Design and implementation of pay-for-quality in primary healthcare: A case study from Iran

Jafar Sadegh Tabrizi¹, Mostafa Farahbakhsh², Shabnam Iezadi¹, and Alireza Mahboub Ahari³

1. Tabriz Health Services Management Research Center, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran
2. Road Traffic Injury Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
3. Iranian Center of Excellence in Health Management, Department of Health Service Management, Tabriz University of Medical Sciences, Tabriz, Iran

ABSTRACT

Background
The common methods of payment to healthcare providers such as capitation and salary are not designed to be stimulation for high quality healthcare. The pay-for-quality (P4Q) programs are designed to provide the financial incentives to the service providers in order to improve quality of services based on specified criteria.

Aims
This study describes the design and implementation of a P4Q program in the primary healthcare (PHC) in East Azerbaijan Province, Iran.

Methods
The present study is a case study that describes the process of designing and implementing the P4Q program in PHC in East-Azerbaijan province in 2015. To design the P4Q program, after identifying core components of the program through literature review and Focus Group Discussion (FGD), final decision about each component was made by achieving consensus from a panel of recognised experts in the area of PHC. Altogether two FGD and seven expert panel sessions were hold in EAPHC in order to design the P4Q program.

Results
Key components of P4Q program were selected by qualitative studies and the results were categorized in five headings including P4Q formula, quality measures, payment strategy, data reporting and performance evaluation. The formula consists of five elements including fixed payment, individual, team and organization performance and managerial appraisal. A total of 37 measures, which covers the domains of quality of PHC, human resource development and responsibility were selected. ‘Improvement’ and ‘absolute level of measures’ were selected as the payment strategy. The methods of data reporting included valid questionnaire, organization’s documents and medical records. The final P4Q program was used for paying incentives to all primary health care providers in public health centres affiliated to Tabriz University of Medical Sciences.

Conclusion
Designing and implementing the P4Q program led to a shift in paying the incentives to healthcare providers from passiveness and subjective judgment to rational and quality based payment. Linking the incentive payment to individual, team, and organizational performance, the P4Q program will lead to an increased capacity of staff morale to improve teamwork and integrated health care.

Key Words
Pay-for-performance, pay-for-quality, primary healthcare, financial incentive, quality measure
What this study adds:

1. What is known about this subject?
P4Q programs are increasingly adopted by many developing countries but no evidence about design and implementation of P4Q in PHc in Iran is available.

2. What new information is offered in this study?
This study presents valuable information about the design and implementation of first experienced P4Q program in Iran PHc setting which is adopted to improve quality of PHc.

3. What are the implications for research, policy, or practice?
P4Q is a highly context based program and experience of Iran in designing and implementing the program can help other developing countries’ health system to design their P4Q program.

Background

The health systems around the world are suffering from deep gaps between the real available performance and possible excellent performance in several contexts. Many of these gaps have potential for modification and improvement. Despite considerable increase in the efforts in order to improve the health system performance during past few years, only a minor improvement was achieved in this area, especially in low and middle-income countries. Since 2014, new reforms of various health sectors have been introduced in primary health care (PHc) system of East Azerbaijan, Iran. Health cooperation and health complex models and managers’ empowerments in PHc are three important projects implemented in this region. However no project has been done in which the improvement of payment methods to staff are discussed. Considering quality improvement in health care providers’ performance and PHC, P4P could be mentioned as a promising intervention and quality improvement strategy. The P4P programs have been designed to accurately align payments with quality of services. P4P can have different meanings either in concept or in practice. The difference in definition of P4P is due to difference in definition of performance. Pay-for-quality (P4Q) is one of the P4P approaches that offer financial incentives to healthcare providers in order to improve their performance based on specified criteria, incorporating the accessibility and quality of care. P4Q programs can assess quality of services using quality and performance measures which are including structure, process, outcome or care coordination measures.

