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A SURVEY ON WORKING ENVIRONMENT, PERFORMANCE AND SATISFACTION AMONG PEDIATRIC SONOGRAPHERS IN RUSSIA: FINDINGS AND DISCUSSION

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ABSTRACT — Conducting sociological investigation is an important condition for the implementing effective and targeted health policy. However, such studies, regarding ultrasonic diagnostics specialists are not enough. The article deals with analysis of results of the survey of ultrasonic diagnostic specialists on the issue of evaluation the quality of services provided for ultrasound diagnostics. Among the main factors affecting the quality of ultrasound diagnostics in Russia, doctors' workload and inadequate material and technical base were often noted. Surveys of specialists allow to identify problem areas of an organizational, informational and technological nature in the work of the ultrasound service and take measures to eliminate them.

KEYWORDS — children, ultrasonic diagnostics specialists, quality ultrasonic diagnostics, quality, sociologic survey.

INTRODUCTION

Despite the importance of the problem of quality of medical care, according to majority of researchers, the problem is still unsolved due to its versatility [8, 10]. The problem comprises such categories as qualification, timeliness, availability, and compliance with medical and economic standards for achieving the final result of treatment [4, 5, 7, 9].

During last 60 years' biomedical applications of ultrasound have experienced tremendous growth. At any time, patient safety was an important issue from the beginning, the study of methods for measuring exposure levels, and their relationship to possible biological effects, paralleled the growth of the various therapeutic and diagnostic techniques. The continuously developing conditions of use have presented a range of exposure measurement challenges, and the sensors

and techniques used to evaluate ultrasound fields have had to evolve as new or expanded clinical applications have emerged. These conditions demand continuous improvement and expansion of the competence of experts of this sphere of medicine — ultrasonographers and also continuous updating of material support of treatment and prevention facilities for the purpose of delivery of health care according to the existing medico-economic standards updated regularly.

According to the order of Ministry of health of RF from May 10, 2017 No. 203n "On approval of criteria for evaluating the quality of medical care" "quality criteria are applied to assess timeliness of medical care, the correct choice of methods of prevention, diagnosis, treatment and rehabilitation, the achievement of the planned results" [6].

Ultrasound is one of the most common additional methods of examination in pediatric practice, as it is an informative, non-invasive, easily accessible, safe and less expensive diagnostic method than other imaging studies. With high specificity and sensitivity, ultrasound is ranked first as an imaging method in pediatric practice.

When examining children, the ultrasound technique is subject to various requirements with respect to imaging, while in pediatric practice it is necessary to note the increased sensitivity of children to radiation, which limits the possibility of using other techniques. One important aspect of the continuous improvement of medical imaging is the growing potential of ultrasound diagnostics. The use of ultrasound diagnostics as a highly informative, non-invasive, safe method of studying children can help minimize the level of radiation obtained, replacing or limiting other types of imaging. This important task, especially in childhood, can only be achieved by providing specialized qualified pediatric care. Since children are less inclined to cooperate, special treatment of young patients, as well as the environment and conditions in which the child finds himself during the procedure, is necessary to achieve optimal results. Accordingly, the level of equipment of medical institutions providing pediatric care should be the highest, exactly as the qualification of the medical employers of the institution.

Despite the fact that ultrasound in Russian medical institutions is one of the most popular diagnostic methods in various spheres of medicine, the problem of adapting to new socio-economic conditions remains unchanged. In practical terms, sociological investigations are an important condition for an effective and targeted health policy [3]. However, only a few of such studies have been conducted, especially in relation to ultrasound diagnostics doctors.

