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The Effectiveness of the New Pay System in Kazakhstan: Opinions of Health Workers.

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ABSTRACT

Putting into operation a new system of financing the primary health care (PHC) with elements of payment for the effectiveness of activities (per capita incentive rationing) since 2011 intended for extra salaries and training of PHC health workers makes it possible invest about 119 million U.S. dollars to motivate the specialists of district health services. Studying opinions of district health service specialists (PHC), who are the main participants of this process, about the effectiveness of putting into operation per capita incentive rationing (PCIR) is defined as the purpose of our study. The public opinion poll of doctors and medical personnel of medical organizations PHC from 14 oblasts and 2 cities of republican status (Astana and Almaty) on the new pay system for medical staff was carried out during the first quarter of 2013 in the frame of the given research. The volume of the study contained 1,067 questionnaires of district services medical staff. According to the polling the principal criterion charge of incentive pay, the majority of respondents (86.9%) indicated excellent results, 59.1% cited a lack of complaints from patients and colleagues, while highlighting in 25.1% of colleagues positive evaluation. Also, in the opinion of 75.2% of respondents taking into account the qualification category of specialists is necessary, 63.6% of respondents whose work experience does not fit the ideology of the introduction PCIR and demands to have an extension work among the medical staff. More than 50% of medical staff have noted the influence of PCIR on satisfaction as the level of wages as the active work. On the basis of our research, we assume that putting into operation the PCIR increased medical personnel's interest in achieving high results of their activities.

Keywords: per capita incentive rationing, the primary health care, district health service.

Abbreviations: PCIR - per capita incentive rationing; MHRK - Ministry of Health of the Republic of Kazakhstan. PHC – Primary Health Care

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INTRODUCTION

The problem of material incentives of primary health care professionals is defined topical in many countries today. Compensation of medical institutions' employees, which are on budgetary financing, based on uniform principles and consists of a base wage (salary), and compensation payments. However, this system can not reflect the financing tension of labor of each health worker and his contribution to industry and doesn't assist to stimulate the staff to enhance the quality of provided medical care [1-3].

The ripen need to develop and to establish mechanism to link the quality of the work with stimulating activities, contributed to the introduction in Kazakhstan from January 1, 2011 per capita incentive rationing intended to extra pay to and training health workers of PHC. Primary methodology is to achieve qualitative results of the work that affect the value of the payable amount and provides the additional incentives for primary health care suppliers, to improve the system of management quality, organizational effectiveness, creates conditions for motivation of employees to increase the quality of provided services [2].

Considering the low density of the population in Kazakhstan (6.2 people per km² (2013g.)), as well as on the basis of the current administrative division of the network of health organizations to achieve the competitiveness suppliers of primary care services (PHC) is difficult. Self-capita funding in these conditions is not able to stimulate service providers to continuous incensement of quality of services and increase preventive works. Thus, the introduction of per capita incentive rationing is to stimulate medical staff to render best quality care at lowest costs.

Regulatory determine which health care specialists practical (local service), for which it is possible to establish such additional pay (doctors and nurses, general practitioners, therapists and district service pediatricians, the hospital branch managers and the nurses of general medical practice department/ district health service, as well as the doctors of the department of social and preventive maintenance and psychological assistance to the Family Health Center and social workers organizations of PHC.

To monitor the effectiveness of PHC specialists work in order to stimulate indicators for the assessment of their activities are defined, which are characterizes the results of the PHC organizations. Legislatively stipulated the methodology of financing form to the stated list of ratable indicators, delimitation functions and authority among participants of the process which promotes to improve the quality of provided medical care.

For two years, the government of Kazakhstan have been allocated additional financing to promote activities from the republican budget in the amount of 119 million U.S. dollars, in 2011 - 60 million 2012 - 62 million In 464 PHC organizations of Kazakhstan, a new system of financing from 9023 territorial sections of the population and the number of service - 16,206,855 people are introduced On average to one organization per capita incentive rationing (PCIR) in public health organizations is allocated 77,385 U.S. dollars, and in private - 26 190.