The method of payment to the service providers affects both quality and quantity of the healthcare services. The traditional payment methods do not offer any direct incentives to the service providers for high-quality services and higher performance. P4Q assumes that the most common payment methods (such as fee-for-service, capitation, and salary) are not designed to stimulate good performance, however each undesirable behaviour could be encouraged by either of these methods. The theory of an incentive based payment plan is originated from an agent theory assuming that morale occurs when certain behaviours of an individual or organization provide them with certain stimulus. Furthermore for health conditions which can be improved through group efforts, the inducements should be directed toward the group level. Therefore, it can be clearly understood that in P4Q, in addition to the individual performance, the performance of other members in health teams as well as the performance of the organization should be highlighted in payment to individuals. P4Q, in case of effectiveness, can limit uncontrolled growth of costs through direct observation of efficacy and efficiency of prevention and management of the chronic diseases; moreover, it offers a true potential for change in medical perspective from focusing on the treatment to preventive care by providing incentives for physicians and other service providers.

The history of P4Q program in health system goes back to 1990, when it was used for the first time by private sector in the United States. Now, it is used broadly in various countries both for PHc (including Medicare and NHS) and hospital care (including Brazil, Korea, and the United States). In past decade, it also has been widely executed in developing countries. While evidences are limited, it seems that P4Q, has led to favourable results. Several studies have indicated the positive outcomes of the P4Q program in PHc, including improvement of the chronic diseases control, reduction of smoking prevalence, and improvement of quality of care.

Countries experience regarding P4Q is different. For example Quality and Outcomes Framework (QOF) in UK primary health care is a major P4Q program. QOF was introduced in 2004 and it is part of the General Medical Services (GMS) contract for general practitioners (GPs). It uses point system for calculating the payment amounts of each practice. QOF includes three main domains namely: clinical care, public health and other services. For each measure a target and a point is defined. Other successful P4Q program is Australia’s Practice Incentives Programme (PIP). The main goal of PIP is to improve quality of
healthcare, and improve access and health outcomes. PIP rewards GP practices for investing in infrastructure, such as computerization, or providing after hours’ services. It consists of three main domains including: Quality, Capacity and Rural support.23

Since 2005, family physician program and referral system has been implemented in health care system of Iran general practitioners and health care providers have earned higher salary in order to take full responsibility toward providing primary health services as well as post referral follow up for the population and households in health catchment areas - with less than 20,000 population.24 Besides, to amend the salary of the healthcare providers in areas with more than 20,000 populations an amount of money was provided as an incentive from the specific revenues of university which was paid on a quarterly basis. The amount of the incentive for each district was determined based on a specific percentage of capitations. Until the last year, incentive to healthcare providers had been merely paid based on the quarterly performance monitoring score, which was achieved using a checklist with excessive questions. Such monitoring process not only did not reflect the quality of service or the staff performance, but also compelling health care providers to focus on checklist items to improve the score, it had wasted a lot of time and energy of healthcare providers.25 On the other hand, paying the incentive to administrative staff was also based on subjective and judgmental criteria. Thus essential need to reform the methods of incentive payment was felt. Regarding the potential of P4Q in improving the quality of health services and the positive results of this program in developing and developed countries,26-29 we aimed to design a P4Q program for incentive payment to enhance the quality of PHc in Iran. In this case study, the method of designing and implementing the P4Q in PHc setting in East-Azerbaijan province is described.

Method
The present study is a case study that describes the process of designing and implementing the P4Q program in PHC in East-Azerbaijan province in 2015. By designing an intervention based on P4Q program in East-Azerbaijan, some modifications were applied on the payment of incentives to healthcare providers. The target population in designing the P4Q program included healthcare providers, faculty members, and managers at various organizational levels. Further, in implementation section, it included all the healthcare providers in public health centres of Tabriz University of Medical Sciences. To design the P4Q program, after identifying core components of the program through literature review and Focus Group Discussion (FGD), final decision about each component was made by achieving consensus from a panel of recognised experts in the area of PHC. Altogether two FGD and seven expert panel sessions were hold in EAPHC in order to design the P4Q program.

Sampling method
Participants of FGD were selected purposively. Managers and experts from all health programs including communicable and non-communicable diseases management, occupation and environment health, nutrition, mental health, school health, family health, laboratory, oral health, and health education, with five years of work experience in the provincial health centers were eligible to take part in FGD sessions. A purposive, snowballing approach used to select Panel members. Top managers of East-Azerbaijan Province health center (EAPHC) and health services management faculties with at least 10 years of management experience in PHC field were eligible to take part in panel.

