderly population of our republic.

"After all that has been said, I would like to especially emphasize that medical aid to the elderly and senile should transcend the boundaries of the traditional sphere of medicine and be carried out in conjunction with many social services, something which is mentioned in the decree of the CPSU Central Committee and USSR Council of Ministers of May 14, 1985. There it is stipulated that the guardians of the disabled elderly should be district therapists and inspectors from rayon departments of social security. A geriatric physician can only provide complete medical and social aid to elderly and old people if social service employees, visiting nurses, the Red Cross Society, members of the medical aktiv and employees of public catering and trade establishments actively participate in this cause."

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BENEFITS FOR RURAL MEDICAL EMPLOYEES

Minsk SOVETSKAYA BELORUSSIYA in Russian 29 Mar 86 p 3

[Article by A. Olenin: "Benefits for Rural Medical Employees"]

[Text] What benefits do medical employees receive who live in rural areas in their own homes or in government apartments?

A. Shirko, P. O. Box Pyshno, Lepelskiy Rayon.

At the editorial board's request, the chairman of the Vitebsk Oblast committee of the trade union of medical employees, A. Olenin, answers the reader's question.

Physicians, pharmacists, mid-level medical personnel and apothecaries living in rural areas or workers' settlements are entitled to free apartments with heating and electricity regardless of the rank and departmental subordination of the institution in which they work.

Apartments for medical employees and members of their families are assigned in buildings belonging to the rural Councils of People's Deputies, enterprises, institutions and organizations, taking into consideration the norms in effect in the specific region. Members of the family are those who live with the employee enjoying the benefits and keep house with him, that is, husband or wife, children and parents or other relatives and disabled dependents.

A family entitled to free heating and electricity in their apartment is allotted seven metric cords of firewood or a corresponding amount of lump peat (3.2 tons), peat briquettes (2 tons), half briquettes (3.1 tons) or coal (1.4 tons) per year. Any type of fuel should be distributed in kind and delivered to the home.

The rural soviet or institution pays for heating the apartments of those employees who live in buildings with central heating according to the calculations of the central housing administration. In the same way, they pay for heating cooperative apartments of medical employees according to the calculations of the Housing Construction Cooperative if the building is hooked up to the government district heating plant.

The family is entitled to make use of free electricity in the amount of one 60-watt electric bulb for each room they occupy. Electricity is calculated on

the basis of electricity coupons for which those entitled to benefits register (one coupon - 100 kilowatt hours). The owners of the apartment pay for the use of electric heaters and household devices (electric and gas stoves, electric kettles, refrigerators, irons, televisions, washing machines.)

If the rural soviet or institution has no spare housing at its disposal, they are obligated to find an apartment and rent it for the specialist. A contract is signed for renting the apartment between the ispolkom or directors of the institution on the one hand and apartment landlords on the other.

For the period stipulated in the contract, the rural soviet or institution makes payment for the rented housing directly to the private citizens or enterprises and organizations which rented the apartment. Since free apartments with heating and electricity should be provided in kind, money should not be given directly to those for whom the housing has been rented. Monetary compensation for the cost of fuel is also prohibited.

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DEMOGRAPHIC FACTORS OF HEALTH

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 3, Mar 86 p 68

[Review by D. E. Nemirovskiy of a book by M. S. Bedny "Demographic Factors of Health" Finansy i Statistika, 1984, 244 pp]

[Text] Preventive medicine in public health is being increasingly influenced by political demography. The reviewed monograph, composed of an introduction and five chapters, is concerned with the practice of health maintenance and the influence of contemporary population characteristics. The introduction indicates the priorities of medical science and public health. Interaction between sociology, demography and medicine in the welfare of the community is emphasized. Every physician should be equipped with combined knowledge of these three sciences.

Characteristics and aspects of medical demography are reviewed and the field is integrated into the associated sciences. Several concepts of demographic processes in modern society are reviewed. Finally, justification for the establishment of demographic medicine as an independent branch of science is set forth.

The dynamics of birth rate and the study of population health trends are examined in regards to the Soviet Union as a whole as well as her separate regions. Facts are presented that show some researchers have drawn erroneous conclusions concerning the recent trend to an increased birth rate. Several factors, including population migration and the level of attained education, have a negative influence on the birth rate. An irrefutable premise is set forth that the quality of population reproduction is dependent on the health of the parent generation--which in turn influences the quantitative characteristics of the society. Drawing on the latest studies, special attention should be given to the health of women of child bearing age. The medical profession is urged to stress the importance of promulgating information leading to the realization of the meaning of a healthy relationship between man and woman. The health of a marriage is considered to be a very important factor to the well being of the family members. Also examined in details are the consequences of children born out of wedlock and unconventionalities of extramarital motherhood occurring at various ages. An overview of the

medical significance of abortion precedes the concluding comments on infertility and specialized methods for effective treatment.

Population trends and life expectancy are discussed along with epidemiological methods for ascertaining the state of health of the nation's populace. Psychiatric care personnel are criticized for not working out a complex methodology for social-hygienic testing of borderline neuro-psychiatric breakdowns in contemporary work situation. A problem of adaptation of such mental cases to the modern work conditions at the industrial plants is discussed. The logical and constructive conclusion is the necessity for studying the mental wellbeing of separate collectives and the simultaneous application of medical, psychological and demographic methods. The aging world population is discussed as a phenomenon affecting global Twentieth Century health care.

Increased life expectancy presents interesting philosophical, ethical and moral problems for the medical community. The complex arrangement of demographic politics demonstrate a basic difference between programmable planning for special purposes and a traditional, perspective one. Funding for public health improvement, increasing birth rate and the lowering of population mortality is discussed and several important topics are outlined for establishing the fundamentals for medical demography.

The reviewed monograph is an outstanding work, not only because of the accumulated facts presented from the position of systems analysis, but, because of its polemic direction and well-reasoned criticism of the separate positions shared by the contemporary demographers and organizaters of public health protection.

