

# ASSESSMENT OF PARENTS' AWARENESS LEVEL ABOUT ANTIBIOTICS, ANTIBIOTIC THERAPY AND ANTIBIOTIC RESISTANCE

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## ABSTRACT

Every year about 90,000 patients die due to the infectious resistance to antibiotics. Low level of parents' awareness about antibiotic therapy leads to the development of antibiotic resistance. The aim of the current research is to assess the awareness level of ill children's parents about rational usage of antibiotics and antibiotic resistance. To achieve settled goal we used a questionnaire, which was developed by the staff of Karolinska Institut (Sweden). The study was conducted among 75 respondents in polyclinic №3(Karaganda) during January 2016. According to our data, 96% of respondents knew names of antibiotics. The most common antibiotics were from penicillin (82%) and cephalosporin (53%) classes. 72% of respondents considered that it is good to keep left-over antibiotics at home. 57% of surveyed parents believed in importance to buy antibiotics over-the-counter at the pharmacy. It was found that 77% of respondents consider antibiotics being effective against bacteria while 35% of them indicated its antiviral activity. In the study of respondents' awareness level about antibiotic resistance it was found: 59% of respondents believe that humans can be resistant to antibiotics; 25% of them claim that virus can be resistant to antibiotics; and 69% of respondents consider that bacteria is able to be resistant to antibiotics. 17% of respondents knew that antibiotic usage among animals is able to decrease antibiotic effects among people. Above-mentioned results clearly indicate the low level of parents' awareness about antibiotics, antibiotic therapy, and antibiotic resistance.

## KEYWORDS

Antibiotics, Antibiotic Therapy, Antibiotic Resistance

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For the past 70 years, antimicrobial drugs, such as antibiotics, have been successfully used in treating of patients with bacterial and infectious diseases. However, these drugs have been widely used for quite a long time that infectious organisms have adapted to antibiotics, which were designed to kill them, but, as a result, it made drugs less effective. [1], [2] Every year about 90,000 of patients die due to the infectious resistant to antibiotics. [3], [4] Many aspects of antimicrobial chemotherapy has been revised in connection with this global problem. [5] Therefore, the study of antimicrobial drugs resistance and the development of its overcoming ways are ones of the foreground objectives of national health. [6]

One of the probable reasons of antibiotic resistance development is a low level of parents' awareness about antibiotics, antibiotic therapy, and antibiotic resistance. [7] Consequently, the issue of antibiotic

resistance is studied from various aspects.

The aim of the current research is to study and assess the awareness level of ill children's parents regarding rational usage of antibiotics and antibiotic resistance to prevent the formation of antibiotic resistance.

To achieve the settled goal and objectives of the research we used a standardized questionnaire, which was developed by the staff of Karolinska Institut (Sweden). The survey consisted of two stages: the first stage is the stage of gathering general information about respondents and their children, and the second stage is the stage of statements and assertions. The study was conducted among 75 respondents in polyclinic №3( Karaganda) during January, 2016. The obtained results were analyzed by using of Microsoft Excel computer program.

Study of respondents' age showed that the most common ages varied between 21-30 and 31-40 that was equal to 36%; 11% of respondents were in age from 41 to 50; 9% of them were in their fifties; 7% of respondents were aged between 61-70; and 1% of

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# BRIEF COMMUNICATIONS

respondents were in their seventies.

In the study of respondents' education level, the following information was obtained: 57% of respondents had higher education, 39% had higher secondary education, and 4% of respondents had compulsory school education. It is also important to note, that 20% of surveyed people had secondary and graduate medical education (consequently 12% and 8%).

According to our data, 96% of respondents knew names of antibiotics. The most common antibiotics were from penicillin (82%) and cephalosporin (53%) classes. Obtained information is shown in Fig. 1 and Fig. 2.

According to respondents, 97% of children received antibiotics: 94% of kids used less than 10 courses, and 6% -more than 10 courses. 44% of children took antibiotics over the last year, and 56% took them over a year ago.

We researched the respondents' opinions about access to antibiotics. Obtained data revealed that 72% of surveyed people considered that it is good to keep left-over antibiotics at home, and it is important to emphasize, that 20% of them had medical education. 31% of the parents thought that it is good to be able to get antibiotics from relatives or friends without the need to call a doctor. Moreover, 28% of respondents were not against the possibility to buy antibiotics online without doctor's appointment. In addition,

