# TO THE ISSUE OF STUDYING THE PREVALENCE OF ANTIBIOTIC RESISTANCE AMONG THE POPULATION

***A.B. Kuzgibekova, S.B. Mukasheva, A.E. Zhumabayeva, G.G. Yeryomicheva, B.T. Tukbekova, S.B. Dyussenova, K.S. Zhumakanova***

*Karaganda State Medical University, Karaganda, Kazakhstan*

***Correspondence address:***
*alma_aks@mail.ru*

**Almagul B. Kuzgibekova,** *MD, pediatrician, associate professor of the Department*

**Saltanat B. Mukasheva,** *MD Deputy Director for prevention programs at National Centre for Problems of Healthy Lifestyle*

**Akmaral E. Zhumabayeva,** *intern of seventh year of the Internal Diseases Department*

The World Health Organization (WHO) regards the problem of antimicrobial resistance as one of the highest priorities, as evidenced in the development of the *Global strategy to contain microbial resistance to antimicrobials*. The global strategy includes the rational use of antibacterial drugs by medical stuff, the development of decision-making skills for parents and children for prevention of antibiotic resistance. Often among the population, there is self-medication with antibiotics, using of antibiotics on the recommendation of friends, relatives. All this contributes to spreading of antibiotic resistance, beginning with early childhood.

## DESIGN AND METHODS

We surveyed 277 ill children's' parents who were on treatment in the primary health care unit. The selection and formation of the study group were carried out by random sampling. The interview was was held in polyclinics №1, №3 and polyclinic *Vita* in Karaganda.

Criteria of the selection for inclusion in the study were: parents of sick children aged 0 to 17 years, verified diagnosis, informed consent of the patient, absence of contraindications. Exclusion criteria were: the presence of severe organic pathology, concomitant diseases in the stage of decompensation and subcompensation.

*The method of data collection:*
a survey method, individual interviewing.

*Research tool:*
The questionnaire developed by a team of researchers, Andre M, Vernby A, Berg J, Lundborg CS, Karolinska Institutet, Stockholm (Sweden). The questionnaire consists of 5 blocks: introduction; access to antibiotics; scope and effectiveness; side effects and resistance, doctors' habits and patient/doctor relationship. In this paper, we present the results of a study on 1 block, consisting of 15 questions.

Statistical processing of data obtained at all stages of work was performed using the SPSS Statistics software package.

## RESULTS

Among 277 respondents 21,3% were fathers and 78,7% were mothers (fig. 1). The most common age was 21–30 years (32,1%), 28,41% of respondents were in their thirteens, 17,71% of respondents were in age between 41–50 years, while 9,96% respondents' age was between 51 and 60 years, 7,75% of respondents were in age between 61–70, 3,32% of respondents were in their seventies, and 0,74% respondents' age were 20 years old (fig. 2).

In the study of respondents' education level, it was found that 62,73% of respondents have university-higher education, 34,69% have secondary professional education and 2,58% of respondents have compulsory school education level. It is also important to note that 16,61% of respondents have graduated secondary medical education or they had courses in medical care, 5,17% of them is men and 19,72% of them is women.

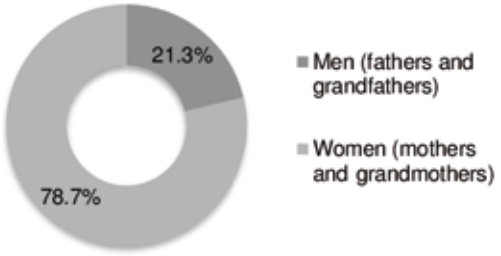


***Fig. 1.*** *Differentiation of respondents' sex*

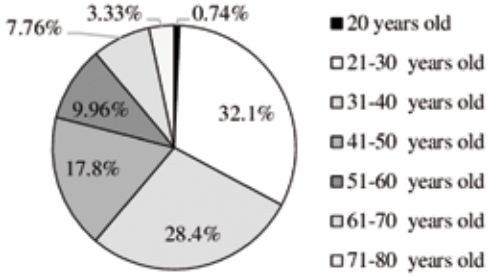


***Fig. 2.*** *Differentiation of respondents' age*

According to our data, 87% of respondents knew names of antibiotics, often respondents mentioned penicillin. The rest of respondents (13%) could not mention names of antibiotics.

According to data research it was identified that 96,31 % of parents have experienced antibiotic treatment: 89,66% of them were fathers and 98,12% of them were mothers. We analyzed experience of antibiotic usage depending on respondents' age. It was identified that 98,85% of 21–30-year-old-respondents, 98,7% of respondents in their thirties, 95,83% of 41–50-year-old-parents, 81,48% of respondents in age category 51–60, all parents between 61–70 years old and 20 years old, and 88,89% of 71–80-year-old-respondents have ever taken antibiotics. This analysis shows following correlation: children's mothers and young respondents are more likely to take antibiotics.

In comparative analysis of number of have taken antibiotic therapy courses in was revealed that 10,34% of respondents have used antibiotics once, 64,37% of parents have used antibiotics less than 10 courses, while 25,29% of respondents have used antibiotics more than 10 courses.

13,46% of fathers and 9,57% of mothers were in the group, in which antibiotics have used only once. In the study quantity of antibiotic therapy courses depending on parents' ages it was found that prevailed respondents in group of age 21–30 years old, 71–80 years old and 31–40 years old (consequently 13,95%, 12,5% and 11,84%), 51–60-year-old-respondens were relatively less – 9,09%, and 6,52% of respondents were in category of 41–50 years.