The new system of financing allowed covering extra incentive payments with more than 42,000 health care professionals in 2012. The achievement of high indicators attracts in average for one employee of medical staff in a quarter about 30 - 40% of the quarterly fund of the salary. Given circumstance may indicate the motivational aspect of the new financing system of medical staff and as a consequence to improve the quality of primary health care.

International experience does not show an analogue of this form of financing in other countries at the national level and carries a programmatic nature. Motivating the medical staff in some countries is often typical for in-patient care either within one organization or region [3-6]. Attempts to introduce incentive funding system which characterized by large-scale coverage and widespread introduction at the state level are made for the first time in Kazakhstan.

New funding system of PHC with the elements of payment for performance of results is aimed at further development of the primary health care sector in Kazakhstan, which is defined as one of the key strategic priorities of the National Programme for Health Development of Kazakhstan " Salamatty Kazakhstan" [7].

Nevertheless, the improvement quality can only be after achieving a high degree of awareness among health workers at all levels of PHC. As clear understanding the requirements for their job and an efficient relationship between the achievement of certain results and financial incentives can provide high commitment of ordinary doctors and nurses to improve the quality of their act [2].

Thus, the study of participants' views about the new funding system on the effectiveness of the implementation process of the two-component per capita funding in health care organizations will determine their level of awareness of the methodology for the calculation and distribution of incentives, as well as the satisfaction with wages and job after the introduction of PCIR.

MATERIALS AND METHODS

Cross research was conducted among physicians and the nurses of the PHC medical organizations in the first quarter of 2013. 1067 medical employees of the PHC- organizations which have introduced PCIR took part in questioning: 307 doctors (local pediatricians, local therapists, general practitioners, social workers) and 760 nurses. The groups for sociological poll were randomized chosen. Systematic selection was used as a method of selection. The maximum value of dispersion 0.25, at a level of reliability of 99% was used at a calculation of required numbers of random sample. 14 areas and 2 cities of republican value (Astana and Almaty) are chosen as administrative objects of basic territories.

The number of interrogated respondents in a section of physicians and nurses in each region was defined from a statistical ratio of numbers of physicians and the nurses in this region [8]. Selection of the medical organizations for the research in each region and respondents in each organization was carried out by a casual method using tables of random numbers. Selection criterion of the medical organization was PCIR introduction not

less than 1,5 years. Selection criterion of medical workers as the respondent of research was: specialty (the local pediatrician, the local therapist, the general practitioner, the social worker), a full employment of the employee (not less than 1,0 staff unit), length of service in this organization and participation in PCIR realization not less than 1,5 years.

This poll was carried out on a voluntary basis and had an anonymous character, by means of questionnaire filling in the presence of the interviewer. Respondent poll was carried out before the work within in 15-30 minutes. The worked out questionnaire contained 21 questions which reflected highlights of process of introduction system of PCIR and are aimed at studying medical workers' opinions on introduction of a new system of payment. To estimate how the experimental group will undergo an influence on studied changes we carried out a preliminary measurement – pre-test for the purpose of detection the weak side of a questionnaire.

18 questionnaires were excluded from 1067 questionnaires which were collected by the results of conducted research because of not completeness, i.e. they were not filled by respondents. For the achievement of a set aim we analyzed 14 questions. Analysis of results was carried out by statistical method of SPSS version 17. For selecting the significance assessing criteria of intergroup average differences compliance of sampling distributions normal form was checked by using the criterion χ^2 . And also the equality of general dispersions was controlled by using Fischer's F-criterion. Null hypothesis was rejected in case of $p < 0.05$.