However, the book is not without some shortcomings. According to our views, the author doesn't stress enough the position that the general health examination (dispensarization) and striving for a healthy way of life should basically change the practice of general, individual and family prophylaxis and hygiene. On the other hand, the negative meaning of conflicts in the family relationships on the health of the husband, wife and children are stressed sufficiently. As the result of that conflict, the children end up with neurosis and deviant behavior. When they reach marriageable age they create their own unhappy family. It can be said that the unfavorable social and socio-medical consequences are appearing in the following generation. It is unfortunate that, when the author was revealing the fatal consequences of alcoholism on the health, he has not included the data of Latvian scientists. They say that, when the birth rate for the general population decreases, it increases for the chronically alcoholic female. From the social and psychological point of view the issue of the Third Child should be enlightened and elaborated upon in more details, so that the general practitioner can be equipped with concrete facts when counselling families about third and more children. The above mentioned shortcomings in no way diminish the value of this book. It seems, it will not only be a handbook for the scientists, but also for the physicians of various specialties.

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BRIEFS

REPLY TO "INCOMPLETE EXAMINATION"--In an article under this headline in the 28 October 1985 issue, our paper had a story about the employees of Municipal Hospital No. 3 being negligent in the performance of their duties. The editorial office has received a reply from the Main Administration of Health, signed by the First Deputy Chief of the Main Administrative Board, N. F. Marichevskaya. In the reply, it specifically states that "The Main Administration of Health of the Leningrad soviet ispolkom has examined the article "Incomplete Examination" by P. Solovey. The deficiencies in the management of patient A. N. Shirokov were analyzed in detail by the Therapeutic Control Commission of Municipal Hospital No. 3 with the participation of representatives from the Main Administration of Health. In the analysis, the facts concerning the incomplete examination of the patient in the admission and surgery departments were given basic evaluations. Through an order at the hospital, strict disciplinary penalties were imposed on the medical employees who had not given patient A. N. Shirokov a proper examination. The article was discussed at a meeting of the chief physicians of therapeutic-prophylactic institutions of the city. The chief physicians were informed of the need for strict observance of the Main Administrative Board orders, which regulate the sequence in which patients are examined in hospitals, and the need for educational work with the medical personnel." [Text] [Leningrad VECHERNIY LENINGRAD in Russian 15 Jan 86 p 2] 12525/12947

CSO: 1840/1142

BRIEFS

PHYSICAL STRENGTHENING OF CHILDREN--"Doctors often diagnose children as having a respiratory viral infection. Why are small children subject to it and how may it be prevented?" (I. Novikova, Rostovskaya Oblast). Respiratory viral infections of the upper respiratory tract account for over 50 percent of the total morbidity of children. Formerly, these infections were considered to be colds. Now, it has been established that viruses and microbes cause many of these. One of the reasons for the high vulnerability of children is the structure of their respiratory organs: the narrowness of the nasal passages, larynx lumina, trachea, and bronchi. A child has to breathe 3 to 5-fold more often, compared to an adult, to provide his body with oxygen. Respiratory diseases in small children are often easily and quickly complicated by gastrointestinal disorders, middle ear infection (otitis), pleurisy, and often bronchitis. For this reason, a young child who has a nasal cold, malaise, headache, weakness, and loss of appetite, should first of all be put to bed and a physician should be called. The child should be given good care and be provided with a proper diet. Smoked foods, pilafs, barbecued meats as well as fried, spicy and salted food products should not be given. One should be concerned with the prevention of respiratory diseases in a child at the earliest age; a child should be trained to withstand cold and sharp drops of temperature. The following are helpful in this: fresh air, walks in all kinds of weather, washing with cold water, sponge bath or shower after morning exercise, participation in gymnastics or sports, proper balance of work and rest, and a nutritious diet. [By D. Niyazov and Sh. Saydiganiyev, candidates of medical sciences] [Text] [Moscow SELSKAYA ZHIZN in Russian 31 Mar 86 p 4] 12525/12947

CSO: 1840/1145

ROLE OF SCIENTIFIC RESEARCH INSTITUTE OF OBSTETRICS AND GYNECOLOGY IN TRAINING CADRES

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 10, Oct 85, pp 8-10

[Article by Zh. Sh. Isaliyev, Kazakh SSR Ministry of Health]

[Abstract] The [Kazakh] Scientific Research Institute of Obstetrics and Gynecology was founded ten years ago, and within that short time span has made a telling difference in the quality of medical care in Kazakhstan. Today, the Institute employs 63 scientific workers, including one with a doctorate in the medical sciences and 27 holding the candidate degree. In addition to research and medical care, the Institute is actively engaged in improving the professional qualifications of physicians in obstetrics and gynecology. To that end the Institute organizes various conferences, seminars, and lectures, and provides clinical training in-house. Social work by the staff and students is also encouraged to raise consciousness of the needs of the population. The educational and research accomplishments of the Institute have been summarized by the publication of four collected works, two monographs, and one handbook. The Institute has also been awarded a number of medals and diplomas in recognition of its contribution to the progress of medicine.

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ORGANIZATION OF RURAL OBSTETRICAL AND GYNECOLOGICAL SERVICES

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 10, Oct 85 pp 10-12

[Article by G. V. Degtyareva and B. Zh. Alzhanova, Kazakh SSR Ministry of Health]

[Abstract] Medical progress in Kazakhstan has been reflected among other things in the quality of rural obstetrical and gynecological care, with an ever increasing number of physicians dedicated to this specialty becoming available. In addition, this has been complemented by educational measures and improvements of available facilities, especially at the level of central rayon hospitals. Thus, by 1984 the services had already been expanded to such an extent that they encompassed 72.6% of all the rural women in the early stages of pregnancy. This has facilitated detection of women with risky pregnancies and resulted in improvements in medical statistics on morbidity and mortality. Today, 99.9% of the deliveries are made in a centralized medical facility. However, some problems in the delivery of OBGYN care in rural areas persist, and one of them is the lack of adequate bed commitment to this specialty at central rayon hospitals.

