

Evseeva S.A., Burtseva T.E., Chasnyk V.G.

MEDICAL AND ECONOMIC BENEFITS OF AUTOMATED COMPLEX ACPEP-ACPME

ABSTRACT

The paper presents an assessment of the economic and medical efficiency of the automated complex for prophylactic medical examination ACPEP-ACPME (automated complex of preventive examination of population and automated complex for prophylactic medical examination) for dispensary / preventive examination of children in the areas of the Republic of Sakha (Yakutia)

Technology ACPEP-ACPME needed for preconditioning the list of children in need for advice by specialists. This is especially true in the country districts, where narrow specialists come brigade on a small amount of days.

Keywords: children, automated systems, medical examination.

INTRODUCTION

The organization of public health care in remote inaccessible areas of the Far North has always been one of the most difficult tasks of Health. The complexity of the problem largely involves the specifics of livelihood systems and low-power of the health infrastructure in the conditions of extreme climate.

Personnel shortage of pediatric doctors in rural and remote northern settlements imposes a very peculiar mark on the organization of medical care for children's population. [1-5]

We present an assessment of the economic and medical efficiency of the automated complex ACPEP-ACPME for advanced preventive medical examinations of children in the areas of the Republic of Sakha (Yakutia)

Since 1993, Russia is the introduction of automated systems of dispensary examinations ACPEP-ACPME (automated complex of preventive examination of population and automated complex for prophylactic medical examination) children and adolescents and adults since 2005 - ACPME

Medical effectiveness complex ACPME confirmed state tests and many years of work, is over 80%. Experience ACPME use in practical public health shows that their application enables[4,5].

- Increasing the efficiency of medical examinations by 3-4 times.
- Reducing the economic costs of inspections (4-5 times).
- Exemption of medical specialists from routine inspections brigade, ie reduction of personnel shortage.
- Operative reception of objective health monitoring data of the population with the ability to analyze and forecast.
- The evolutionary transition to a "paperless" technology.
- Rigid standardization dispensary inspection procedures and evaluation of the results and, as a consequence, a sharp decrease in subjective factors.

The consistent reduction within 5 years of planned hospitalization by 18-20%, disability children up to 15% due to the early detection of chronic diseases and timely treatment and rehabilitation work [4,5].

Purpose: Assess the economic and medical efficiency of ACPME in the areas of the Republic of Sakha (Yakutia).

MATERIALS AND METHODS

The calculation of the economic and medical efficiency of ACPME using previously obtained data A.TS. Lyaskovika [5].

RESULTS

As part of the "health care modernization" program, this technology - automated complex dispensary inspection - ACPME was delivered in 10 Arctic areas: the Anabar, Abyisky, Oleneksky, Bulun, Ust-Jansky, Allaikhovskiy, Lower Kolyma, Mid-Kolyma, Zhigansky, Kobyayskiy areas.

To calculate the cost-effectiveness of the method used ACPME A.TS. Lyaskovika (Table 1-2). The cost of examination of the child by a brigadier of 867.6 rubles. And the cost of the inspection apparatus AKDO child is 135.6 rubles.

Table 1
Calculating the cost of examination of the child by Brigadier

Number of medical specialists	N = 8-9 people
Number of middle medical personnel	N1=1
The capacity of medical specialists	B = 4000 person / year
The cost of laboratory tests (2015).	Blood-400rub., Urine -250 rubles. Total K = 650rub.
The average doctor's salary for the year	D1=42000·12=504000 rub.
The average nurse's salary for the year	D1=24,102·12=289,224
Medical effectiveness "Brigadier inspection" (according to the National Research Institute of Public Health of the RAMS)	F=11%
The cost per child	$C_{\text{реб.}} = N \cdot (D + D_1) : (B + K)$ $8 \cdot (504000 + 289,224) : (4000 + 650) = 867,6 \text{ rub.}$

