

Developing the system of managing the medicine assortment of Infant hospital of MSI of psycho-neurological direction

Clara Shertaeva¹, Bauyrzhan Makhatov¹, Rauan Botabayeva², Saken Tulemissov², Olga Blinova¹, Gulnar Utegenova¹, Saulet Syzdykova¹, Guzel Ibragimov³, Nurlan Zhanabayev⁴

¹South Kazakhstan State Pharmaceutical Academy, Shymkent, Kazakhstan

²Kazakh National Medical University named after S.D. Asfendiyarov, Almaty, Kazakhstan

³Bashkir State Medical University, Ufa, Russia

⁴International Kazakh-Turkish University H.A. Yassau, Shymkent, Kazakhstan

kairat_phd@mail.ru

Abstract: Scientific novelty of the research is the fact that complex studies of medical supplies in infant psych neurological health centers will be first held in SKO. The structure of nosology of diseases of disabled children and their social-hygienic characteristics will be first revealed and characterized. The recommendations on optimization of medical supplies of ill children with frequently occurring nosology diseases will be first worked out. The possibilities of perspective development of medico-pedagogic rehabilitation of mentally retarded children in special institutions will be first recommended.

[Shertaeva C., Makhatov B., Botabayeva R., Tulemissov S., Blinova O., Utegenova G., Syzdykova S., Ibragimov G., Zhanabayev N. **Developing the system of managing the medicine assortment of Infant hospital of MSI of psycho-neurological direction.** *Life Sci J* 2014;11(9s):9-15]. (ISSN:1097-8135). <http://www.lifesciencesite.com>. 2

Keywords: Disability; children's disability; legislation Republic of Kazakhstan; Free granting drugs in Medical establishments; Residential establishments of stationary type; Diseases of the psych neurological profile; Treatment protocols; Sociological research; official list or formulary list

1. Introduction

The issue of infant disability is urgent. According to statistics data specific weight of disable children in total, make up 5.7 in Kazakhstan. Disabling diseases, connected with nervous system and psychic pathology including mental retardation take the first place.

Nowadays the legislation of RK stipulates free medical supplies to the whole population in health care institution.

However, the issue of rendering pharmaceutical help to disabled people, who are on permanent place of residence in hostel institutions of day and night care type (residential care home).

Lately much consideration is drawn to free and privileged medical supplies of decreitive group of people in ambulatory conditions. Alongside with that, rendering pharmaceutical help who are on permanent place of residence in hostel institutions of day and night care type(residential care home). Great significance is paid to the issue of rational provision of therapeutic-diagnostic process by medicine, consumable material and medical items in terms of restricted Health Care financial funds [1, 2, 3].

Existing definite issues in medical supplies of disabled children, who are psych neurologic boarding houses are above all connected with lack of finance un reasoned assortment policy of pharmaceutical institution. In this respect, special urgency is given to

medical supplies system efficiency, i.e. rationality to meet adequate requirements [4, 5, 6, 7].

2. Material and Methods

Development of scientifically grounded recommended on optimization and development strategy of medical supplies of boarding houses.

Objects and subjects of the research:

The required material-technical base for planning the given work is available. Objects of the research will be:

- Statistic data of Ministry of Health Care for the period of 2010-2013;
- Demand in medicine assistance for children with frequently occurring nosology;
- Infant psycho-neurological health centers and MSI;
- Sheets with prescribed medicine from clinical record of studied segments of pharmaceutical market;
- Data of sociological research.
- Statistic, sociological, marketing, content-analysis, grouping.

The objects of research are:

- Infant psycho-neurological health centers and MSI;
- Statistic data of Ministry of Health Care for the period of 2010-2013;
- Demand in medicine assistance for children with frequently occurring nosology;

- Sheets with prescribed medicine from clinical record of studied segments of pharmaceutical market;
- Data of sociological research.

According to the research objectives statistic report of infant psycho-neurological health center for the period of 2010-2013 has been studied: 400 clinical records of children, prescription sheets, applications, price-lists.

3. Results

Essential help to children with disabilities is being implemented in accordance with the Law of the Republic of Kazakhstan «On social, medico-educational and correction support for children with disabilities» and the Law of the Republic of Kazakhstan «On social protection of the disabled in

the Republic of Kazakhstan». Law guarantees free medical care and medicines to children with disabilities.

Solving the problem of disabled people, including children with disabilities owing to Medicine at the state level remains an important issue, as pharmaceutical care is a key part of the treatment process of this category of the population.

Medicine treatment is the most widely-spread and one of the most effective types of medical technology. Medicine is used for prevention, treatment, reducing the number and duration of hospital stay. It should be noted that health care funding is increasing from year to year, as shown by the table below.