RESULTS AND DISCUSSION

1067 medical professionals of the PHC organizations which have introduced PCIR took part in poll: 307 physician (local pediatricians, local therapists, general practitioners, social workers) and 760 nurses of the organizations. Among medical personals who took part in poll were 6,5% of men, 93,5% of women and among the nurses were 99,6% of women, 0,4% of men. In a section of all respondents the number of men contains 2,1% in relation to 97,9% of women. This circumstance, first of all, based on a small amount of men in whole, among specialists of local services (national average value according to Statistic Agency of RK among doctors makes 1:43 and 1:108 among the nursing staff). Sex and age characteristics of respondents in section of physicians and the nurses on sex are presented in Table 1

Table 1: Sex-age-related characteristics of respondents

	Physicians				Nurses				Total			
	female		male		female		male		female		male	
	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%	abs.	%
20-29	25	8,7	1	5	82	10,8	3	100	107	10,2	4	17,4
30-39	69	24	4	20	277	36,6	0	0	346	33,1	4	17,4
40-49	105	36,6	8	40	261	34,5	0	0	366	35	8	34,8
50-59	85	29,6	7	35	136	18	0	0	221	21,2	7	30,4
60-69	3	1,04	0	0	1	0,4	0	0	4	0,4	0	0
Total	287		20		757		3		1044		23	

Among the questioned physicians were 20,8% of general practitioners, 26,7% of local pediatricians and 49,5% of local therapists. 2,9% of respondents contained social workers and psychologists who were carried to the group of other specialties.

For the detection a number of independent variables to the amount of stimulating payments we studied the variable "category of workers": among physicians: the physician and the hospital branch manager; among the nurse: the nurse and the senior nurse. So, 81.4% of respondents are physicians and 87.2% of respondents are nurses. Less than 20% of respondents are the hospital branch manager and senior nurses of each category. Categorization of respondents is presented in Table 2.

Table 2: Respondent category

Category	Physicians		Nurses		Total	
	abs.	%	abs.	%	abs.	%
category 1	70	22,8	100	13,2	170	16
category 2	45	14,7	35	4,6	80	7,5
high category	159	51,8	547	72,3	706	66,2
no category	33	10,7	78	10,3	111	10,3

The influence of length of medical personnel experience on the amount of incentive payments is an important variable in this research.

Sufficient length of service indicates to a qualitative component of the medical personnel in this research.

The obtained data indicate that, length of experts experience substantially influences the amount of incentive payments ($p < 0,001$; $\chi^2 = 68,312$), direct dependency is shown in the table of conjugation analysis which are constructed on nonparametric criteria in uneven distribution of the studied phenomenon. As the length of physicians experience is lower so the amount of incentive payments is lower. It is shown in Table 3. The same fact is occurred among the nurses ($p < 0,001$; $\chi^2 = 235,113$) too. It is presented in Table 4.

Table 3: Interdependence between the length of respondents/physicians experience and the amount of incentive payments (quarterly), %

Length of experience	The amount of incentive payments (quarterly) (%) to quarterly amount of salary						
	<10	11-20	21-30	31-40	41-50	51-60	>61
< 5	4	32	24	16	20	4	0
6-10	0	17,2	10,3	62,2	6,9	0	3,4
11-15	0	25	23,3	38,3	10	3,3	0
16-20	0	12,7	23,8	54	7,9	3,2	1,6
21-25	0	18,6	35,6	35,6	8,5	1,7	0
26-30	0	10,2	35,9	46,1	7,7	0	0
>31	6,25	9,37	21,8	43,7	18,7	0	0

Table 4: Interdependence between the length of nurses experience and the amount of incentive payments (quarterly),%

Length of experience	The amount of incentive payments (quarterly) (%) to quarterly amount of salary			
	<10	11-20	21-30	31-40
< 5	1,6	58,7	34,9	4,7
6-10	0	36,36	60	3,6
11-15	2,1	3,4	62,3	5,2
16-20	1,16	31,4	37,4	5,81
21-25	0	28,5	67,8	3,62
26-30	0	27,6	58,6	13,8
>31	0	59	65	6

Nevertheless, the influence of the length of experience on the amount of incentive payments in general, there is no interrelation with qualification category of physicians ($p > 0,05$; $\chi^2 = 16,968$). The same fact is occurred among the nurse with 1 and the 2nd category. But the following interrelation for the nurse without a category and with the highest category ($p < 0,001$; $\chi^2 = 27,995$ и $\chi^2 = 86,535$).

Studying the influence of the physician's profession on the amount of incentive payments taking into account the length of physician's experience isn't defined reliable for general practitioners and local pediatricians whereas for local therapists regularity is proved ($p < 0,001$; $\chi^2 = 56,026$).

