REPORT

On Introduction of Medical Care Quality Assurance and Quality Management System and Medical Services in a Multi-Profile Medical Facility

I.N. Nagornaya

Municipal Clinical Hospital N 1

In the course of health care system reform based on the principles of medical insurance and operation of medical facilities under new economic conditions, two basic tendencies have become evident: economically conditioned labor intensification alongside with the cost minimization, and the need to assure and improve quality of medical care and medical services.

The importance of these two directions is hard to overestimate and can be ultimately formulated as a sole and principal goal for the reforms at the health care system level as a whole, and a medical facility in particular: improvement of medical care quality with reduction of its cost.

The long-term initial underbudgeting of the health care system and the task of medical quality assurance and improvement (QA & QI) under the chronic budget deficit, cause the need for developing a strategy aimed at identification and optimal utilization of interbranch and interhospital resources.

In this connection, the concept of medical care QA and QM, developed on the basis of the well known methods of Demming and Juran, and adapted to the Russian health care system and conditions within the framework of the Russian-American intergovernmental agreement on the "Zdravreform" project, is of a particular interest.

The ideological basis of the concept is a clear description of the vision of quality and its basic principles, both for the facility as a whole and for its individual units.

The methodological basis of the concept is the utilization of the most advanced components of the continuously developing theory of a facility and personnel management. It is based on a reasonable combination of authoritarian and democratic approaches aimed at the maximum involvement of all the members of the personnel in participation in every stage of QM and QA. It provides for making use of and developing their business capabilities, professional and intellectual potential, so that each of them could feel part of the transformation.

The practical techniques for implementation of the concept consist in utilization of a theoretical and mathematical base, geographical methods as well as other principles and instruments of system's analysis and special skills for personnel training.

In Municipal clinical hospital N1 (MCH N1), in the beginning of 1995, a Council on QM was set up at the Head Physician's office. All the head physician's deputies, the chief nurse and the representatives of the Novosibirsk medical school boards are participating in its work.

At the same period of time the restructuring of the previously existing units of the hospital was carried out. The groups of statistics, computers, expert physicians and the operational department were merged together forming a department for Informational and Analytical Procurement and Quality Management. A special Statement on the institutional aspect of the department was worked out. In

compliance with the Statement, beside the formerly performed functions of the said groups, the functions of planning, coordination and technical procurement of the whole complex of work related to QM were imposed on the new department. The head of the department became a member of the Council on quality management.

At present the assessment of the currently existing computer base and software, from the point of view of its sufficiency and applicability for the solution of the set tasks, has been completed. Staff selection and rearrangement is coming to a close, the department personnel being trained in the basics of the theory of QM and working techniques. The work on development of the long-term, complex structural macromodel for QA and QM in the hospital is being completed. The priorities are set up and the general vision and principles is being formulated.

The problem of sanitary-epidemiological hospital environment was identified. as one of the tasks which achievement allows to involve a wide range of participants at various levels, and which is aimed at their practical training. It is viewed as the basis for prevention of nosocomial infections, being the most crucial factor affecting the length of treatment and the outcome of a disease. In order to solve the problem a special group of the most competent and interested employees of different levels capable of "brain storming" was established. Presently particular components of the problem, their role in the solution of the problem as a whole and the chances of their settlement have been identified. The indicators and the normatives characterizing the dynamics of the problem solution have been developed. The tasks for each stage and various graphical visual materials have been worked out. At the same time intensive training of the most interested employees in both the basics of the theory and the proposed methods and techniques is underway. In order to improve the general and professional educational level among the paramedical staff of the hospital, two training cycles aimed at improvement of the personnel qualification in philosophy and methods of nursing practice were arranged. The official instructive and methodological material in sanitary and epidemiological regime adapted to each working place has been developed. At least 100 different level employees were involved in the work which makes it possible to keep any situation under control and attain positive results already in the course of the materials development. They are reflected in a considerable improvement of the personnel knowledge and elimination of claims to their work, both on the part of thorough internal expertise and the external state sanitary- epidemiological supervision inspections.