At the moment, the task of establishing a new system of training of radiation specialists, their subsequent state accreditation and their further development in the framework of the system of continuing postgraduate education still remains; restructuring of the organization and equipping of radiation diagnostics departments at both the outpatient and polyclinic level; creation of appropriate technical conditions for ultrasound research by specialists. Similar problems are faced by medical organizations in Europe. However, in the USA and European countries, more attention is still paid to the issue of training of medical employers - special programs and courses are being developed, which contributes to a rapid and qualitative improvement in the level of qualifications of specialists. Depending on the organization of the health system in different countries, ultrasound diagnostics can be performed by both doctors and general practitioners. According to the study of Camilla Aakjær Andersen the availability and use of ultrasound examinations in primary care differs between countries: experts have previously estimated that the proportion of primary care users across 20 countries of Europe varies from less than 1% to 67%, 15 and availability of ultrasonography varies from 4% to 58% in the Nordic countries alone [1]. However, the association between larger clinics and access to ultrasonography may also be explained by the multidisciplinary nature of some larger clinics. Some countries, for example, Finland, Spain, Sweden and England, have multidisciplinary teams working in primary care, while others, for example, Switzerland, Romania, Norway, Germany, Denmark and Bulgaria, tend to have less staff [2]. Otherwise, in the Russian Federation despite the huge surface areas there is a unified health system where highly qualified specialists are concentrated in larger municipalities and urban centers.

The purpose of this study was to study the opinion of medical specialists about the quality of ultrasound diagnostics in children.

MATERIALS AND METHODS

The study consisted of a survey of 196 ultrasound diagnostics specialists from medical institutions in Moscow and the Moscow region with the help of spe-

cially designed questionnaire consisted of the general characteristics of respondents, assessment of activity of their medical organization, including ultrasonic diagnostics, satisfaction with their work, as well as possible directions for improving the ultrasound service.

The majority of respondents (67.7 %) were women, whose average age was 38.6 ± 10.2 years (men – 36.4 ± 7.7 years, women — 39.9 ± 11.5 years). The majority of respondents (51.3%) worked in hospitals, 28.7% worked in polyclinics, and 20.0% — in private medical centers. The opinion of doctors and their activities were considered depending on the length of work in the specialty.

Mathematical processing of obtained data was carried out with the help of variational statistics. The confidence interval for the average values was calculated with a specific confidence level of 0.95. The student's parametric criterion was used to assess the reliability of differences. The results were processed using the statistical software package Statistica V. 6.1. and the program Microsoft Office Excel 2010.

RESULTS AND DISCUSSION

Doctors of ultrasonic diagnostics were asked to place the criteria, characterizing its quality in ranking order (with an assessment equal to one corresponding to the first rank). As can be seen on Table 1, the most significant criteria, according to the respondents, were effectiveness (2.17 ± 1.7), availability (2.29 ± 1.42) and timeliness (2.98 ± 1.53). Subsequent places were occupied by security (3.27 ± 1.58) and mobility (3.96 ± 1.64). The last place were given by respondents to continuity (5.43 ± 1.46) and economical effectiveness (5.66 ± 1.67).

Table 1. Rank distribution of criteria that characterize the quality and advantage of ultrasound diagnostics, according to ultrasound diagnostics doctors ($M \pm m$)

Criteria	$M \pm m$
Effectiveness	$2,17 \pm 1,7$
Availability	$2,29 \pm 1,42$
Timelessness	$2,98 \pm 1,53$
Security	$3,27 \pm 1,58$
Mobility	$3,96 \pm 1,64$
Continuity	$5,43 \pm 1,46$
Economical effectiveness	$5,66 \pm 1,67$
Others	$2,15 \pm 1,74$

The opinion of doctors about the significance of criteria that characterize the quality and advantage of ultrasound diagnostics changed with the accumulation of experience. The significance of such criteria as performance and timeliness decreased with age. With less than 5 years of professional experience, they were ranked first and second, respectively, and with more than 25 years of experience, they were ranked third and fourth. The distribution of other criteria did not change significantly — within the same rank. Similarly, respondents were asked to rank incentives for doctors to improve the quality of ultrasound diagnostics (Table 2) the analysis of questionnaires showed that the most significant incentive for survey participants was material interest (1.37 ± 1.17). The second ranking places were taken by improving the material and technical base (2.33 ± 1.32) and reducing the workload of ultrasound diagnostics doctors (2.67 ± 1.38). Even few respondents were attracted to the possibility of career growth (3.74 ± 1.44) and the atmosphere in the team (4.23 ± 1.42). In the last place was such an incentive as a reduction in working hours (4.76 ± 1.42).

