Public Health Service

Analysis of Indicators of in Patient Surgical Care at the Health Care Facilities in Ivano-Frankivsk Region for 2005-2015

Andriy Yavorskyy

Abstract

Surgical inpatient care is one of the most capital-intensive types of care. Therefore, the health care system task is to ensure public access to this type of care, to guarantee the safety and quality of its provision on the background of resources rational use.

The objective of the research was to analyze the basic parameters of inpatient surgical care quality provided at Ivano-Frankivsk region health care facilities.

Materials and methods. The data of statistical reports (17 and 20) of health care facilities in Ivano-Frankivsk region for 2005-2015 were analyzed. Sociological survey of 530 patients treated at the surgical units of inpatient facilities was conducted.

Results of the research. Resources for surgical inpatient care in terms of quantity in Ivano-Frankivsk region including beds and staff were determined to be higher than the average national level. However, the quality of staffing of the regional health care facilities (secondary employment coefficient is less than one point, one third of surgeons is with the second qualifying category or is not certified) does not meet modern requirements. Low-duty health care facilities were detected to be characterized by low operational activity (60.6%, 114.0 operations per surgeon per year on average), insufficient relevance of hospitalization (40% of operations may be performed on an outpatient basis), low attractiveness for a significant percent of patients (46.2%).

Conclusions. Regional program for optimization of surgical care provision should be developed.

Keywords

quality; accessibility; surgical inpatient care

Problem statement and analysis of the recent research

Surgical inpatient care is one of the most technical, expensive and resource-absorbing types of health care [2, 6]. Its provision is accompanied by high risk of surgeries adverse effects. All this creates certain challenges for national health care system regarding assurance of public access to this type of care [3] and causes specific requirements for safety and quality of its provision.

As a matter of fact, as evidenced by a number of studies, the main hindrances of the efficient functioning of the health care system in Ukraine are not only financing irrationality, ineffectiveness of its structure at all levels of health care, high deterioration of basic funds in state and municipal medical institutions, but also the inability therefore to provide medical services that meet the needs of the population in health care [2, 5, 8]. Current health care system is known to have to provide access to health care services for those who need it most of all, to be characterized by high quality and safety of health care services and to ensure the best possible results for the health at the population level (WHO, 2008) [12].

Quality and safety of all types of surgical care as a part of the health care system are governed by a number of laws and regulations defining mechanisms to guarantee the quality of health care in terms of its basic components, namely structural, procedural and effective [1]. The structure quality is evaluated through proper resources’ provision, compliance with which is monitored during the licensing of medical practice, accreditation of health care facilities (HCF), and certification of medical personnel. Processes quality is provided by assessing compliance with standards of health care, clinical protocols (unified and local). Achievement quality is characterized by levels of medical, social and economic efficiency as well as patients’ satisfaction [1, 5].

The objective of the research was to analyze the main parameters of surgical inpatient care quality provided at Ivano-Frankivsk regional health care facilities according to the data of State system for collecting medical statistical information and according to a survey of medical services consumers.
The data of “Reports on Medical Personnel” (File # 17), “Reports on Medical and Preventive Treatment Facilities” (File # 20) of Ivano-Frankivsk regional health care facilities as well as statistically reference materials of Center of Health Statistics of Ministry of Health of Ukraine and Ivano-Frankivsk Information and Analytical Center of Health Statistics were studied.

Network and stuffing support of Ivano-Frankivsk region population with surgical inpatient care, indices of bed capacity use, the scope and content of surgical care depending on the capacity and level of health care facilities (regional, central district, central city and city, district (former numeral) hospitals) were analyzed.

Sociological survey of 530 patients who completed their treatment in the surgical units of Ivano-Frankivsk inpatient facilities of all levels was conducted in order to study patients’ satisfaction with provided health care. The reliability of the difference in the data of study groups was determined according to $\chi^2$ criterion [11].

### 2. Results of the research and their discussion

According to the analysis of medical statistical documentation, information regarding current approaches to assessing the structural, procedural and effective components of health care quality provided in available statistical data form is presented only partially. In particular, some information about the network and staffing can be obtained from the report documents to assess quality structural component by almost complete absence of information on the basic parameters of assistance safety. Evaluation of process quality is also difficult since the statistical forms present only quantitative information on hospital beds employment, the duration of treatment and the number of surgeries and there is no information on the results of the internal auditing of compliance with medical and technological standards [1]. Assessment of effective component of health care quality is also questionable. Only postoperative mortality rates can be used to assess to some extent the effectiveness of surgical care.

