



## Statistical analysis of the “City Clinical Hospital № 7” of Almaty by methods of treating patients hospitalized with intestinal insufficiency in the period from 2015 to 2021

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### ABSTRACT

**Purpose:** conducting a statistical analysis of treatment methods for patients hospitalized with intestinal insufficiency hospitalized in the “City Clinical Hospital № 7” of Almaty from 2015 to 2021. **Materials and methods:** we conducted a retrospective analysis of 161016 patients aged 21 to 90 years in the department of surgery-1 of the City Clinical Hospital № 7 of Almaty by the continuous test method. The study was conducted as a comparative statistical analysis from 2015 to 2021.

**The results:** the study showed that the pandemic period of 2020 revealed the maximum intestinal growth and generally observed accelerated intestinal growth. According to the age category, patients aged 35 to 60 years are prone to this disease.

**Conclusions:** according to the results of the study of the total number of patients, we concluded that with a pandemic in 2020, there was the maximum increase in the incidence over the past 6 years. The disease is common among young people.

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# Статистический анализ методов лечения больных, госпитализированных с кишечной непроходимостью в «Городскую клиническую больницу №7» г. Алматы в период 2015–2021 гг.

## АННОТАЦИЯ

### Ключевые слова:

статистика,  
кишечная  
непроходимость,  
пандемия,  
терапия,  
спайки,  
хирургия.

**Цель:** провести исследования статистического анализа методов лечения больных, госпитализированных с кишечной непроходимостью в «Городской клинической больнице №7» г. Алматы в период 2015–2021 гг.

**Материалы и методы:** нами был проведен ретроспективный анализ 161 016 поступивших больных, в отделение «Хирургия-1» ГКБ №7 г. Алматы, методом сплошной выборки в возрастном диапазоне от 21 до 90 лет. Исследование проводилось как сравнительный статистический анализ в период с 2015 по 2021 года. Результаты: в результате исследования мы выявили, что период пандемии 2020 году был максимальный рост спаечной непроходимости кишечника и видим прогрессивный рост кишечной непроходимости в целом. По возрастной категории более подвержены к данному заболеванию пациенты от 35 до 60 лет.

**Выводы:** по проведенному результату исследования от общего числа пациентов, приходим к выводу что в период пандемии за 2020 год был максимальный рост заболеваемости за последние 6 лет. Заболеваемость все чаще происходит у лиц молодого возраста.

## INTRODUCTION

Emergency intestinal insufficiency (EII) is a syndromic complication caused by benign tumor and malignant tumors occurring in abdominal surgery, as well as non-cancer etiology [1, 2].

In 1926, Berkeley Moynihans stated: “When surgeons must deal with intestinal insufficiency, they have to face disaster. It can usually happen with patients in good health, men or women in the prime of life, they experience sudden unbearable pain in the stomach without any warning...” [3].

If treatment is ineffective, it can lead to high mortality. Also, in turn, timely diagnosis of the disease leads to a good result, which indicates that intestinal insufficiency is one of the most emergency and dangerous human cases [4].

Today, the statistics of Europe and Asia are similar to the situation in Kazakhstan. It should also be noted that various interventions (surgery) in the abdominal cavity leading to an increase in the number of patients with adhesive forms, which, according to statistics, is from 2 to 12% [5, 6].

If we take statistics over the past 25 years, then the frequency of EII in adhesive disease will change. For example, among all inpatients, acute intestinal failure was detected in 51% of patients. As a result, the treatment was divided into surgical and medical treatment, 83% of patients received surgical treatment, and the rest received medical care [6].

Intestinal current fluidity is 4/5 (80%) of all intestinal liquidity caused by intestinal adenocarcinoma (the most common cause).

The diagnosis of intestinal insufficiency should be determined using diagnostic measures, for example, computed tomography of the abdominal cavity and hip organs. Diagnostic findings include expansion and collapse of intestinal loops, proximal obstruction, and large levels of air and liquid. [6, 7]

Despite improvements in treatment and diagnosis during the EII period, mortality in the UK ranges from 10-30% [5, 6].

According to the morphological functional classification, EII is divided into dynamic and mechanical intestinal liquidity [7, 8, 9].

Dynamic intestinal insufficiency is divided into spastic and paralytic, and occurs in 3/20 patients. Drug action leads to an increase in motor dysfunction of the intestine and as a result, forms spastic resistance.

Paralytic intestinal obstructure is characterized by inflammation of the common intestine or local focus (appendicitis, cholecystitis, chronic pancreatitis), as well as an increase in gestagens as part of surgical operations and hormonal growth, which reduces the overall intestinal tone [4, 5, 7].