The amount of incentive extra charges depends on the category of respondents ($p < 0,005$; LR=21,888), so according to our research, the hospital branch managers receive incentive payments more than physicians. So, for example, 38% of the interrogated the hospital branch managers get incentive payments of more than 80 000 tg., whereas incentive payments among the physicians are only 23,6% (Table 5).

Table 5: Interdependence between the physicians category and the amount of incentive payments, %

Category	The amount of incentive payments (quarterly)					
	< 27 000	28000 - 41000	42000 - 61000	62000 - 79000	80000 – 89000	>90 000
Physician	11,6	14,0	25,6	25,2	12,8	10,8
Hospital branch manager	0	6,4	34,1	21,3	19,0	19,0

In spite of the fact that ideologically the methodology of distribution of PCIR doesn't assume the interrelation of an experience and the amount of incentive payments by category, the results of research show the other figure. This circumstance indicates that carrying out information and working out mechanism of distributing the means among employees of the medical organization is needed.

Introduction of the new financial instruments into health care system is often interfaced with organizational and functional changes in the organization which can be expressed in acceptance of new methods of management, changes of organizational

structure, introductions of monitoring system for the effectiveness, increasing workload of medical workers, etc. Studying the influence of incentive payments introduction certifies the lack of obvious changes of physician's workload ($p < 0,001$; $\chi^2 = 12,361$). In spite of the fact that 4,2% of the questioned respondents among the physicians indicated the change of loading volume on 0,25 and 0,5 basic rates towards increase, they don't connect this circumstance with increasing of payments, and refer to increasing of payments amount with expansion of the in charge population (for lack of local experts, etc.). Absolutely different picture is occurred among the nurse where this indicator made 21,54%.

Thus the interrelation between the amount of incentive payments and increasing volume of work is ($p < 0,001$; $\chi^2 = 9,035$). On the basis of the above said facts, it is possible to assume that the change of functions at introduction of incentive payments mostly affects on the nurse and is often dealt with the amount of incentive payments, i.e. as the sum of incentive payments is higher, so the change of functions (increasing of work loading and obligations) is more probable.

Not the least of importance for the SKPR is the level of knowledge of medical personnel in issues of incentive payments and their satisfaction with introduced reforms in health system.

The analysis shows that 82,2% of respondents have an idea on structure of their salary ($p < 0,005$; $\chi^2 = 54,013$) and 40,5% about criteria, according to which incentive payments ($p < 0,001$; $\chi^2 = 130,246$) are distributed. The important fact is defined that managers of the medical organizations (the hospital branch managers and senior nurses) are mostly informed. So, among senior nurses about 90% of respondents are acquainted with the structure of received payments whereas among nurses more than 30% have no idea about their own salary structure. Among the respondents, who have pointed to knowledge of salary structure, only 42% pointed to full knowledge of criteria and 48,5% on partial (which often expressed in knowledge of estimated criteria, instead of knowledge of distribution means mechanism).

A study of professional activity features in medical staff, and as one of criterias: the satisfaction with the payment, with work, with conditions, etc. was defined as one of the ways of increasing the efficiency of medical-diagnostic and prophylactic work of the medical organization. A study of satisfaction in a received salary taking into account incentive extra charges among all the respondents showed that 63% of all the respondents indicated partial and 25,4% for a poor satisfaction in a received amount of payments. (Table 6,7). Even at introduction of any amount of incentive payments, partial satisfaction with the salary is distinctive for physicians. The interrelation of the amount of incentive payments and satisfaction with the salary are observed only among nurses ($p < 0,001$; $\chi^2 = 29,950$). The observed tendency of growth of satisfaction in the salary according to the increasing of the amount of incentive payments certifies the influence of PCIR on satisfaction of the medical staff in received payments.