Thus, according to the results of statistical reports study surgical beds in Ivano-Frankivsk region were present in 14 central district and 6 central city and city hospitals, 5 children’s city hospitals, 5 district hospitals, regional clinical hospital, regional children’s clinical hospital, regional phthisiopulmonology center and regional oncologic dispensary.

The number of surgical beds in the region decreased by 56 units during for the period of ten years (2005-2015) mainly due to the closure of surgical in-patient departments in 4 district hospitals corresponding to a national process of the health care system reorganization and rationalization of bed capacity use. Nevertheless, availability of surgical ward beds to Ivano-Frankivsk region population was still higher than in Ukraine in general in 2015 (13.94 beds versus 12.3 per 10 thousand people).

Availability of surgeons per 10 thousand people in the region is also higher than in Ukraine. This situation has formed for the last ten years. According to the statistical reference [4, 10] this indicator did not almost differ in the region and Ukraine in 2005 (1.92 and 1.95 held positions of surgeons per 10 thousand people, respectively). However, surgeons’ availability in the Carpathian region became 2.00 versus 1.84 per 10 thousand people in Ukraine in 2015. As it can be seen in Fig. 1, both the absolute number of full-time and held positions of surgeons as well as individuals holding them increased in Ivano-Frankivsk region during 2005-2015. The largest increase occurred in regional and central city health care facilities. Such situation could be probably explained by the presence of medical university in the region and the necessity to convert positions rates within the institution for doctors’ employment.

A partial confirmation of this was the staffing level reflecting the ratio of held positions and full-time positions in % and the coefficient of secondary employment showed the average number of held positions per one individual. Thus, despite the increase in the absolute number of positions rates and individual surgeons, today staffing level still does not reach 100% (97.4% - 98.8%) and has even slightly decreased for ten years. At the same time, according to Fig. 2, the coefficient of secondary employment exceeded 1.0 only in central city facilities city hospitals and district hospitals indicating that some doctors were more than full-time employed. Coefficient of secondary employment was lower than 1 in the central district facilities and especially in regional facilities on the background of understaffing indicating positions rates division. We consider such situation to be able to threaten patients’ safety as surgeons not working full time are more difficult to achieve an appropriate level of qualification due to the inability to acquire proper practical skills.

This was confirmed by the data of the analysis of the surgeons’ positions structure according to qualification cat-
Analysis of Indicators of in Patient Surgical Care at the Health Care Facilities in Ivano-Frankivsk Region for 2005-2015

Figure 2. Dynamics of secondary employment of surgeon positions in Ivano-Frankivsk region for 2005-2015.

It should be noted that the overall professional surgeons’ level in Ivano-Frankivsk region was high enough. Moreover, the percentage distribution of qualification categories remained virtually unchanged during 2005-2015. 33.7% (32.1% in 2005) of highest category surgeons and 35.7% (36.5% respectively) of the first category surgeons worked in the region in 2015. Percentage of second category surgeons was not high and constituted 18.1% (19.4%). Only 12.5% (12.0%) of surgeons were not certified.

At the same time, analysis of staff qualification level in the context of different health care facilities showed significant differences. According to Fig. 3, unfortunately, the staff quality of the regional health care facilities did not meet current regulatory requirements [11] as almost 25% of the surgeons working there in 2015 had second (20.4%) qualification category or were not certified (3.2%). Similar indices in central city hospitals and city hospitals were higher constituting 19.0% and 16.8% respectively.

Indices of bed capacity use are under constant supervision of the authorities due to the high cost of inpatient care. Their analysis showed that surgical beds occupancy tended to decrease in general during the period of 2005-2015 (from 336.6 days in 2005 to 323.8 days in 2015). It should be noted that the average rate in Ukraine (314.9 days in 2015) was generally lower than the standard (340 days). On the one hand, this may be connected with the introduction of new technologies (e.g. laparoscopic ones) accompanied by a decrease in the duration of treatment and beds occupancy accordingly. It is noteworthy that highest index was registered in low-duty regional hospitals and constituted 377.2 days in 2005 with a slight decrease to 350.9 days in 2015. However, this is probably the reflection of the data obtained in other similar studies [5, 6] indicating that such HCF often adjust artificially the indices to maintain the bed capacity.

Average duration of surgical patients’ stay in hospital was established to decrease during the period of observation, namely from 10.1 days in 2005 to 9.0 days in 2015, mainly due to regional facilities. This showed global tendency to reduction of treatment period in a hospital due to significant capital intensity of this type of care [6] and the efficiency of modern surgical technology.

The level of the average bed turnover increased clear enough on the contrary. The index level in the region increased from 33.4 patients in 2005 to 35.8 patients in 2015 in Ukraine (33.7 patients in 2015) during ten years.