Table 1 - Information on health financing throughout SKO for the periods of 2010, 2011, 2012

Provision of medicines and specialized products of children's and clinical nutrition of certain categories of the population at dispensary level	478 810,0	948 978,0	1 035 366,0
Medical supply for children under the age of 5 at dispensary level of treatment from the national budget	106 706,0	96 776,0	121 400,0
Providing the pregnant with iron - iodine -containing drugs due to transfers from the national budget	151 099,0	150 055,0	185 400,0
Providing children and adolescents, who are in dispensary list in ambulatory treatment of chronic diseases, with medicines due to transfers from the national budget	118 906,0	67 026,0	103 300,0
Medicines' supply in concessionary terms of certain categories of citizens who are in outpatient treatment due to transfers from the national budget	294 606,0	284 296,0	309 853,0
Total	1 150 127,0	1 547 104,0	1 755 319,0

Thus, it is possible to sum up that positive tendency in medical supplies has been marked in South Kazakhstan. Financing of the given branch in the period of 2005-2008 in average has grown to 2-2.5 times. All the purchased drug agents refer to the group of Vital-vitally significant medical agents; moreover they are included into the National medicine List of the Republic of Kazakhstan, which proves their efficiency.

Presently WHO recommends the countries to realize at programs on stimulating rational use of medicine with the help of politics, structure, information and education.

The high level of chronic, inborn, genetic disease has been found, the cause of disability of 25.9% of children is the nervous system, and of 12.4% is mental disorder.

Among all the diseases of children the nervous system diseases rank 5th place in the Republic of Kazakhstan, and among the reasons that led to

disability it takes the 3rd, giving the place only to inborn diseases, mental and behavioral disorders.

Thus, among the children first recognized disabled, nearly the third one or 32.9% of children come with inborn abnormalities or chromosomal diseases, cause of disability of 25.9% of children is the nervous system disease, mental disorder diseases make up 12.4% of changes in the CNS.

To solve this problem, we conducted a content analysis 400 clinic records of children with disabilities over the age of 5 have been examined, and also the annual demand for drugs in 2009, 2010, 2011, and 2012 has been studied.

So, as a result of study of 400 medical records for 5 years, we have found that in the socio-demographic composition of the disabled children in the children's hospital of psych neurologic direction of Shymkent males (57%) dominate especially in urban areas.

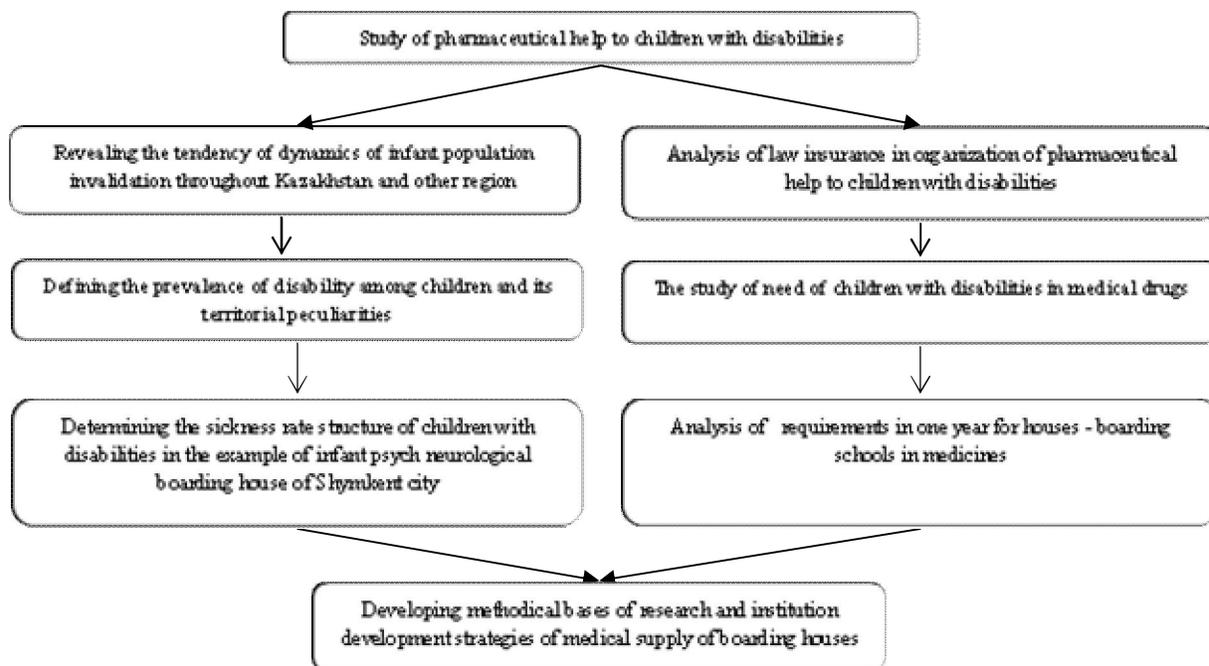


Figure 1 - Algorithm of pharmaceutical assistance marketing research for children with disabilities