FGD
In order to select the measures, after reviewing the literature and studying the experiences of other countries in terms of P4Q in PHC, two 90-minute FGD sessions were held to get new ideas from health care providers. The time and place of sessions were selected with agreement of all participants. Seventeen participants including physician (n=9), health expert (n=6), dentist (n=1) and pharmacist (n=1) in addition to one FGD leader and one secretary were involved in FGDs. All participants had at least fifteen years of work experience in PHC system. At the beginning of the first session, all the theoretical issues related to P4Q and the purpose of FGD was explained for participants by leader. The participants were asked to define their proposed measures in their professional fields and fill the pre-designed open-ended questionnaire until second session. In the first session in order to ensure the participants’ correct perception of the measures, each participant was asked to introduce two of his/her proposed measures. If the proposed measures were final outcome or impact measures, they were asked to correct them and define the measures in a way that they could be related to the input, process, or intermediate outcomes and reflect the quality of healthcare. In the second session which was held 14 days after the first one, completed questionnaires were collected by secretary. Then the participants’ ideas and proposed measures were discussed to remove any ambiguity.

Interview
As occupation and environment health experts could not participate in the FGD, they took part in two interviews
separately in their office. Each interview lasted 30 minutes. The start and process of interview was similar to that in FGDs.

**Questionnaire**

In order to collect the measures in FGDS and interviews an open ended unstructured questionnaire was used. The questionnaire contained two parts. The first part was related to personal information and the second part was regarding to measures. The participants were asked to enter their proposed measures in specific fields.

**Expert panel**

A total of seven Expert Panel were conducted for making decision regarding to measures and domains of performance, weighs of each domain, payment strategy, methods of data collection and verification and performance evaluation. Each session lasted two hours. The panels’ sessions were held in EAPHC. The features of Expert Panel were fixed whole the study. Seven physicians that four of them are also faculty member were incorporated in the expert panels. Regarding expert panel one member has PhD in health service management, four members have speciality in nutrition, mental health, hygiene and pharmacy and two other members are general practitioner. All panel members have more than 15 years of management experience in PHC system in East-Azerbaijan. Moreover, six participants in the panel are currently top managers in East Azerbaijan PHC system and one participant was a top manager in past. Two of the researchers were panel members and actively participated in all the sessions.

In first Panel Key measures were selected by achieving consensus from panel members. For this purpose, all the measures either those gathered from literature review or those got from FGDs’ participants were brought-together. Before the session, a general description of the P4Q program and full list of recognized measures were sent for participants via email and in the session details were described for them.

After selecting the key performance measures, three expert panel sessions were held to identify the key elements of payment formula and weight of each domain. In the first session, the formula was developed and a weight was allocated to each elements of formula by consensus of the panel members. Afterward, the measures and payment formula with specified weights were inserted in the data sheet of excel software and delivered to the healthcare providers in the health centres to get their ideas regarding to measures and weights of the elements. After getting ideas from healthcare providers, the weights of the elements were changed and after two expert panels final weights were determined.

The sixth panel session was holds were performed to choose the payment strategy. Payment strategy refers to the way that performance measures are used to evaluate the performance of healthcare providers and determine the payment of incentives. In order to determine the payment strategy three strategies were identified through literature review including:

1. The absolute level of the measure (whether a target was achieved e.g., 20 per cent of patients were reached)
2. Improvement (the change in the performance measure e.g., 10 per cent improvement in a measure)
3. Relative ranking (how the provider performs against the measure compared to other providers)

The appropriate payment strategy in P4Q program in East-Azerbaijan was selected by the experts’ consensus. In the panel, all three strategies were described to the panel members and, after discussing the advantages and disadvantages of each strategy, the appropriate consensual strategy was selected.

Finally, in two panel session the methods of data reporting and performance evaluation were chosen. Data reporting refers to the method of collecting the data related to the measures. Commonly, in P4Q, use of claim data as well as computerized data is very prevalent. And performance evaluation is defined as the functional steps of evaluating the performance of individual. After discussion among panel members regarding to possible source of data for each measure appropriate data sources were selected. Also panel members reached agreement about the best performance evaluation method.

**Results**

Key components of P4Q program were selected by qualititative studies and the results were categorized in five headings including P4Q formula, quality measures, payment strategy, data reporting and verification and performance evaluation.