Studied indices in some HCF types showed the same tendencies. Low-duty district hospitals were the exception where the annual average bed turnover decreased (from 41.7 patients to 38.1 patients) on the background of the average length of stay in hospital (9.1 day in 2005 and in 2015). We consider this to be the reflection of lower attractiveness of this hospitals type for modern patients.

The results of patients’ survey on their satisfaction with provided medical services may prove the hypothesis. According to Fig. 4, patients of low-duty city, district hospitals expressed their dissatisfaction more often and constituted 46.2% against 26.2% of respondents of central district hospitals and 28.6% of surgical patients of regional clinical hospital (p<0.001).

Indices of surgeons’ work are important indicators of surgical care quality. Their analysis for 2015 showed that operational activity in Ivano-Frankivsk regional health care facilities constituted 67.5% corresponding to the standards of 65-70%. However, as seen in Fig. 5, the number of operated patients among those who were discharged from surgical departments of low-duty district hospitals and the central city, city hospitals remained small and constituted 60.6% and 62.2% respectively.

Figure 3. Characteristics of surgeons’ qualification level in Ivano-Frankivsk region for 2005-2015.

We consider this to indicate once again the efforts of young graduates to obtain employment in regional centers and big cities. On the one hand, it has its advantages as better opportunities to master various techniques under the supervision of high-skilled doctors are provided for young specialists who are more open to learning. On the other hand, the lack of proper experience requires such patronage and continuous learning, self-improvement, etc.
Figure 4. The incidence of patients’ dissatisfaction with health care provided in different types of health care facilities.

According to the data of reporting documents most of the surgeries were performed elective constituting 73.4% versus 26.6% of urgent surgeries. Similar correlation was observed in all analyzed HCF except the regional ones where 45.1% of surgeries were the urgent ones. This could be explained by absence of emergency hospital in the region, virtually lost system of referrals and patients’ selection from the secondary level, secured in legislation possibility of independent patient’s visit to any doctor [7].

According to evidence-based management provisions, surgical care can be considered safe provided that one doctor performs 300 or more surgeries on average during a year [5]. This figure is significantly lower in Ivano-Frankivsk region and constitutes 180. As it follows from Fig. 6, low-duty hospitals are involved in its formation most of all. One surgeon performs only 114 operations a year on average there. This index is low in central city hospitals (125 surgeries) and central district hospitals (163 surgeries). Doctors of regional health care facilities have the most rational duties (315 surgeries).

It is known that in addition to the relative and absolute operational activity, information about what operations were conducted, namely, their structure, was essential to characterize the quality of the surgical operation. Fig. 7 shows the percentage distribution of main types of surgery in different HCF types. Their widest range was observed in the regional and central city facilities. However, it is noteworthy that skin and subcutaneous tissue surgeries are of significant proportion in secondary level HCF (37.4% and 34.8%, respectively). Such surgeries are known not to require round-the-clock observation and may be conducted on an outpatient basis (so-called “a day surgery”).

Figure 5. Operational activity in health care facilities of different levels.

Figure 6. The average number of surgeries per one surgeon’s position in health care facilities of different levels.

Postoperative mortality also depends on the surgery difficulty. Taking into account the presented structure of surgeries (Fig. 7), it is not surprising that its highest level was observed in regional (0.62%) and the central city (0.88%) hospitals and the lowest levels were noted in the central district hospitals (0.38%); practically isolated cases (0.06%) were observed in district HCF. Generally, postoperative mortality in Ivano-Frankivsk region hospitals was somewhat lower than in Ukraine in general constituting 0.54% to 0.38%.

Figure 7. Structure of surgeries in health care facilities of different levels.
3. Conclusions

Resources’ provision surgical inpatient care Ivano-Frankivsk region including beds and staff is higher than the average Ukrainian level. However, the quality of regional health care facilities staffing does not meet modern requirements (secondary employment ration is below one, one third of surgeons are of the second qualifying category or not certified). This could threaten the care safety and requires continuous professional development of young professionals.

The analysis of inpatient surgeries proves the impossibility of providing high quality and safe care in low-duty health care facilities due to low operational activity (60.6%, 114.0 operations per surgeon per year on average), insufficient relevance of hospitalization (40% of operations may be performed on an outpatient basis) leading to irrational use of resources and unattractiveness for a significant per cent of patients (46.2%).

The conducted analysis indicates the need to improve the system of surgical care provision in the region.

4. Prospects for further research

The obtained research results will be used to develop the improved system of quality control of surgical inpatient care.

References


Received: 11 October 2016
Revised: 24 October 2016
Accepted: 26 October 2016