Operational mechanical liquidity ranges from 85 to 97%. This type of resistance is divided into obstructive, strangulation mixed and root. Coprostasis, helminthic invasion, intestinal tumors may be one of the causes of obstructive wasting. As for the strangulation obstructure, it is characterized by an intestinal twisting, intestinal repulsion, internal compression, and hook, most often accompanied by compression of mesenteric vessels and nerves, leading to necrosis and perforation of the intestine. The set of strangulatory and obstructive instability is characterized by combined intestinal liquidity. One of the factors of mixed IO is adhesive abdominal disease and invagination. According to the level of intestinal liquidity, small intestinal (high and low) and current resistance are classified [5, 7].

Intestinal insufficiency by the level of obstruction, which, in turn, can be high and low, can be intestinal attenuation as well. [10].

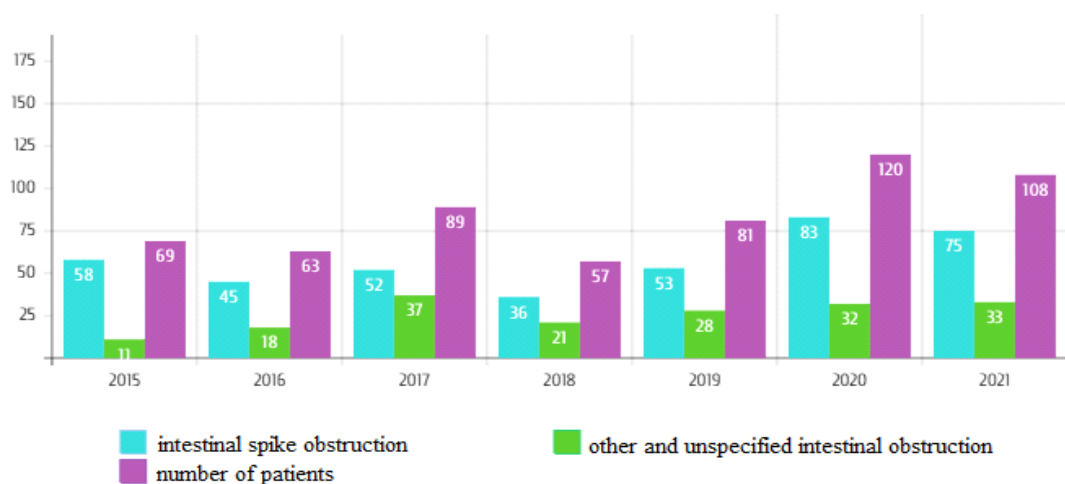
#### **PURPOSE:**

In the clinical database of the City Clinical Hospital № 7 of the city of Almaty, the identification of the satiety of treatment methods among patients hospitalized from 2015 to 2021 with a diagnosis of acute intestinal insufficiency and the statistical analysis of the data obtained.

#### **METHOD AND MATERIAL**

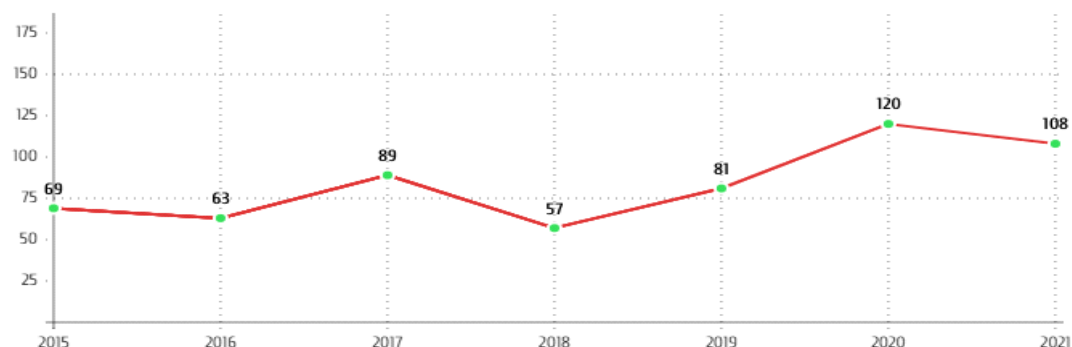
We conducted a retrospective analysis of the history of diseases of patients hospitalized in the department of surgery during the period from 2015 to 2021 using the method of continuous selection. The age of the envisaged patients is from 21 to 90 years. The study was conducted as comparative statistical analysis. We considered the frequency of encounters, age characteristics, treatment routes, the development of acute intestinal insufficiency, progressive or regressive.

On a basic basis, we took into account the period of admission of patients to the hospital, the time they took treatment measures and the last discharge.