**P4Q formula**

The amount of incentives paid to healthcare providers was calculated based on a certain formula comprised of five elements including: a fixed amount, individual performance, team performance, organizational performance and managerial appraisal. Fixed payment is a fixed percentage of
baseline payment amounts which is paid without any restriction. Individual performance is defined according to several measures which reflect the individuals’ own performance. Team performance is defined as total performance of all providers in a PHC center. The aim of selecting this element was to encourage the collaboration between providers. Organization performance refers to performance of each district health center (DHC). DHC consists of several health centers. The aim of including this element of performance in payment formula was to encourage collaboration between health centers and improving quality of services for population in catchment area. The other domain is manager appraisal which means the satisfaction of managers of their subordinates (Tables 1 and 2).

Weights of P4Q elements
After selecting the elements of P4Q formula, a certain weight was allocated to each element in both healthcare providers and administrative staff. Elements were weighted in three expert panels. The final weights are presented in Table2.

The weights of administrative staffs differ from healthcare providers. This difference is because of the different nature of their work.

Quality measures
The performance measures were determined in three levels namely: individual, team, and organizational levels. Totally, 37 performance measures were selected in the clinical and non-clinical settings in three abovementioned levels. Some measures are provided in details in the Tables 3-6. For each measure a target is presented which is driven from documents of EAHC. Some targets are agreement based which means it differs among centres.

Payment strategy
Appropriate strategy was adopted after discussing advantages and disadvantages of each strategy by panel members. Possible advantages and disadvantages of each strategy are presented in Table 7.

Agreed strategies for paying incentives in expert panel were “improvement” and “absolute level of measures”. It means for each measure a target was introduced and the average percentage of achieved measures in each performance level was determined to incentive calculation. The reason for selecting this strategy in the expert panel was the variation in health status and available health facilities in each region. It also was assumed that, in case of improvement strategy, more efforts would be made to improve the performance of healthcare providers in regions with low-health status as well as performance of providers with high baseline performance. The achievement rate of defined target and the improvement of measures were compared to the previous period and used to determine the incentive received by health care providers. Furthermore, for the individuals in different occupations, a base level of payment was considered. To establish the baseline payment for each occupation, there are three major determining factors including: nation-wide certain standard for each role, work hours per months, and occupational efficiency. If one provider gets 90 per cent score according to formula, he/she will gain 90 per cent of his/her baseline payment amounts whereas if the measures’ score rise over 90 percent, for each more percentage rise they will receive more same percentage of their baseline payment. For example, if the measure reached 95 per cent they will receive 95 per cent of base payment.

Data reporting and verification
Following data source were selected for data reporting:
- Clinical data and laboratory data were collected from medical records and laboratory records respectively.
- The valid structured questionnaire was used in order to assess the service recipients’ satisfaction;
- Data related to human resource development, education and management were collected manually.
- For some measures health centres documents were audited.
- For data verification, 20 per cent of the patient cases were selected randomly and were evaluated manually by the experts of the EAPHC, and 20 per cent of the patients were communicated via phone calls. About the manual data sheet 20 per cent of documents were reviewed randomly.
- Microsoft Excel software was used for data reporting and calculating the payments.

Evaluating the performance and paying incentive
P4Q was applied for Tabriz University of Medical Science affiliated primary health centres in 2016. After designing the P4Q program the education team was performed to educate P4Q measures, method of calculating the measures and details of P4Q formula, to presidents of each DHC and health complex. In addition, P4Q program’s executive Instruction and data sheet of Microsoft Excel software which was designed for gathering data according to formula were provided to each DHC. Considering individual performance evaluation, each healthcare provider’s performance was evaluated by superior staff. For team
Figure 1: Process of P4Q program in East-Azerbaijan PHc