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SELF-SUPPORTING PHARMACIES AND DRUG AVAILABILITY FOR HOSPITALIZED PATIENTS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 10, Oct 85 pp 19-21

[Article by V. G. Pereverzev and N. G. Tatimova, Main Pharmaceutical Administration, Kazakh SSR Ministry of Health]

[Abstract] Beginning with the seventies, a program was commenced of converting hospital budgetary pharmacies into self-supporting enterprises with a view toward improving drug availability and pharmaceutical services. Despite slow going at first, momentum picked up and by January 1, 1983 there were 124 self-supporting hospital pharmacies, and 36 interhospital and 14 hospital pharmacies maintained on a budget. In addition, more than 50 inefficient pharmacies maintained on hospital budgets have been closed. Transformation of the pharmacies in self-supporting entities has seen a remarkable increase in efficiency, service, and in the availability of drugs that are in demand. The personnel of such pharmacies demonstrate a greater sense of responsibility and motivation to do well, job satisfaction has increased, and personnel turnover has decreased.

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TRAINING GRADUATES FOR IMPLEMENTATION OF ANNUAL MASS SCREENING PROGRAM

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 10, Oct 85 pp 22-25

[Article by R. A. Satpayeva, A. S. Ismagulov, T. N. Smagulova, R. B. Tampiyeva, R. Ch. Madiyeva and N. M. Karsybekova, First Chair of Internal Diseases, Alma-Ata Medical Institute; No 7 Polyclinic, Sovetskiy Rayon, Alma-Ata]

[Abstract] Medical and allied personnel graduating from the Alma-Ata Medical Institute received both systematic training and encouragement toward a positive approach to the Soviet mass health screening program [dispensarization]. The importance of early detection and prevention, as well as the contribution that this makes to social wellbeing and industrial productivity received major emphasis. Experience with mass screening at the No 7 Polyclinic has provided practical demonstration of the effectiveness of such an approach to health care. Fully 70% of those falling in the ill category have been able to retain their jobs as a result of early detection and management. The percentage of the population encompassed by the mass screening program has grown progressively over the past 5 years, and the percentage of those reclassified from the ill to healthy category has kept pace. A large measure of the success of this program can be attributed to the inspiration and training received at the Medical Institute.

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PUBLIC HEALTH CAMPAIGN AGAINST DRUNKENNESS AND ALCOHOLISM

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 10, Oct 85 pp 3-9

[Article by A. G. Safonov, USSR Deputy Ministry of Health]

[Abstract] One of the more important measures proposed by CC CPSU and USSR Council of Ministers in their campaign to limit alcoholism concerns expansion of basic research on the problem of alcoholism and development of a prevention program. The anti-alcohol propaganda should be modified drastically, stressing public education and healthy life style. Alcoholism is harmful to the health of the population, to the economy and to overall morality. Alcoholics have been known to spread tuberculosis and venereal diseases, and their offspring is affected with such problems. Responsibility for this effort belongs to all health services including retired personnel. Individual responsibility for various transgressions must be enhanced. The current efforts are disjoined; there is a great need for coordinating this campaign on several levels at once. Special interest should be placed on preventive work among the youth. There is no safe "minimal" level of alcohol consumption. The staff of Red Cross and Red Crescent should be involved in this campaign. In addition to this, therapeutic centers should be organized to treat alcoholics, preserving their anonymity. The program to control alcoholism must be stressed continuously to be operative and effective.

7813/12947
CSO: 1840/2004

UDC 613.89:393.5

SOCIO-HYGIENIC ASSESSMENT OF GRAVID AND DELIVERING WOMEN IN LARGE INDUSTRIAL CITY AND CHARACTERISTICS OF THEIR PREGNANCY AND LABOR PATHOLOGY

Moscow SOVETSKOYE ZDRAVOOKHRANENIYE in Russian No 10, Oct 85 (manuscript received 7 Mar 85) pp 24-31

[Article by R. K. Ignatyeva, N. I. Kaderkayeva and O. B. Karpova, All-Union Scientific Research Institute of Social Hygiene and Organization of Public Health imeni N. A. Semashko, USSR Ministry of Health, Moscow]

[Abstract] Medical-demographic characteristics of children born in Lipetsk (population 393,700) in 1979 and their mothers is reported, concentrating on pathological findings of the pregnancies and deliveries. Most of the women (94.1%) were employed in local industry and only 2.6% were unemployed; most of them were pregnant for the first time; 34.7% of women had preceding complications. The next birth after such complications occurred about 24 months later, but in 30% it happened in less than 12 months. Women with limited education had more abortions than the educated ones. Only 37.3% of the subjects had non-complicated course of pregnancy. Specific complications were tabulated by age groups. High groups consisted of the youngest and oldest women (16-19 and over 35 years). References 15 (Russian).

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CSO: 1840/2004

UDC 613.6-001.12(574)

ACHIEVEMENTS AND TRENDS IN KAZAKH OCCUPATIONAL HYGIENE

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85 pp 11-14

[Article by B. Ye. Altynbekov, Institute of Labor Hygiene and Occupational Diseases, Kazakh SSR Academy of Sciences]

[Abstract] Efforts have been extended by the Institute of Labor Hygiene and Occupational Diseases of the Kazakh SSR Academy of Sciences to make the industrial environment a safer and healthier place for workers in Kazakhstan. Many new standards have been introduced and rigid pollution control has touched just about every branch of industry. With technological advances, it has been anticipated that increasing automation will place new demands on the services and expertise of the Institute, dealing with emotional and psychological stress stemming from monotony and hypokinesia. Work will continue on the implementation of mass screening (dispensarization) to prevent loss of workdays for medical reasons, with due emphasis on the threat presented by the subtle challenge of mental fatigue. The 12th Five-Year Plan will witness the further rapid development of industrial hygiene in Kazakhstan with new solutions to old and new problems.