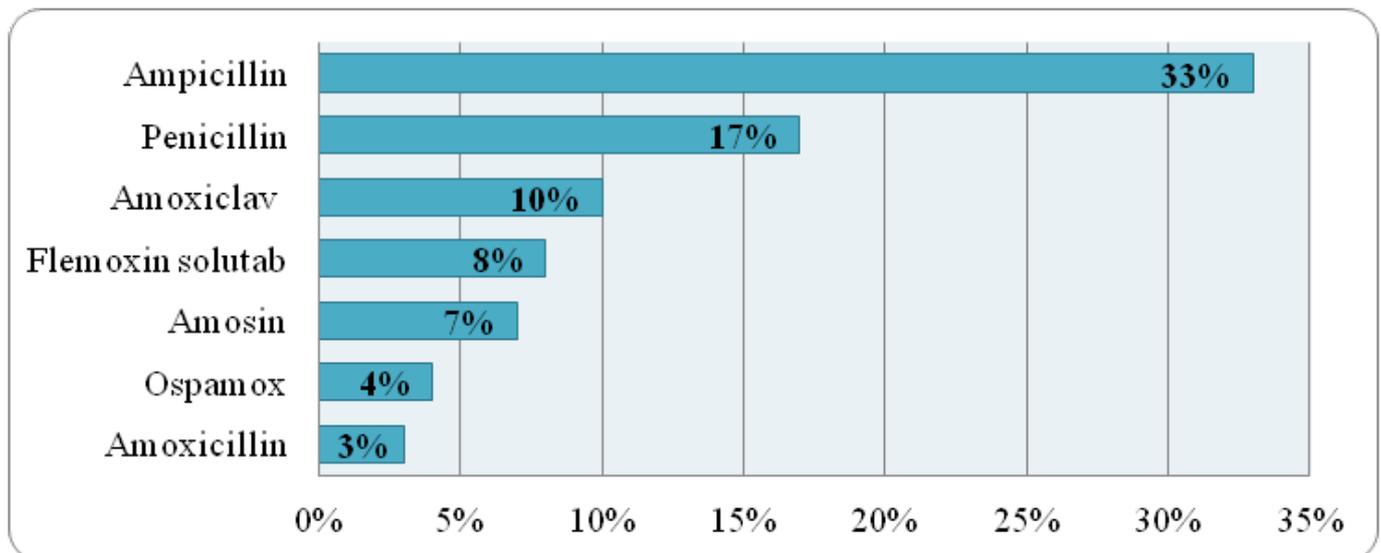


Fig.1. Penicillin class antibiotics which were mentioned by respondents

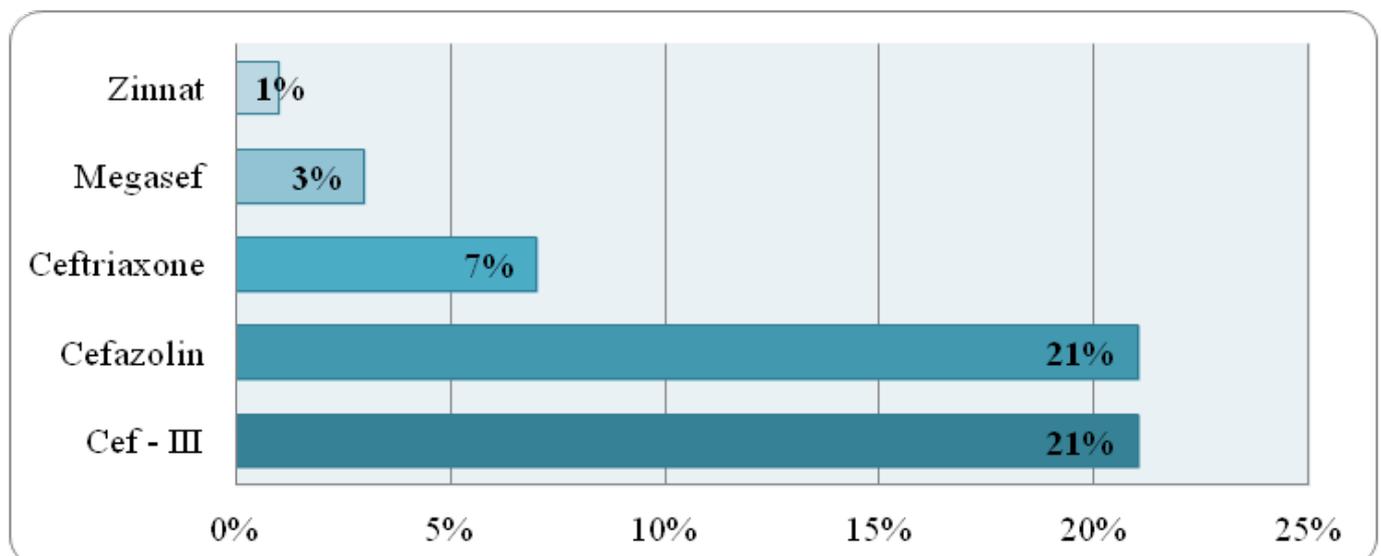


Fig.2. Cephalosporin class antibiotics which were mentioned by respondents

57% of surveyed parents believed in importance to buy antibiotics over-the-counter at the pharmacy, and 19% of them had medical education (Fig. 3).