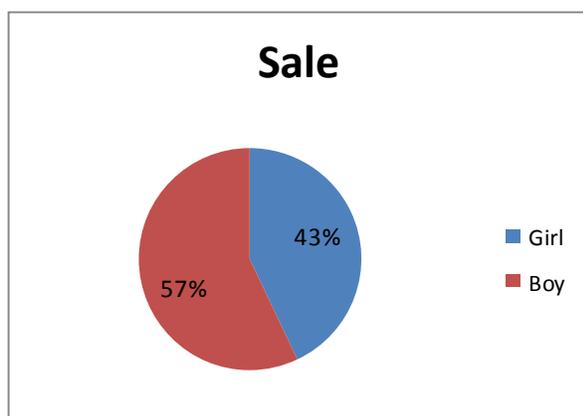


Figure 2 - Information on socio-demographic composition of children with disabilities in the MSI of Shymkent (according to the results of sociological research)

Leading age groups are people from 8 to 12 years, its specific weight does not succeed 45 % in urban areas and in rural areas it reaches 50%. The highest proportion of this age group of children with disabilities is among girls living in rural areas (55%). Every fifth child with a disability belongs to the age group of 14-15. If in urban areas the nervous system diseases and the sense organs (35%), inborn abnormal development (24.3%), mental disorders (12.7%) and respiratory diseases (11%) dominate.

In rural areas, inborn abnormalities of development comprise (29.5%), diseases of the

nervous system and sense organs (27.9%), mental disorders (15.5%), and respiratory diseases (12.2%).

Respiratory illnesses frequently occur among boys, especially in urban areas, blood and blood-forming organs 'diseases, and among girls diseases of the musculoskeletal system and connective tissue.

Sociological studies have shown that as the age increases there is growth of mental disorders (for 8-9 times) and endocrine diseases (for 4-5times).

According to the structure of the main disease, it has been found out that mental disorders take the first place in the structure of sickness rate among children with disabilities living in boarding houses. The second place is inborn abnormalities of the CNS: myelocele, hydrocephalus, macrocephaly and others. The third place is various chronic diseases and the effects of acute illness.

Among children in the boarding house maximum indices of infectious and parasitic diseases mainly due to helminthic infection as children suffering from mental retardation , do not have and possess all the necessary hygiene skills.

Another feature of the sickness rate of children with disabilities from the boarding school are high levels of diseases of the skin and hypoderm, which is formed due to skin infections and hypoderm (carbuncle, blotches), as well as diaper rash. Injuries, bruises, scratch and purulent traumatism.

Factor reducing the already poor quality of life of disabled children is that as compared to all children, more often they have «bouquets» of

diseases marked, i.e. each child suffers not only from one, but several diseases. So, more than the half of (52 %) of the examined children have 6 or more diseases.

Thus, based on the carried out research we have defined socio-demographic profile of the patient. This is a boy (53%), aged 8 to 12 years from single-parent families (60%), with a diagnosis of mental

illness (adolescent insanity, abnormalities of the CNS).

Further, the consumption of drugs by the contingent of boarding school to optimize drug supply of the studied segment.

Thus, the content of drug assortment and consumption in the treatment of children with disabling psychic and neurological direction is as follows.

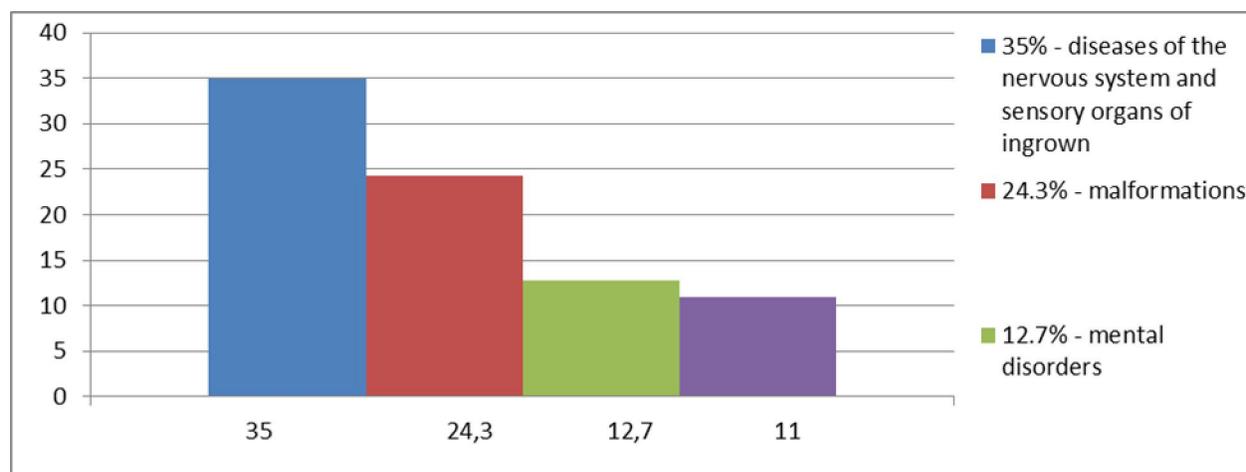


Figure 3 - Chart of sickness rate structure of children with disabilities (from urban areas)