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USE OF THREE-POINT INTERPOLATION IN QUANTITATIVE ASSESSMENT OF RELATIONSHIP BETWEEN PUBLIC HEALTH AND ENVIRONMENTAL FACTORS

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85 pp 14-18

[Article by M. Ye. Kulmanov, K. R. Amrin and K. A. Khaseynov, Kazakh SSR Scientific and Practical Center for Environmental Hygiene Problems; Alma-Ata Medical Institute]

[Abstract] In order to determine the relationship between morbidity in a population and environmental factors, in cases where the number of settlements is small, a three-point interpolation approach was taken. On this basis, a function U is sought where $U = a_2x^2 + a_1x + a_0$, and where a_0, a_1 and a_2 represent statistical coefficients, x represents the intensity of an environmental factor, and U is the level of morbidity. The equation is solved as a system of linear algebraic equations relative to a_0, a_1 and a_2, which results in determination of $U = f(x)$, which can be depicted graphically as a parabola.

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ORGANIZATIONAL MEASURES FOR CONTROLLING SEPTIC MORBIDITY IN NEONATES

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 8, Aug 85 pp 21-24

[Article by G. D. Khakimzhanova, chief obstetrician and gynecologist of the Kazakh SSR Ministry of Health]

[Abstract] Improvements in the development of health care delivery in Kazakhstan has resulted in significant improvements in the morbidity figures for neonates, which has largely been attributed to the expansion of specialized medical facilities serving pregnant women and their children. However, septic complications in the neonates continue to be a problem, and a number of factors contributing to such conditions have been identified. Two key factors implicated in neonatal sepsis are maternal infections and pre-delivery loss of amniotic fluid. Although neonatal sepsis has been reduced by some 29%, any form of maternal gynecologic surgery places such neonates at risk. It has become obvious, however, that timely and judicious use of antimicrobial chemotherapy can be a significant factor in further reducing the incidence of neonatal septic conditions. Furthermore, certain surgical improvements, such as the use of Yeltsov-Strelkov suturing in metroendometritis, has been shown effective in diminishing the risk of neonatal sepsis two-fold or better. With advancements in neonatalogy and isolation of infected newborn, still further reduction in mobidity can be anticipated.

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UDC 612.017.12 + 616--001.)2

FUNCTIONAL CHANGES IN CARDIOVASCULAR SYSTEM AND INDICES OF EXTERNAL RESPIRATION AND PERIPHERAL BLOOD IN ACUTE ALTITUDE DISEASE PATIENTS

Frunze ZDRAVOOKHRANENIYE KIRGIZII in Russian No 1, Jan-Feb 86 pp 25-28

[Article by R. O. Khamzamulin, G. F. Shmidt, A. A. Almerekova and O. N. Ragozin Kirghiz Scientific Research Institute of Cardiology]

[Abstract] High altitude conditions affect the human body leading to structural and functional changes. The goal of this study was to evaluate indices of cardiovascular, respiratory and circulating blood systems in patients ailing from acute altitude disease (AAD). This investigation showed that the reaction of cardiovascular and blood systems to high altitude conditions among individuals with AAD was more pronounced than among those with normal course of adaptation. This was manifested by increased heart rhythm, systemic and pulmonary blood pressure and intensive, early activization of erythropoiesis. The ventilation function of AAD patients did not differ from that of the control group.

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CSO: 1840/2000

PHYSICAL PERFORMANCE ABILITY OF TEENAGERS UNDER CONDITIONS OF MIDDLE AND HIGH ELEVATIONS

Frunze ZDRAVOOKHRANENIYE KIRGIZII in Russian No 1, Jan-Feb 86 pp 10-13

[Article by A. M. Tenenbaum, K. D. Abdrasulov and K. K. Kadyraliyev, Kirghiz Scientific Research Institute of Cardiology]

[Abstract] The relationship between expression of right ventricle hypertrophy and physical performance (PP) of teenagers residing in middle and high altitudes in Pamir and Tyan-Shan was studied. Boys and girls, 15-17 years of age were evaluated in Naryn city (2020 m) and Murgab (36-4200 m) (of the Tazik SSR). Indices of PP in subjects with EKG indications of initial hypertrophy of the right ventricle and those free of any such symptomatology showed no significant differences. This pointed out the adaptive character of initial hypertrophy in these subjects. Individuals with definite hypertrophy showed significant decrease of PP. Expressed hypertrophy of the right ventricle is the most significant factor limiting PP and degree of adaptation of teenagers.

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CSO: 1840/2000

UDC 614.2:63

HEALTH CARE IN AGROINDUSTRIAL RAYON

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 2, Feb 86 (manuscript received 23 Sep 85) pp 3-5

[Article by B. P. Tarasov, first secretary, Gorodok RK [Rayon Committee] Communist Party of Belorussia]

[Abstract] A summary report is presented of health delivery in the Gorodok Rayon of Vitebsk Oblast, an agroindustrial area with 14 state farms, 21 collective farms, and one poultry enterprise. In the present Five-Year Plan, considerable progress has been made in further improvement of health care delivery, largely due to the concern and commitment displayed by party and government workers. New hospitals have been constructed and equipped with the latest in medical technology, and various other medical facilities have been upgraded and made more accessible. The population of Gorodok Rayon is now served by 58 physicians and 308 allied medical personnel, which markedly improved the physician:population ratio. Educational and screening methods have been employed to reduce morbidity due to intestinal infections, and the hygienic aspects of working conditions have been improved. Much, however, remains to be done in overcoming alcoholism; loss of work days due to trauma remains at too high a level. In addition, medical transportation has not yet reached the level necessary to assure immediate care to widely scattered settlements. Many of these remaining problems can be overcome by a more concerted and centralized approach.