59,62% of men and 65,55% of women have treated with antibiotics less than 10 courses. Age differentiation showed the following results: 62,79% of respondents were in their twenties, while 65,79% of them were in age category between 31–40 years, 41–50-year-old-respondents were significantly more (76,09%), 40,91% of parents' age were between 51 and 60, 61,9% of respondents were in their sixties, 62,5% of them were 71–80-year-old, also it is important to note that all 20 years old parents were in this group.

The experience of taking more than 10 courses of antibiotic therapy was among 26,92% of fathers and 24,88% of mothers. More than 10 courses of antibiotic therapy have been the most among 51–60-year-old-respondents (50%), 23,26% of parents were in age group of 21–30-year-old, while 22,37% of them were in their thirties, 17,39% of respondents were in 41–50-year-old age group, 38,1% of parents' age was between 61–70 years, along with it a quarter of respondents were in their seventies.

According to data about prescription of antibiotics, it was identified, that 48,28% of people took antibiotics within the last 12 months, 46,36% of respondents took antibiotics more than 12 months ago, and the rest 5,36% of them took antibiotics last time more than 10 years ago.

As reported by surveyed parents, that treated with antibiotics within the last 12 month, 36,54% of them were men and 51,2% of them were women. The age division was as follows: 58,14% of parents were in their twenties, the number of parents from 31–40 years and 41–50 years age groups were almost the same (consequently 50% and 52,17%), 36,36% of parents age were between 51 and 60 years, 28,57% of respondents age were 61–70-years-old.

59,62% of fathers and 43,06% of mothers took antibiotics last time more than 1 year ago. 36,05% of asked people's age were 21–30-year-old, while the number of parents from 31–40 years and 41–50 years age groups were few more (consequently 43,42% and 45,65%), 54,55% of respondents were in their fifties, 66,67% of respondents' age were between 61–70, and all respondents from age group 71–80-years and 20 years took antibiotic more than 1 year ago.

Parents who took antibiotics more than 10 years ago were relatively few: 3,85% — men, 5,74% — women. Predominated 51–60-year-old age group (9,09%), 31–40-year-old-parents were significantly less (6,58%), 5,81% of parents' age was between 21 and 30 years, while 2,17% of respondents were in their forties, 4,76% of surveyed people's age was between 61–70-years.

According to respondents, 88,49% of their children have received antibiotics, 88,24% are men's children and 88,52% are women's children. Age differentiation showed the following results: 91,49% of respondents were in their twenties, while 92,31% of them were in age category between 31–40 years, 41–50-year-old-respondents were significantly less (80,95%), 87,5% of parents' age were between 51 and 60, all of respondents were in their sixties, a half (50%) of them were 71–80-year-old.

89,43% of children have treated with antibiotics less than 10 courses, at the same time 10,57% parents said that their children have used antibiotic treatment more than 10 courses.

According to 90,74% of mothers and 80% of fathers their children have taken antibiotics less than 10 courses. The quantity of 21–30-year-old-parents and 41–50-year-old parents was almost the same (consequently 88,37% and 88,24%), while the number of parents in their fifties and sixties was the same (85,71%), 91,67% of respondents' age was between 31 and 40, all of 71–80-year-old-respondents' children have taken less than 10 courses of antibiotic therapy.

20% of men and 9,26% of women claim that their children have used antibiotics more than 10 courses. In terms of age aspect the results were as follows: quantity of 21–30-year-old-parents was 11,63%, while 31–40-year-old-parents' quantity was equal to 8,33%, 11,76% of respondents were from 41–50-years-old age group, 14,29% of surveyed people were in their fifties, analogical quantity was among 61–70-year-old-people.

According to our data, 67,48% of parents consider that their children used antibiotics within last 12 months, at the same time 32,52% of respondents claim that children took antibiotics last time more than a year ago.

46,67% of fathers and 70,37% of mothers said that their children took antibiotics within last 12 months. Assessment of age shows predomination of 41–50-year-old-parents (82,35%), 71,43% of respondents were in their sixties, while 69,77% of parents were from 21–30-years-old age category, 62,5% of respondents were in their thirties, and 57,14% parents age was between 51 and 60 years.

55,33% of men and 29,63% of women treated children with antibiotics more than 12 months ago. 30,23% of respondents were in their twenties, while 37,5% of them were in age category between 31–40 years, 41–50-year-old-respondents were significantly less (17,65%), 42,86% of parents age was between 51 and 60 years, 28,57% of respondents were in their sixties, and all of surveyed people were 71–80-year-old.

Summarizing the above, it should be noted that the majority of respondents had a higher education level, this probably allowed most of the parents to be aware of antibiotics. In addition, this fact can also be explained by the frequent prescription of penicillin both to the parents themselves and to their children. Both in the anamnesis of the parents and in the anamnesis of children, a significant experience in taking antibiotics was noted, up to 10 courses of treatment had a large part of both parents and children. But the category of respondents that has taken more than 10 courses of treatment during the last 12 months poses a danger. The obtained data testify to the existence of grounds for the assumption that in the anamnesis of these respondents, there seems to have been an unreasonable antibiotic therapy and prerequisites for the formation of antibiotic resistance both among mothers and among fathers.