Discussion

By designing a P4Q program for improving quality of PHc in East-Azerbaijan methods of incentives payment to health care providers was changed. In revised method of incentive payment, paying the incentives to healthcare providers and administrative staff was conducted in three levels including: individual, team, and organizational levels. The payment strategies were "improvement" and "absolute level of measures", and data reporting was performed using Microsoft Excel. By linking the incentives to the quality and coverage measures and also being aligned with the individual performance in team and organizational level, improvement in the quality of health care in all the three levels may be achieved. One of the key features of our P4Q program is comprehensiveness of the measures, so that the measures have covered both the clinical and non-clinical domains of PHC. In fact, the measures have been selected such that they could cover areas of the quality of services, human resource development, responsibility, and management. Study of Huntington et al. in Egypt showed that the use of the measures related to family health, prenatal and child care in P4Q program in health centers has improved the quality of services from the viewpoint of mothers whom received care in those centers. Furthermore, another study by Cheng in Taiwan showed that using quality measures for diabetes control in P4Q has led to improvement in follow-up visits at minimum cost. Also, as for the individuals with diabetes participating in the P4Q plan, reduction in the diabetes-related hospital admissions and reduction of the associated costs has been observed. In Chung’s study (2010), various measures in different fields including cancer screening, monitoring chronic diseases such as diabetes, hypertension, and asthma were used in the P4Q plan. Another study conducted in two PHC centres in Spain showed that the measures related to management-by-objectives, performance evaluation, and participation of the service providers in quality improvement programs have been the target of payment; furthermore, report of the one-year P4Q results showed that the plan has increased the staff’s participation in the quality improvement programs. Thus, it seems that providing comprehensive Quality measures can improve the quality of services in various areas of PHC.

In this study, paying incentives to the administrative staff and executive managers was also performed based on the quality measures, which was not the case previously. Before implementation of P4Q, payment of incentives to the administrative staff was not directly linked to the quality measures, and it can be said that paying incentives was not based on a certain criteria and the payment criteria were partially non-objective and judgmental. Herrin et al.’s study (2008) showed that linking the administrative staffs’ payment to quality measures for clinical care could positively affect the quality of services. Another study with the aim of increasing referral to tobacco quitline services showed that P4Q can increase referral to tobacco quitline services, even within clinics with a history of less engagement in quality improvement programs.

Another feature of our P4Q program is selection of the measures in all three levels. Selecting the measures in team and organizational levels along with the individual performance not only would improve individuals' performance but also it can promote the continuity and integration of care by encouraging team work. By such collaborative efforts, the proper management of the under-coverage population would be accomplished. A systematic review in 2010 showed that the payment to health care providers, either in the individual level or team level, have
had positive results.\textsuperscript{36} In Australia PIP financial incentive is applied for both individual and group and have led to a short-term increase in diabetes tests and cervical cancer screens for all GPs.\textsuperscript{37} Another study in Australia showed positive effects of PIP on quality of diabetes care.\textsuperscript{38} In other hands in our study individual performance has had most weight and organizational performance had the lower weight in comparison to individual and team performance. Experts suggested that allocating lower weight to individual performance may decrease providers’ morale in performing their tasks. In quality and outcome framework (QOF) which is a comprehensive P4Q program in UK, organizational factors have the lower weight in comparison to clinical domains.\textsuperscript{39} But in Greene et al. study, besides the individual performance measures, the team performance measures were used for domains of improving the quality of care and patients’ experience of care. In this study, 70 per cent and 30 per cent of the scores were related to the team measures and the individuals’ performance measures, respectively and indicated the improved quality of care as a result of adopting the P4P program.\textsuperscript{40}

Another key factor of P4Q is data reporting and verification. At this study best possible method of gathering data was data sheets of Microsoft excel. Data from electronic and manual medical records, valid questionnaire and organizational documents extracted and were entered in Microsoft excel by supervisors in each centers. And 20 per cent of cases were chosen randomly by a representative of provincial health centers to verify the data. In many developing and developed countries such as Taiwan and Hawaii administrative claims data are used for data reporting.\textsuperscript{21,31} In study by Yip in China a committee whose members represented the provincial and county departments of health assessed the performance of township health centers.\textsuperscript{41} A clustered randomized trial in Kenya showed positive effect of P4Q on malaria case management. At this study electronic and manual data was used as data source.\textsuperscript{42}

However, the P4Q programs are not effective always. Study of Asch et al in northeastern United States showed that P4Q in lipid management did not have significant effect on Low-density lipoprotein (LDL) level at 12 months.\textsuperscript{43} In another study by Gavagan et al. which has targeted the delivery of preventative care no significant effect of P4Q was reported on quality of care.\textsuperscript{44} On the other hands a few studies drew negative results. In study of Fagan et al. in United States statistically significant decrease in LDL screening among diabetics were observed.\textsuperscript{45} The mixed results of P4Q programs drew from context based nature of P4Q. Some factors have been predicted to affect the results of pay for performance including baseline performance of providers, design choices of P4Q and clarity of P4Q programs’ details for providers.