In the next stage of the survey we collected and analyzed the respondents' answers about application and effectiveness of antibiotic therapy. It was found that 77% of respondents believed in antibiotics' effectiveness against bacteria; while 35% of them indicated its antiviral activity. During the study, it was revealed that 47% of surveyed parents agreed with the statement that colds are caused by bacteria; and 73% of respondents considered that they are caused by viruses. Parents noted to reasonably take antibiotics when symptoms, such as nasal catarrh

or cough, take place (consequently 32% and 35%). 79% of respondents believe that different antibiotics are needed to cure different diseases. Obtained information is shown in Fig. 4.

It was identified that 64% of parents believed that antibiotics kill all bacteria in the body, 23% of them considered that the previous statement is false, and 13% - did not know is it true or false.

Analyzing responds about side effects, it was found that 96% of respondents thought that in case of getting skin reaction during the use of an antibiotic, it is proper not to take that antibiotic again. 80% of respondents answered that in case of getting side-

Statement	Respondents' opinion		
	Agree	Did not agree	Respondent did not know
Left-over antibiotics are good to keep at home in case they might be needed later	72%	24%	4%
It is good to be able to get antibiotics from relatives or friends without having to see a doctor	31%	69%	0%
It is good to be able to buy antibiotics online, without having to see a doctor	28%	68%	4%
It would be good to be able to buy antibiotics over-the-counter at the pharmacy	57%	41%	2%

Fig.3. Respondents' opinions about access to antibiotics

Statement	Respondents' opinion		
	Agree	Did not agree	Respondent did not know
Antibiotics are effective against bacteria	77%	8%	15%
Antibiotics are effective against viruses	35%	49%	16%
Colds are caused by bacteria	47%	35%	18%
Colds are caused by viruses	73%	11%	16%
If you have the nasal catarrh from a head cold, you often need antibiotics to get rid of the cold	32%	57%	11%
If you have a cough, you often need antibiotics to get rid of the cough	35%	61%	4%

Fig.4. Respondents' knowledge about application and effectiveness of antibiotic therapy

Statement	Respondents' opinion		
	Agree	Did not agree	Respondent did not know
Humans can be resistant to antibiotics	59%	16%	25%
Viruses can be resistant to antibiotics	28%	37%	35%
Bacteria can be resistant to antibiotics	69%	8%	23%
The use of antibiotics among animals can reduce the effect of antibiotics among humans	17%	28%	55%
Resistance can spread from animals to humans	39%	40%	21%
Resistance can spread from human to human	43%	36%	21%
Resistance is a problem in Kazakhstan today	16%	52%	32%
Resistance is a problem in the rest of the world today	67%	6%	27%

Fig.5. Respondents' knowledge about antibiotic resistance

effects during a course of antibiotic treatment, it is necessarily to stop taking it as soon as possible. According to 91% of respondents, antibiotics can cause imbalance of own bacterial flora; also, 69% conceived that antibiotic usage can reduce the body capacity to fight off infections.

In the study of respondents' awareness level about antibiotic resistance the following data was found: 59% of respondents believe that humans can be resistant to antibiotics, whereas 28% claim that virus can be resistant to antibiotics, and 69% of respondents consider bacteria being able to resist antibiotics. In this part of questionnaire, it was identified that only 17% of respondents knew that antibiotic usage among animals is able to decrease the antibiotic effects among people. In the study of antibiotic-resistant strains it was revealed that respondents are under-informed about its transmission from animal to human and from human to human (consequently 61% and 57% of uninformed respondents).

In conclusion, antibiotic resistance is a problem in Kazakhstan and in the entire world, 16% and 67% of people (Fig. 5) agreed with this assertion.

Above-mentioned results clearly indicate the low level of parents' awareness about antibiotics, antibiotic therapy, and antibiotic resistance. Parents buy antibiotics without doctors' recipes, and proper

understanding, knowledge, what promotes the spread of antibiotic resistance. [8]

Many respondents had lack of information regarding right antibiotic access, it spreading, which also can be the cause of antibiotic resistance development. [9], [10] Therefore, in order to prevent antimicrobial resistance it is necessary to take following measures among population: educate patients on the appropriate use of antibiotics, educate patients on simple measures that may reduce transmission of infection in the household and community, educate patients on suitable alternatives to antimicrobials for relief of symptoms, and discourage patient self-initiation of treatment, encourage people on rational use of antibiotics. [11], [12], [13], [14]

## CONFLICT OF INTEREST

Authors confirm that this article content has no conflicts of interest.

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