Table 2. Rank distribution of incentives for improving the quality of ultrasound diagnostics, according to ultrasound diagnostics doctors ($M \pm m$)

Motivations	$M \pm m$
The financial interest of doctors of ultrasonic diagnostics	$1,37 \pm 1,17$
Improving of material and technical base	$2,33 \pm 1,32$
Reducing the workload of ultrasound diagnostics doctors	$2,67 \pm 1,38$
The opportunity for career growth	$3,74 \pm 1,44$
Atmosphere in collective	$4,23 \pm 1,42$
The reduction of working time	$4,76 \pm 1,42$
Others	$1,86 \pm 1,40$

As for material interest of doctors to improve the quality of ultrasonic diagnostics, the survey showed that 32.7 % of respondents are not satisfied with the existing system of remuneration. 15.4% of respondents were fully satisfied with their salary and 51.9 % were partially satisfied.

The evaluation of the significance of incentives for doctors to improve the quality of ultrasound diagnostics, depending on the length of service, did not change very significantly. We can say that there has been a tendency to reduce the significance of many incentives, in addition to the possibility of career growth

and reduced working hours. In the first case, it did not change, in the second — the interest increased.

As a result of the survey, it was found that the majority (89.9%) of doctors gave a positive assessment of the quality of ultrasound diagnostics in their medical organization (high quality — 19.1%, good quality — 39.9%, satisfactory quality — 30.9%). The percentage of respondents who negatively assessed the quality of ultrasound diagnostics in their medical organization was 10.1%.

The opinion of doctors about the quality of ultrasound diagnostics in their medical organizations differed significantly depending on the length of work in the specialty. For example, with less than 5 years of experience, the majority of respondents (43.3%) considered it satisfactory, and in all other cases — good. At the same time, with experience, the share of doctors giving a good assessment significantly increased: with experience up to 5 years 16.4 %, 5–10 years — 48.3%, 10–15 years — 57.1%, more than 25 years 72.7% ($p < 0.05$).

More than one-third (39.4 %) of ultrasound diagnostics doctors who took part in the study reported that their medical organization was evaluating the quality of ultrasound diagnostics, and 32.5% of respondents believed that it was not 28.1% of doctors did not have such information.

In the course of the survey, the question about awareness of medical professionals about the results of their organization's quality assessment of underground diagnostics was clarified. About half (45.5%) doctors answered on this question reported receiving such information, 21.2% did not know anything and 33.3% found it difficult to give an answer about their awareness.

Among the main factors affecting on the quality of ultrasound diagnostics, respondents most often noted the workload of ultrasound diagnostics doctors (in 64.8% of cases) and a weak material and technical base (in 53.1%). Equally often (in 46.4%), such factors as insufficient funding and lack of medical staff were mentioned. It should be noted that not more than one third of the respondents considered the insufficient level of qualification and staffing of ultrasound diagnostics and clinical specialties as factors affecting the quality of ultrasound diagnostics (Table 3).

CONCLUSION

One of the crucial circumstances of using sociological methods is that data from objective medical research, medical statistics, or other summary information obtained from patients' requests are not able to fully characterize the actual scale and determinants of the problem. Surveys of doctors allow you to identify

Table 3. The main factors affecting on the quality of ultrasound diagnostics in general, according to ultrasonic diagnostics specialists (in %)

Factors	%
Insufficient financing	46,4
Weak material and technical base	53,1
Lack of staff for ultrasound diagnostics	46,4
Insufficient level of qualification of ultrasound diagnostics doctors	33,7
The workload of doctors of ultrasonic diagnostics	64,8
Insufficient number of doctors in clinical specialties	27,0
Insufficient level of qualification of doctors of clinical specialties	26,5
Others	9,2

problem areas of organizational, informational, and technological nature in the work of medical organizations and take measures to eliminate them. So, as a result of this study, a number of problems were identified in the course of such highly specialized medical care as ultrasound diagnostics, namely, factors affecting the decrease in the quality of care - the high workload of the doctor and the weak material and technical equipment of medical institutions in the opinion of the specialists themselves. The solution of the identified difficulties by the leadership of medical and prophylactic institutions at the local level, as well as the improvement of the health care system itself as a whole, will contribute to an increase in the availability and quality of medical care, including in the field of ultrasound diagnostics.

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