We believe that our study faced a few number of limitations as it is the first study that discussed the incentive payment strategies’ improvement and its possible effects on quality of health care services. First it should be mentioned that in P4Q, the Microsoft Excel software was used to record the data and the intended indicators. Several studies have shown that the use of computer software programs in data reporting would partially ensure the data validity.\textsuperscript{47-49} In this regard; there is an essential need for designing an electronic software program for data reporting and analysis which has a capability to extract clinical data from medical records directly. Second limitation that should be considered was the lack of defined weighting system for study measures. The payment measures do not have identical priorities, and some of the measures are naturally more important compared to others; nevertheless, the incentives which was considered for each occupation group was different. Thus by considering various payment standards for providers in each occupation group which is reflected the sensitivity and importance of services according to national health need assessment this limitation has solved partially.

Conclusion

Designing and implementing the P4Q program led to a shift in paying the incentives from passiveness and subjective judgment to rational and quality based payment. This is the first report on implementation of the P4Q program in PHc in East-Azerbaijan, Iran and as a result we can expect further improvements both in quality and in the method of incentive payment to the healthcare providers. Furthermore, linking the incentive payment to individual, team, and organizational performance, the P4Q program will lead to an increased capacity of staff morale to improve teamwork and integrated health care. It is necessary to take further actions in order to improve the intervention. More researches are needed to explore the effects of P4Q on quality measures in East-Azerbaijan in short term and long term.

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ACKNOWLEDGEMENTS
This study was extracted from PhD dissertation which was approved by the School of Management and Medical Informatics, Tabriz University of Medical Sciences, Iran. Authors appreciate all experts and managers in EAPHC, physicians and other healthcare providers for their coordination in study.

PEER REVIEW
Not commissioned. Externally peer reviewed.

CONFLICTS OF INTEREST
The authors declare that they have no competing interests.

FUNDING
This study was financially supported by School of Management and Medical Informatics of Tabriz University of Medical Sciences, Tabriz Health Services Management Research Center and Health Deputy of Tabriz University of Medical Sciences.

ETHICS COMMITTEE APPROVAL
The study design and procedure have been previously approved by the Ethics Committee of Tabriz University of Medical Sciences. Ethical Number: TBZMED.REC.1394.1169.
Table 1: Elements of P4Q formula

<table>
<thead>
<tr>
<th>P4Q Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_a = K + I_p + T_p + O_p + M_a$</td>
</tr>
<tr>
<td>$P_a =$Payment Amount</td>
</tr>
<tr>
<td>$K =$Fixed Payment</td>
</tr>
<tr>
<td>$I_p =$Individual Performance</td>
</tr>
<tr>
<td>$T_p =$Team Performance</td>
</tr>
<tr>
<td>$O_p =$Organizational Performance</td>
</tr>
<tr>
<td>$M_a =$Manager Appraisal</td>
</tr>
</tbody>
</table>

Table 2: Final weights of P4Q contents

<table>
<thead>
<tr>
<th>Payment Components</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Administrative Staff</td>
</tr>
<tr>
<td>Fixed Amount</td>
<td>10</td>
</tr>
<tr>
<td>Individual Performance</td>
<td>55</td>
</tr>
<tr>
<td>Team Performance</td>
<td>15</td>
</tr>
<tr>
<td>Organizational Performance</td>
<td>10</td>
</tr>
<tr>
<td>Manager Appraisal</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3: Performance measures of healthcare providers – Individual level