No less important in the effective organization of medical process and an efficient activity achievement is the job satisfaction of medical staff. From all the contingent respondents, only 8,3% of respondents are completely satisfied with job, and 48% indicated

partially and 37% for poor job satisfaction. The similar picture is occurred among the the physicians where 64% of all the respondents indicate only partial job satisfaction and 14% full job satisfaction. This indicator is low, despite that the general percent of satisfaction with job is more than 70%. The world practice shows that only at 90% of satisfaction with the professional environment (job), receiving good results of activity is possible.

Table 6: Category interdependence between nursing staff and the amount of incentive payments,%

Category	The amount of incentive payments (quarterly)					
	< 21 000	22000 - 27000	28000 - 35000	36000 - 44000	45000 – 51000	>52 000
Nurse	11,0	14,0	25,2	26,4	14,9	8,6
Senior nurse	0	11,3	15,5	26,8	25,7	20,6

Table 7: Interdependence between the amounts of incentive payments and satisfaction in a received salary,%

The amount of incentive payments (quarterly)	Satisfaction in a received salary			
	Unsatisfied	Poor	Partially	Completely
Physicians				
< 27 000	0	34,5	55,2	10,3
28000 - 41000	10,3	33,3	56,4	0
42000 - 61000	4,9	19,7	67,9	7,4
62000 - 79000	6,6	17,1	67,1	9,2
80000 – 89000	4,6	11,6	79,7	4,6
>90 000	2,5	20,5	66,7	10,3
Nurse				
< 21 000	13,7	34,25	50,7	1,37
22000 - 27000	7,7	42,3	49	0,9
28000 - 35000	9,9	20,8	65,4	3,8
36000 - 44000	6,5	24	65,5	4
45000 – 51000	6,5	25,8	66,1	1,6
>52 000	5,2	24,7	64,9	5,2

To determine the factors contributing to the increase in job satisfaction , and as a result the quality of its implementation , we studied the correlation relationship between indicators of satisfaction in relation to working conditions , working hours and incentive allowances. According to 93.3 % of respondents work quality depends on the incentive payments. Although, the above mentioned findings do not confirm this hypothesis ($p > 0,005$), it can be concluded that the respondents, while answering this question have mentioned a sufficient high level of incentive payments which are indicative interest in satisfaction of health workers with their activities. Not the least factor is that in a slight increase in salary through incentive payments to health care workers are assigned more responsibility, workload and etc. According to 60% of respondents to the quality of work is affected by working conditions and 50% indicate the optimal working hours. Thus, as a high priority for improving the quality of work is defined as increasing incentive payments in amount while keeping the same size of workload.

As the main criteria to be considered in the calculation of incentive payments 86.9 % of respondents identified excellent performance results (in particular referring to the results of evaluation indicators), 59.1% indicated the lack of patients' complaints and colleagues highlighting 25.1% of positive evaluation of colleagues at the same time. According to 75.2% of respondents it is necessary to consider the presence of qualifying category of specialists, and 63.6 % to length of experience. These responses correlate completely with the above mentioned results of our study which shows that the size of incentive payments often depends on the length of service and qualifications of health care workers, as it can be seen among the nursing staff. If physician and nurses determine the qualification, length of experience and performance results as the basic criteria, then the criteria "the lack of complaints" shows a different picture. Thus, 79.8 % of respondents identified the lack of complaints as one of the prevailing criteria (2nd meaning), whereas nurses pointed it out in 50.8% of cases.

Study of the overall impact of incentive component of per capita rationing on the quality of work is determined as one of the important indicators of this study which helps to ensure a general picture of the relationship of health care workers to implement the new wage system. A total of 61.8 % of the respondents pointed to a slight increase in employee engagement in the achievement of quality performance after the transition to PCIR, and 9.1% noted significant change. Despite the incentive payments, 23% of respondents indicated the lack of interest. A similar ratio is typical for physicians and nurses, except the fact that, according to the doctors, significant changes is observed in 19% of respondents after the introduction of PCIR.

CONCLUSION

Thus, the analysis of research among medical professionals demonstrates the effectiveness of a new funding system (PCIR) which allows improving the process of local service quality and safe medical care through the creation of a mechanism for motivating health workers. However, for the further development of this system methodological assistance in improving the system of PCIR and its reinforcement is necessary.

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