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CSO: 1840/2051

ORGANIZATION OF HYGIENIC EDUCATION IN KAZAKH SSR

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 7, Jul 85 pp 8-11

[Article by S. S. Niyazova, chief physician, [Kazakh SSR] Republic House of Sanitary Education]

[Abstract] Health and sanitary education in the Kazakh SSR is based on the "Plan for Fundamental Measures in Improving Hygienic Training and Education in 1981-1985", which was developed at the [Kazakh SSR] Republic House of Sanitary Education conjointly with 40 ministries and departments. The plan has received the approval of the CC of the Kazakh CP. The plan makes provisions for extensive use of propaganda and other means of mass communication in bringing health facts to the public, particularly the younger generations. In many cases the educational programs have been made-to-order for specific groups of people in order to generate the widest audience possible. For example, specific films have been prepared for young people about to enter marriage, while others are suited for children, agricultural workers, etc. Specific programs tailored to the need of rural workers have resulted in a success rate which has already encompassed 75.9% of the agricultural workers in such training course. By their perseverance the medical personnel of Kazakhstan have demonstrated their concern for the wellbeing of the people.

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CLINICAL ASPECTS AND TREATMENT CHOICE IN ALCOHOLIC WOMEN

Alma-Ata ZDRAVOOKHRANENIYE KAZAKHSTANA in Russian No 7, Jul 85 pp 55-57

[Article by E. V. Baturina and S. A. Tusupbayeva, Chair of Psychiatry, Karaganda Medical Institute]

[Abstract] A clinical and catamnestic study was conducted on 62 women with chronic alcoholism and somatic and mental complications. The fundamental factors predisposing or leading to alcoholism were basically 'cerebrosomatic' lability in conjunction with adverse effects of social and psychological stress. Alcoholism in women, although not exclusively confined to any class in terms of social stratum or education, was more frequent among the less-educated with a more limited scope of intellectual interests. A significant predisposing factor was a family history of alcoholism. These factors should be taken into consideration in deciding on the treatment of choice, as well as in preventive measures.

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SYSTEMS ANALYSIS OF PRIMARY DISPENSARIZATION

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 11, Nov 85 (manuscript received 4 Feb 85) pp 6-8

[Article by V. N. Rostovtsev and V. A. Koshechkin, Central Scientific Research Laboratory, Belorussian Institute for the Advanced Training of Physicians; Scientific Research Institute of Occupational Cardiology, All-Union Cardiology Scientific Center, USSR Academy of Medical Sciences]

[Abstract] Some considerations were given to the basic concepts underlying mass medical screening, a course of action designed to identify healthy individuals at risk of a disease. Distinction is made between "primary" screening designed to monitor healthy subjects, and "secondary" screening dealing with affected individuals (which is intended to prevent, or reverse progression, or to cure). Using coronary heart disease as an example, the contention is made that epidemiologically derived risk factors per se are an inadequate criterion in primary screening due to their statistical nature. Complete analysis and actual appreciation of risk factors requires a complex approach based on a multiplicative model: genetic risk + ontogenic risk + environmental risk, supplemented with mixed risk (genetic risk + empirical risk). Thus, primary screening should be based on a familial principle rather than on epidemiological grounds to identify individuals at actual, rather than theoretical, risk. References 5 (Russian).

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UDC 614.2:613.6

ROLE OF COMBINED ENGINEERING AND MEDICAL TEAMS IN REDUCING OCCUPATIONAL MORBIDITY

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 11, Nov 85 (manuscript received 21 Jun 85) pp 9-11

[Article by I. S. Asayenok, docent, Chair of Health Protection, Minsk Radiotechnical Institute]

[Abstract] The creation of specialized teams of physicians and engineers or other technical personnel is an absolute prerequisite for reducing occupational morbidity at various enterprises. The expertise of such combined teams makes possible a holistic assessment of the working conditions, risk factors, and improvements that can be made both in the physical and behavioral environment. In addition, the combination of specialized knowledge allows for pre-emptive changes in the work environment that will ensure a combination of medical wellbeing and high productivity. A thorough analysis of all the morbidity and productivity indexes can only be accomplished by a combined medicoengineering team, which can then devise scientifically substantiated schedules of rest breaks, clinic visits, shift hours, vacations, and so forth, in conjunction with high quality productivity. Such teams, then, can be counted on to make a significant contribution to the further advancement and development of socialism in the USSR. References 6 (Russian).

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UDC 616-084:362.147

ADMINISTRATION OF DISPENSARIZATION IN SVETLOGORSK RAYON

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 11, Nov 85 (manuscript received 2 Apr 85) pp 13-14

[Article by B. M. Lyubaskin and V. N. Shkurko, Svetlogorsk Central Rayon Hospital, Gomel Oblast]

[Abstract] In conjunction with the national health program, mass health screening was organized in Svetlogorsk Rayon on the basis of geographical subdivision of the area into 25 districts (uchastoks). Each district contained a population of 1800 to 1850, permitting the local internist intimate contact with the residents. Using this approach, the campaign was successful in covering 92.1% of the rayon population in 1984, with the results demonstrating that 60.6% of the population fell into the "healthy" category, 12.1% were deemed to be in a satisfactory state of health, 6.2% were assigned into a health risk category, and 21.1% were diagnosed with an illness. The success of the campaign was dependent on the full support of party activists and government workers, and cooperation and understanding shown by industrial and agricultural leaders. Public eduation among adults and children was an integral component of the entire effort, as was the creation of mobile medical teams to reach distant agricultural settlements. However, outreach difficulties were encountered in situations where there was no district physician, and to that end permanent mobile teams will be established.