<table>
<thead>
<tr>
<th>R</th>
<th>Measures</th>
<th>Healthcare provider</th>
<th>Type of measure</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Annual diabetes check-ups</td>
<td>Physician</td>
<td>Coverage</td>
<td>4times annually</td>
</tr>
<tr>
<td>2</td>
<td>Annual depression check-ups</td>
<td>Physician</td>
<td>Coverage</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>3</td>
<td>HbA1c≤%7 among diabetics</td>
<td>Physician</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>4</td>
<td>Normal Lipid Profile among patients with hyperlipidaemia</td>
<td>Physician</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>5</td>
<td>Periodic screening of Risk Factors</td>
<td>Family Health Expert/Behvarz</td>
<td>Coverage</td>
<td>90%</td>
</tr>
<tr>
<td>6</td>
<td>Coverage of antenatal care</td>
<td>Family Health Expert/Behvarz</td>
<td>Quality</td>
<td>100%</td>
</tr>
<tr>
<td>7</td>
<td>Children's preventive check-ups</td>
<td>Family Health Expert/Behvarz</td>
<td>Coverage</td>
<td>100%</td>
</tr>
<tr>
<td>8</td>
<td>Elderly standardized health check-ups</td>
<td>Family Health Expert/Behvarz</td>
<td>Coverage</td>
<td>84%</td>
</tr>
<tr>
<td>9</td>
<td>Improved sanitation (rural health)</td>
<td>Behvarz</td>
<td>Coverage-Quality</td>
<td>100%</td>
</tr>
<tr>
<td>10</td>
<td>Occupational health examinations</td>
<td>Environmental/Occupational Health Experts</td>
<td>Coverage</td>
<td>100%</td>
</tr>
<tr>
<td>11</td>
<td>Laboratory accreditation score</td>
<td>Laboratory Expert</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>12</td>
<td>Adherence to Standard Operating Procedure (SOP)</td>
<td>Laboratory Expert</td>
<td>Quality</td>
<td>100%</td>
</tr>
<tr>
<td>13</td>
<td>Childhood immunization coverage</td>
<td>Laboratory Expert</td>
<td>Coverage</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 4: Performance measures of administrative staff – Individual level

<table>
<thead>
<tr>
<th>R</th>
<th>Measures</th>
<th>Type</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Health promotion programs</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>2</td>
<td>Human resource development</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>3</td>
<td>Health centres’ monitoring</td>
<td>Quality</td>
<td>100%</td>
</tr>
<tr>
<td>4</td>
<td>Needs assessments programs</td>
<td>Coverage</td>
<td>70%</td>
</tr>
<tr>
<td>5</td>
<td>Adherence to predefined operational plan</td>
<td>Quality</td>
<td>75%</td>
</tr>
<tr>
<td>6</td>
<td>Engaging in quality improvement programs</td>
<td>Quality</td>
<td>At Least 1 project</td>
</tr>
<tr>
<td>7</td>
<td>Clients’ satisfaction</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>8</td>
<td>Professional training programs</td>
<td>Quality</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 5: Performance measures – team level

<table>
<thead>
<tr>
<th>R</th>
<th>Measures</th>
<th>Type</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Periodic health screening in population of catchment area</td>
<td>Coverage</td>
<td>At least 30% of population</td>
</tr>
<tr>
<td>2</td>
<td>BP&lt;90/140 among hypertensive patients</td>
<td>Quality</td>
<td>Agreed beginning of the year</td>
</tr>
<tr>
<td>4</td>
<td>Case finding (for diabetes, hypertension, depression)</td>
<td>Quality</td>
<td>2.5</td>
</tr>
</tbody>
</table>

Table 6: Performance measures – organizational level

<table>
<thead>
<tr>
<th>R</th>
<th>measures</th>
<th>Type</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Periodic health screening in district population</td>
<td>Coverage</td>
<td>30%</td>
</tr>
<tr>
<td>2</td>
<td>Comprehensive maternity care</td>
<td>coverage</td>
<td>90%</td>
</tr>
<tr>
<td>4</td>
<td>Clients’ satisfaction rate</td>
<td>Quality</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>5</td>
<td>Primary-grade students' Florid therapy Rate</td>
<td>Coverage</td>
<td>Agreement Based</td>
</tr>
<tr>
<td>6</td>
<td>Referred to specialist with follow-up</td>
<td>Quality</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 7: Advantages and disadvantages of payment strategies

<table>
<thead>
<tr>
<th>Payment strategy</th>
<th>Disadvantages</th>
<th>Advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute level of measure</td>
<td>• Demoralize providers with high baseline performance for more effort</td>
<td>• Ensure reaching least target</td>
</tr>
<tr>
<td></td>
<td>• Providers with a poor baseline performance may find it difficult to achieve target and become disappointed</td>
<td></td>
</tr>
<tr>
<td>Improvement</td>
<td>• Cannot ensure achieving least target</td>
<td>• Can motivate any provider either with poor baseline performance and good baseline performance</td>
</tr>
<tr>
<td>Relative ranking</td>
<td>• Lack of consideration of baseline performance</td>
<td>• Can excessively motivate provider with higher performance</td>
</tr>
<tr>
<td></td>
<td>• Demoralize those with lower performance in comparison to others</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• May undermine teamwork</td>
<td></td>
</tr>
</tbody>
</table>