One of the most critical issues which is being worked at presently by a specially set up new group, is the problem of optimization of an average length of stay in a hospital and improvement of the bed turnover rate. Last year the purposeful work at the problem with an adequate control enabled a considerable improvement of the indicators characterizing this type of activity: in 1995 the average length of patients stay in the hospital was brought down from 17.5 to 15.5 days.

The following programs are being developed individually by independent groups, supervised by the Council and coordinated by a unit: "Rational Pharmaceutical Management", "Nutritional Issues", "Personnel", "Visitors", "Prevention and Treatment of Post-operative pyo-septical complications".

Before the end of 1996 it is planned to have identified at least 10-12 problematic issues of various levels, and to start their systemic development from the standpoint of the utilized theory, methods and techniques of the concept of continuous quality management and assurance.

Some specific results of this work can be seen today. They also manifest themselves in the economic effect resulting from making the most efficient use of internal resources and the incoming limited finance.

However, the main achievement at this stage is introduction of the policies contributing to education and training of a new generation of medical professionals able to adequately formulate a problem, to work it out in explicit detail, make a its quantitative assessment, analyze and improve the quality - all of this done with conscientious, accurate and consistent compliance with the concept in order to solve both global and most negligible issues.

As an example of a new approach towards solution of an old problem we can use the tested data on nosocomial infections which has recently become critical world over. The rapid spread of nosocomial infections (NI) among patients is caused by the use of modern medical equipment for making the most sophisticated surgical invasions, including the patients in most critical condition; they are also a provoked by various immunodepressants and antibiotics; by pathogens developing stable resistance to many antibacterial medications. Presently in many developed countries, nosocomial pyo-inflammatory infections (PII) tend to occur in, at least, 5-12% of hospitalized patients. Up to 30-35% of surgical invasions are further complicated with PII. Over 40% of post-operative lethal outcomes can be also referred to the same reason. The data collected by different authors, prove that PII make the length of stay in a hospital longer by at least 7-10 days. An economic damage made by PII is disastrous. Say, in the US it amounts to about 5 -10 billion am. dollars a year.

The problem of hospital PII complications has always been in focus of attention in this hospital. During the last 4 years, we have been carrying out a retrospective analysis of PII rate. In the course of the study, we were carefully investigating the cases of the patients discharged from the seven surgical units of the hospital (lethal outcomes were excluded). Out of many types of nosocomial infections complications, we considered intra-abdominal, subdiaphragmatic, post-operative abscesses, post-operative wound suppuration, sepsis, inflammatory infiltrates of a post-operative wound. The following formula was used to calculate a pyo-septic (PS) morbidity rate:

$$\text{PS morbidity rate} = \frac{\text{Number of PII cases} \times 100}{\text{Total number of patients operated on in the studied year}}$$

In 1992 2.5% out of all the patients operated on, had PS complications; in 1993 -2.6%; in 1994 - 2.36%; in 1995 - 2.0%.

On the basis of the long-term assessment of the dynamics of PS morbidity rate, a conclusion can be made that in hospital N1, within the period of time from 1992 to 1995, it has remained at the approximately the same level with a slight tendency to some decrease.

But notwithstanding the relatively fair situation, it has become evident that it was only an over-the-water-part of an iceberg. This forced the hospital administration to use a complex approach towards the problem of nosocomial infections and to look at it from the point of view of the theory of medical care quality assurance and management.

The outcome of these measures is expected to manifest itself in the general decrease in PS infections number, as well as in post-operative lethal outcomes and in the length of stay which, will lead to mitigation of the economic damage caused by the nosocomial infections.

An initiative group was set up, it included the hospital administration, heads of surgical units, chief specialists of the Health care Committee, the personnel of the medical school chairs, an epidemiologist.