Table 2
Calculating the cost of a child by a examination apparatus ACPME

System Cost	A=250000 rubles
System capacity	B=4000 person / year
Tact inspection system	C=10 минут
The number of medical staff	1 pediatrician, 1 nurse
The average salary for the year physician	D=42000·12=504000
The average salary for the year nurse	D1=24,102·12=289,224
Medical efficiency of the system (according to the state tests)	F≥90%
Statutory annual rate of recoupment of capital expenditures	E=0,15
The cost of laboratory tests	Blood-400 rub., the urine-250rub., a total of K = 650 rubles.
The approximate cost of system maintenance analysis	N=10% год
Approximate cost of utilities (heat and light)	АСРМЕ=64000 руб.в год
The cost per child	$C_{\text{child.}} = (A \cdot E + A \cdot N + D + D_1 + L) : (B + K) =$ $(250000 \cdot 0,15 + 250000 \cdot 0,1 + 504000 + 289,224 + 64000) : (4000 + 650) = 135,6 \text{ rub.}$

Comparison of the effectiveness of examination of the child by a brigadier and ACPME shown in Table 3

Table 3**Comparative data of medical examination of the child by a brigadier and the use of technology ACPME**

Indicators	Brigadier method	ACPME
Medical efficiency, %	7-11% (according to the National Research Institute of Public Health of the RAMS)	More than 80% (according to the manual, and reviews of health facilities)
Capacity, pers. / Year	4000	4000 and more
Approximate cost of inspection, rub	1157,78rub (According to the Health Committee of Republic of Sakha (Yakutia))	135,6 rubles
The economic effect	On children at 4000 the total amount is 3,470,400 rubles	In 4000 the total amount of children will 542400. Savings 2928000

So, the average cost of such a medical procedure using the medical examination ACPME 6.4 times below, the medical effectiveness of over 80% than brigade method.

During the implementation of this technology in the field revealed that, as in the Arctic regions actually work 1 or 2 pediatrician physically do the work for the implementation of this technology has been very problematic. Since the examination of the child at 1 ACPME unit it takes 20-25 minutes on average. Therefore, in our opinion, it is advisable to use this technology in the regional centers, trained in the use of the nursing staff of technology.

CONCLUSIONS

The use of automated systems of preventive medical examinations of children provides a direct economic and medical impact. An examination of one child is about 6.4 times cheaper, and the medical efficacy of more than 80% according to the operation of health care facilities, and reviews.

On average, the price of such medical procedures as a physical examination by a ACPME 6-7 times lower and medical efficiency is more than 80% than the brigade method.

REFERENCE LIST

- 1 Aleksandrov V.L. Organizatsiya vyisokotekhnologichnykh tsentrov spetsializirovannoy meditsinskoy pomoschi v usloviyakh Kraynego Severa (po materialam Respubliki Saha (Yakutiya))// V.L. Aleksandrov// Avtoref. dis. doktora med. nauk. M, 2003, p.35.
2. Aprosimov L.A. Dinamika obespechennosti kadrami pediatricheskoy sluzhby Respubliki Saha (Yakutiya) /L.A. Aprosimov, D.A. Chichahov// Yakutskiy meditsinskiy zhurnal, 2015. 4(52), p.48-51
3. Burtseva T.E. Etnicheskaya geterogennost i prirodno-klimaticheskie usloviya kak faktoryi planirovaniya meditsinskoy pomoschi detskogo naseleniya Respubliki Saha (Yakutiya)/T.E. Burtseva// Avtoref. diss. ...doktora med.nauk. SPb., 2010, p.42.
4. Vorontsov I. M. Sozdanie i primeneniye avtomatizirovannykh sistem dlya monitoringa i skriniruyushey diagnostiki narusheniy zdorov'ya I.M. Vorontsov, V.V. Shapovalov, Yu.M. Sherstyuk//SPb.: izd. «Kosta», 2006, p. 331
5. Lyaskovik A.Ts. Nauchnoe obosnovaniye kontseptsii organizatsii meditsinskoy pomoschi detskomu naseleniyu, prozhivayuschemu v regionakh Kraynego Severa s nizkoy plotnostyu naseleniya /A.Ts. Lyaskovik//Avtoref. Diss. ... doktora med.nauk. SPb., 2004, p.40.

FGBNU YNC CMP:

Evseeva Sardana Anantolievna - postgraduate student of GBOU VPO "Saint-Petersburg state pediatric medical Academy";

Burtseva Tatiana Egorovna - Dr Med.Sci., Deputy Director for science of the FGBNU YNC CMP;

Chasnik Vyacheslav Grigorievich - Dr Med Sci, Professor, head of lectern of «The State pediatric medical Academy of St. Petersburg».