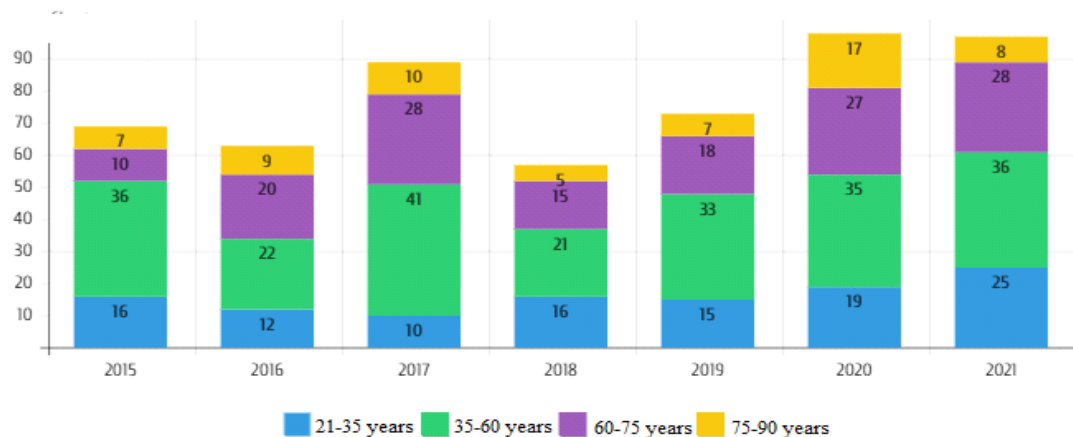
**Graph 1. Statistics of admitted patients with intestinal insufficiency (2015–2021)**

We analyzed the increase in the number of patients for 2015–2021 (graph 1), in order to prove the progressiveness of intestinal insufficiency.



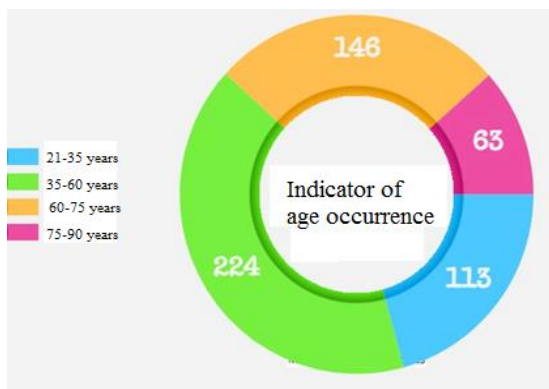
**Graph 2. Linear analysis graph of operative intestinal insufficiency (2015–2021)**

Due to the change in the age level in physiological development, we considered in which most young people EII may occur more often, according to the data of patients admitted to the surgery-1 department of the hospital (graph 2).



### ***Graph 3. Indicator of age-related emergency intestinal insufficiency (2015–2021)***

Based on this material, we conducted a general quantitative analysis of at what age EII occurs more often (Graph 3)

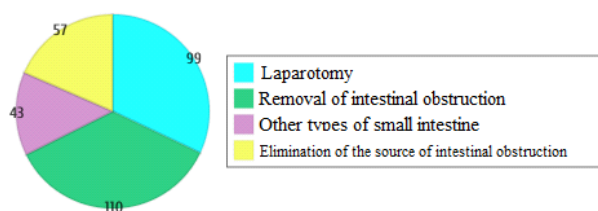


***Graph 4. Disease incidence rate by age***

It can be noted that more common cases among people in the period of 35–60 mature age. (4 graph).

Emergency intestinal insufficiency treatment plan:

- Laboratory tests (complete blood count, urinary analysis, blood glucose detection, micro reaction, determination of bilirubin in biochemistry, determination of AST, determination of ALT, determination of thymol sample, determination of creatinine amount, determination of urea amount, determination of proportion of alkaline phosphatase, protein and protein in blood determination of amylase).
- Coagulogram (prothrombin index, clotting time, bleeding, fibrinogen, APT).
- Diagnostic measures (ECG, simple abdominal X-ray, simple chest X-ray, abdominal ultrasound, abdominal computed tomography)
- Surgical treatment applied (Graph 5)



***Graph 5 Treatments for adhesion and other intestinal dysfunctions***

## **OUTCOME AND DISCUSSION**

According to the study, the following data were obtained for patients of the surgery-1 department of the CCH № 7 in the period from 2015 to 2021. The total number of patients hospitalized in 2015–2021 (2015–19203 patients, 2016–21526 patients, 2017–21389 patients, 2018–21923 patients, 2019–25042 patients, 2020–22462 patients, 2021–29471 patients) As a result, in 2020 we determined the maximum increase in the intestinal liquidity of the pandemic period and observe an accelerated growth of the total



intestinal liquidity. According to the age category, patients aged 35 to 60 years are prone to this disease.

### CONCLUSION

Emergency intestinal insufficiency is not related to age, gender, so all patients with suspicion should be hospitalized. The result of treatment of emergency intestinal insufficiency directly depends on the time of the patient's request for medical care, the later the patient is hospitalized, the higher the mortality rate. Therefore, it is necessary to increase the effectiveness of diagnosis and tactics for the treatment of emergency intestinal failure.

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