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UDC 618:614.(-22)

BELORUSSIAN SSR CONFERENCE ON OBGYN HEALTH CARE IMPROVEMENT IN RURAL AREAS

Minsk ZDRAVOOKHRANENIYE BELORUSSII in Russian No 11, Nov 85 p 71

[Article by V. K. Lysenko and T. V. Zhukova, candidates of medical sciences, Minsk]

[Abstract] A conference was held on July 3-5, 1985, in Svislochi, Grodno Oblast on the delivery of obstetrical and gynecological care in rural areas. The conference addressed the problem as it pertains to the situation in Belorussia, with Svislochi Central Rayon Hospital selected as the site of the conference because its experience has been well publicized [Kolomytskiy, I. I., Zdravookhraneniye Belorussii, No 12: 7-10, 1984]. Basically, the approach consists of the development of a network of outpatient ambulatories across the rural areas, with interconnection to more centralized clinics and hospitals. Immediate care and consultation can be obtained at the local sites, and referrals are easily arranged to facilities with greater expertise and specialized services. The conference ended with the generally accepted acknowledgement that the system developed in the Svislochi region should be applied to the entire Belorussian SSR.

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UDC 614.21(-22):519.24/.27

STATISTICAL ANALYSIS AND MATHEMATICAL MODELING IN RURAL HEALTH CARE

Kishinev ZDRAVOOKHRANENIYE in Russian No 1, Jan-Feb 86 (manuscript received 11 Nov 85) pp 6-12

[Article by V. I. Kant, V. F. Taraskin, L. G. Asatryan and Yu. O. Oganyan, Central Order of Lenin Institute for the Advanced Training of Physicians, Moscow]

[Abstract] A discussion is presented of the application of statistical analyses and mathematical modeling in health care, with examples showing the information that may be derived in this manner and the way it can be used to enhance health care delivery. One of the more important problems that is addressed is the selection of a representative group or factor on the basis of which generalizations and extrapolations can be based, especially as it applies to rural conditions. This is considerably facilitated by the use of multimeric statistical analysis when complemented by computer-based data processing. Rational time utilization and scheduling are provided for specialists in the surgical services based on mathematical modeling, and further consideration is accorded to the use of the chi-square test for the analysis of morbidity in relation to various social, occupation, domestic and health care factors. Figures 1; references 10: 8 Russian, 2 Western.

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UDC 616-053.2:313.3

ATTEMPTED REDUCTION OF MORBIDITY IN FIRST 3 YEARS OF LIFE IN MUNICIPAL PEDIATRIC UCHASTOK [DISTRICT]

Kishinev ZDRAVOOKHRANENIYE in Russian No 1, Jan-Feb 86 (manuscript received 5 Jul 85) pp 43-45

[Article by T. A. Bazilevich and N. P. Yalovleva, Chair of Pediatric Diseases; Problems Laboratory in Pediatrics, Central Scientific Research Laboratory, Kishinev Medical Institute]

[Abstract] An analysis was conducted on the factors that could be employed within the setting of a polyclinic service to minimize morbidity among children less than 3 years old, based on a study of 140 pediatric cases. For purposes of analysis, the cohort was subdivided into 70 well children (average of 2.5 illnesses/yr), and 70 sickly children (an average of 7.8 illnesses/yr). The data showed that the morbidity of the latter group could be reduced by more thorough medical management of acute respiratory infections with the use of immunostimulants and delaying discharge until full recovery had occurred. In addition, such episodes should be followed by full rehabilitation regimens. Additional measures should include complete clinical workups and attention to, and correction of, such premorbid conditions as anemia, rickets, dystrophy, and so forth. Finally, the parents should be educated to provide the optimum in home health care, including massage, exercises, outdoor recreation, proper nutrition, and hydrotherapy. References 3 (Russian).

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UDC 616.12-073.97:616.12-084.3

RAPID EKG DIAGNOSIS IN DISPENSARIZATION

Moscow KLINICHESKAYA MEDITSINA in Russian No 2, Feb 86 (manuscript received 28 May 85) pp 76-80

[Article by Yu. V. Anshelevich and A. D. Kalvelis, 1st Chair of Internal Diseases, Riga Medical Institute]

[Abstract] A rapid EKG diagnostic method has been developed for use in the mass health screening (dispensarization) program in Latvia. The essential features of the approach are the use of only 5 electrodes (right hand, left leg, 3 chest leads), with the leads connected in such a manner as to provide a recording of 3 orthogonal (X, Y, Z) and one chest (V) leads in a horizontal plane between leads X and Z. Clinical experience with some 700 cases has shown the approach useful in identifying 26 EKG parameters that, by the use of a specifically designed algorithm, allow the differentiation of 19 EKG syndromes (e.g., shortened P-Q interval, arrhythmia, high voltage of QRS complex, etc.). This method was in good agreement with standard medical examination, showing a full concordance rate of 77.7% and a partial concordance in 20.8% of 264 cases, with a discordance of 1.5%. The miss rate with rapid EKG diagnosis was 2.6%, largely due to a low index of suspicion of intraventricular conduction defects. A false-positive conclusion rate of 1.9% was largely due to too high an index of suspicion of left ventricular hypertrophy. References 10: 7 Russian, 3 Western.

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UDC 616.89--008.441.13

CLINICAL CHARACTERISTICS OF ALCOHOLISM WITH DIFFERENT RATE OF PROGRESSION

Kazan KAZANSKIY MEDITSINSKIY ZHURNAL in Russian No 6, Nov-Dec 85 (manuscript received 19 Mar 85) pp 440-442

[Article by D. D. Yenikeyeva, Department on the Study of Molecular Mechanisms of Narcomania (I. N. Pyatnitskaya, head professor) of Second Moscow Order of Lenin Medical Institute imeni N. I. Pirogov]

[Abstract] Atypical forms of alcoholism (rapidly progressing form and slowly progressing form) are analyzed and compared to the typically progressing form of the disease. The rapidly progressing form is discussed in terms of 3 stages. This form of alcoholism is characterized not only by specific features of formation and manifestation of clinical symptoms of alcoholism, by rapid onset of these symptoms, by the shorter length of the pre-clinical stage of the disease (social drinking) and the initial stage but also by the earlier arrival of symptoms of alcoholism than is the case in clinically typically progressing alcoholism. Slowly progressing alcoholism is discussed in 2 stages (it seldom progresses to a third stage). This variant differs from the rapidly progressing variant by the relative late appearance of typical clinical signs of alcoholism, the rudimentary character of many of the symptoms, the lack of gross symptoms such as bouts of heavy drinking, compulsive drinking and social conflicts and retention of the ability to meet ordinary social obligations. The patient's personality is preserved longer in this type of alcoholism than it is in persons with the rapidly developing variant of the disease.