Considering the issue of nosocomial infection in detail, a number of its components were singled out: authentic statistics, utilized technologies, bacteriological provision, sanitary-epidemiological regime, personnel, material and technical supply, premises, patient.

Having studied the significance of each component, we have identified "statistics" as the priority issue at the present stage. If we manage to find a solution to this problem, we shall achieve a pattern for a thorough and reliable analysis of the PII morbidity rate in the surgical units of the hospital.

An important issue in the PS morbidity rate is to determine the relationship between development of PI complications and the antiseptic level of surgical invasions; the level of aggression and invasion of operations, as well as a general level of a body resistance.

In order to obtain the detailed information about the structure of the surgery carried out in the hospital, we introduced the codes for the risk of development of nosocomial PI post-operative complications. The code includes the information on the potential level of development of PI complications for a particular patient after a specific type of invasion.

The second issue on the list of priority was the "technology" problem. It includes ways for improvement of the pre-operative preparation and post-operative follow-up of the patients with a special consideration to such "trifles" as accommodation of patients in the unit; working out schemes for the most efficient way to use antibacterial medications with the development of an algorithm of antibiotics prevention and antibiotics therapy for various groups of patients. This type of work is implemented with the obligatory participation of clinical pharmacists, personnel of the Novosibirsk medical school chairs.

Besides, the above risk codes will be used not only to analyze the PI morbidity rate but also for a relative subdivision of the surgical patients into special groups. It is for these patients that the above said specific schemes of antibiotics prevention and therapy are being developed.

The issue of "bacteriological provision" is also as important. According to the PI morbidity rate data, in 1992 only 16.5 % of all the patients with PI post-operative complications went through bacteriological testing, in 1993 - 21.2%, in 1994 - 11.9%, in 1995 - 11.2%.

This kind of unsatisfactory results can be explained by a number of reasons, both subjective and objective. First of all, it is inadequate capacity of the hospital bacteriological laboratory which makes it unable to cope with an extremely high scope of sanitary and bacteriological tests. Say, in 1995 the laboratory has treated 3 854 planned environmental cultures, 49 of which proved positive, i.e. 1.3%; they also made: 1 046 air tests, 76 of them turned out positive, i.e. 7.3% and 5112 sterile material tests with no positive results. All the positive results received in the course of the planned examination were of sporadic nature. At the same time, the results of environmental cultures study are definitely more informative in their epidemiological indicators. They help accurately follow through the relationship between the environment microflora and nosocomial infections pathogens of the patients.

It is obvious that results of a planned study cannot be deemed as typical of the microbe landscape characteristics and identification of the nosocomial infection sources. Therefore our intention is to cut the number of sanitary- bacteriological tests and direct the main efforts of our bacteriological laboratory at investigation of a patient pathological material.

We would like to believe that this will gradually remove yet another cause of inadequate bacteriological tests of the patients with PI complications, i.e. traditionally skeptical attitude of attending physicians towards this type of tests.

Further development of the bacteriological laboratory not as a sanitary, but rather as a clinical and diagnostic, will bring about improvement of the technologies for pathogene identification, expansion of the range of antibiotics for which we identify the microflora sensitivity, etc. Thus it will considerably increase the value of bacteriological tests of a patient pathological material both from diagnostic and medical point of view.

To assure a successful solution of the nosocomial infection problem, it is critical for the medical personnel, alongside with the above mentioned issues, to comply with the sanitary and anti-epidemiological regime. These directions are being worked at as thoroughly as the problems of PI morbidity rate.

It is obvious that in order to develop and launch an effective fight with pyo-septic infections, it is necessary to employ a complex, well developed approach towards both the problem as a whole and its components. Staged solution of minor issues should eventually result in the solution of the main task - reduction of PS infection rate and mitigation of the economic damage. It can only be possible in case of close and interested cooperation among surgeons, epidemiologists and leaders of the hospital in the framework of a new approach towards assurance and management of medical care quality.