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ORGANIZATIONAL ASPECTS OF PROTECTING MENTAL HEALTH OF WORKERS AT MAJOR INDUSTRIAL ENTERPRISES

Moscow SOVETSKAYA MEDITSINA in Russian No 12, Dec 85 pp 77-78

[Article by B. S. Polozhiy, candidate of medical sciences, Tomsk Branch, All-Union Scientific Center of Mental Health, USSR Academy of Medical Sciences]

[Text] Protecting the mental health of workers employed at industrial enterprises is of both medical and social importance. This is because neuropsychic disorders have a negative influence on fitness for duty, labor productivity and microsocial relations under conditions of production. This problem takes on even more significance due to the contemporary demographic situation, in which the shortage in the labor force increases the importance of maintaining and improving the health of each productive member of society.

Research into the mental health of industrial workers was initiated shortly after the Soviet government was established. This research made it possible to develop and implement a number of valuable psychohygienic and psychoprophylactic measures [5].

The responsible tasks which face medical science and public health, the gradual change towards providing the population with general prophylactic medical examinations [dispensarization] and the increasing role of prophylaxis require that psychiatrists both find new ways and methods for preventing neuropsychic pathologies and organize psychoprophylactic help.

We have used a special procedure [4] to examine several thousands of workers employed at a major industrial enterprise in Tomsk. The results obtained from the study showed that borderline conditions (neuroses and conditions similar to neuroses of varying genesis) constituted the bulk of all neuropsychic disorders (81.4 percent).

This group of patients is distinguished by a particular group of clinical characteristics. While the patients have no pronounced mental disorders and are fully aware of their condition, they are clinically and socially maladjusted and require specialized care. Our experience shows that arranging

for a stay in a psychoneurological public health clinic is not only unnecessary for this group of patients, but can also trigger additional mental trauma. Of more benefit are dynamic examinations coupled with the necessray preventive, therapeutic and rehabilitative programs in an environment which resembles general medical institutions and production as much as possible.

It was with this objective in mind that an operating model of a psychoprophylaxis service was created at a major industrial enterprise--the Center for Health Protection. Before this Center was organized, large-scale preparations were made with the administration, party and public organizations at the enterprise, as well as with collectives of production subdivisions, including psychohygienic components.

The primary objectives of this Center are to develop and incorporate measures for the initial prevention of neuropsychic disorders in workers employed at the enterprise, participate in giving prophylactic medical examinations to the workers, actively seek out ill patients and provide them with timely treatment mainly in outpatient clinics [ambulatoriya], render social-prophylactic assistance as well as to reveal and then eliminate (together with the administration) certain risk factors involved in the development of a neuropsychic pathology.

The Center for Health Protection is made up of a number of subdivisions. The office for outpatient reception, which is headed by a psychiatrist, is responsible for carrying out prophylactic examinations on enterprise workers, conducting dynamic observations on and treating ill patients as well as for coordinating the work performed by all subdivisions of the Center. A medical psychologist works at the office of psychological research, which assists in carrying out diagnoses as well as in selecting the best preventive and rehabilitative programs. All necessary paraclinical studies (electroencephalography, electrocardiography, roentgenography, laboratory research) are carried out in tandem with plant polyclinics. Medication therapy is administered in a special office taking into account the distinguishing characteristics of the psychopharmaceutical preparations.

An office for emotional relief is of particular importance in the activities of the Center for Health Protection. This is because psychotherapeutic methods are paramount in effecting the rehabilitation of patients suffering from borderline neuropsychic disorders. The psychotherapist who works in this office applies various kinds of therapies, including autogenous training, rational psychotherapy, suggestion in the alert condition, mental relaxation, musical therapy and psychotherapy through playing games. Typically, all traditional methods can be adapted not only to specific patients, but also to the distinguishing characteristics of production conditions and routine, the kind of work and so on.

Another important aspect of the work done in the Office for Emotional Relief has to do with carrying out initial preventive measures. To this end, five-minute-long emotional relief sessions are held in the middle of the work shift directly in the shops, primarily in the conveyer shop, during which technical means such as diapositives and music are used. The aim of the

method developed by us is to eliminate fatigue and tension, provide a break from main activities and ease the monotony of work and hypodynamia. The above provides a relatively effective mental and physical relief and also prevents neuropsychic disorders.

An analysis conducted on the initial results obtained from the work done by the psychoprophylactic complex at a major industrial enterprise showed that, according to data from a 2-year catamnesis, almost 90 percent of the patients either recovered or displayed steady clinical improvement. The same analysis revealed a decrease in the number of hospitalizations in psychiatric hospitals as well as a drop in temporary disability due to mental disease.

The model of psychoprophylactic service at a major industrial enterprise, here presented, is an alternative. There are also other organizational versions which are applicable at specific kinds of plants, depending on their size, structure and economic resources. Overall, it is necessary to create a psychoprophylactic care system at major industrial enterprises, something with which a number of authors concur [1 - 3]. This will supplement the existing system of public psychiatric health services and specialized medical services at industrial enterprises, as well as contribute to strengthening the mental health among the population of the country which is fit for work.

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GEORGIAN-INDIAN PHYSIOLOGICAL RESEARCH

Tbilisi ZARYA VOSTOKA in Russian 12 Feb 86

[GRUZINFORM report: "Georgia-India: Collaboration of Physiologists"]

[Text] The scientists of the Physiology Institute imeni I. S. Beritashvili of the Georgian SSR Academy of Sciences have started joint research with their Indian colleagues. They will be working together in a program in which certain aspects of the pathology and therapy of the higher nervous activity in man and animals will be studied as well as the problems of nutritional behavior regulation.

Contacts between the Georgian physiologists and the scientists of the Institute of Neurophysiology of the All-Indian Center of Medical Sciences were established last year at the time when Academician M. Khananashvili of the USSR, director of the Physiology Institute, visited India. At the request of the Indian National Academy of Sciences, M. Khananashvili gave lectures in a number of cities. At the same time, this Soviet physiologist, member of the most important scientific societies of the world and vice-president of the International Organization for the Study of the Brain, was elected as an active member of the Indian Academy of Yoga.

Academician Khananashvili said, "The problems that we are working on jointly with our Indian colleagues are quite urgent. The development of industry and the growth of the information flow have placed significant loads on the human brain. And, another feature of the second half of the century may be added--hypodynamia, the undesirable concomitant of persons engaged in mental work. New methods of treating and preventing "information pathology", developed by the staff of our institute, will help solve a number of problems facing our Indian colleagues. In turn, the results of studies of the Indian scientists are of great interest. As you know, they investigate the neurophysiological and psychological aspects of body self-regulation, and this constitutes the most important component of the scientific prerequisites in the system of knowledge and yoga methods. This system is known to be used in the training of Indian astronauts."

"Today, as we start these specific joint studies," said Academician Khananashvili, "I want to point out that the initiator of this collaboration was Indira Gandhi. I remember meeting the great daughter of the Indian people in India in 1983. During our conversation Indira Gandhi stressed the importance of developing Soviet-Indian collaboration in the field of science, specifically, in physiology."

"In today's world, where everything is interrelated, it is difficult to overestimate the importance of the international collaboration of scientists," said Academician Khananashvili in conclusion. "Collaboration enriches science and widens its horizons. Our institute is actively working with colleagues from the German Democratic Republic, Poland and Czechoslovakia. We welcome the planned contacts of Georgian physiologists with the scientists of Japan and U.S.A. I am convinced that the Geneva Meeting at its highest level opened a promising outlook for this."

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BRIEFS

FIRE PREVENTION IN KIRGIZIYA--[Headline:'1327 Fires in 1985 in Republic in Residential and Outbuildings'] The leading causes are: careless handling of gasoline, heaters and warming devices, and children playing with fire. We ourselves are often responsible for the causes of fire. We do not explain to children the danger of playing with matches, allow smoking in bed, and leave the television set on unattended. MANY THINK THEY WILL BE LUCKY. But, this is not so. One always has to pay for negligence and carelessness, and often a heavy price. Comrades! Be vigilant, do not leave children unattended. Keep matches and highly inflammable agents in places children cannot reach. DURING THE HEATING SEASON BE PARTICULARLY CAREFUL IN HANDLING HEATERS AND WARMING DEVICES! [By the Fire Protection Administration of Kirgiz SSR MVD and the Kirgiz Advertising Agency] [Text] [Frunze SOVETSKAYA KIRGIZIYA in Russian 5 Feb 86] 12525/12947

CSO: 1840/1145

BRIEFS

MADAGASCAR PHYSICIANS VISIT UZBEKISTAN--Participants of the 2nd Conference of the medical community of Madagascar [Malagasy Republic], Mauritius and the Soviet Union attending "Physicians for Peace and Social Progress" are becoming acquainted with Uzbek life. Minister of Health Jean Jacques Serafin headed the Madagascar delegation and Doctor Patrick Chuy Van Chong headed the Mauritius delegation. The guests have visited the Exhibition of Achievements of the UzSSR National Economy and a number of health institutions and have been sightseeing in Tashkent. They took part in an antiwar meeting when they visited the Tashkent State Medical Institute. The physicians of Madagascar and Mauritius met with activists of the Uzbek Society of Friendship and Cultural Relations with Foreign Countries. On 4 April the delegations of Madagascar and Mauritius were received at the Supreme Soviet Presidium of UzSSR. [Text] [Tashkent PRAVDA VOSTOKA in Russian 5 Apr 86 p 2] 12525/12947

CSO: 1840/1162

UDC 581.9(571.511)

COMPARISON OF GEOGRAPHICAL STRUCTURE OF SPECIFIC FLORAE FROM TAYMYR PENINSULA TUNDRA ZONE (ARCTIC CENTRAL SIBERIA)

Leningrad BOTANICHESKIY ZHURNAL Vol 70, No 9, Sep 85 (manuscript received 28 Jul 83) pp 1224-1232

[Article by M. V. Sokolova, Botanical Institute imeni V. L. Komarov, USSR Academy of Sciences, Leningrad]

[Abstract] A comparative geographical analysis of 8 specific Taymyr florae was performed by procedures recommended in floristic literature concerning the North in terms of latitudinal (zonal) and longitudinal groups of species. Values of the Sorensen-Chekanovskiy measure of similarity as modified by Semkin for weight sets were used to compare percent spectra of the geographical elements for all pairs of florae. Dendorgrams of maximum similarity and optimum dendrites were calculated on the basis of values obtained. There was high similarity in geographical structure of all Taymyr florae studied. The zonal position is the decisive factor in differentiation of florae according to their latitudinal and longitudinal structure. The fraction of cryophytes in almost all florae studied is much higher than that in their zonal analogs in eastern Bolshezemelskaya tundra and on Chukotskiy peninsula, possibly due to the extension of the Taymyr peninsula to the North and the high basicity of the soils. The florae studied may be classified in the central Siberian (Taymyr) variant of eastern Siberian florae of the Arctic, according to characters determined and according to the typical combination of longitudinal elements. Figures 2; references 11 (Russian).

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