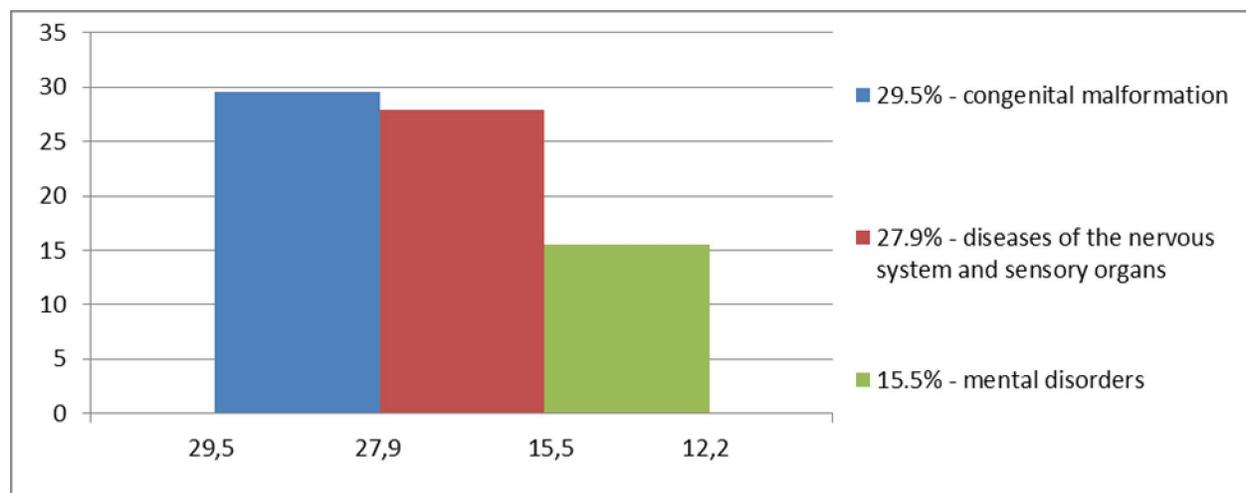


Figure 4 - Chart of sickness rate structure of children with disabilities (from rural areas)

Content analysis of 400 clinic records of children-patients from psycho-neurological boarding school of Shymkent in the period of 2010-2013 has allowed forming information block of medicines, which includes 143 names of preparations of 34 groups according to the ATCh classification. It is established that the medicine assortment content is formed mainly 9 pharmacological groups and one group, and others.

Drugs used in mental disorders are represented in 12 names that is 8.39 % of the total range of aminozii karbomezapam, etc. Means improving brain blood circulation compose 6 drugs , cavinton, pyracetam 4.12% . Further, anti-infective , anti-bacterial agents , antibiotics and 13 types are 9 % . Gastrointestinal drugs and enzymes are given by 6 drugs that make up 4.12 % . The group «Vitamins» includes 8 items , which corresponds to 5 to 6%. Solutions which have remedial effect on water,

electrolyte and acid base imbalance are presented by 7 parenteral types of drugs which is 4.5%.

Table 1 - The content of drug assortment and consumption for the treatment of children with disabilities of psychoneurological profile (according to data of the children's boarding school of Shymkent) for the period of 2013 (in sum) and consumption volume

№	Name of Pharmacotherapeutic group	Amount in tenge (per year)	Consumption volume (packing)
1	Drugs used for mental disorders	3522,0	3909
2	Means improving cerebral circulation	1062,2	1144
3	Anticontagious, antibacterial agents and other antibiotics	779,6	2640
4	Gastrointestinal drugs enzymes	473,8	494
5	Other Consumables	355,6	26077
6	Solutions, having remedial effect of water, electrolyte and acid -base balance	247,3	1412
7	Non-narcotic analgesics, non-steroids and antiphlogistic	222,0	114
8	vitamins	213,5	382
9	Diuretic	175,7	480
10	Antiallergic drugs and drugs used in anaphylactic shock	137,0	723
	Total	6833,1	12298

Table 2 - Range of drug consumption used for the treatment of children with disabilities (throughout MSI of Shymkentfor the period of 2013)

№	Name of pharmacotherapeutic groups	range	Amount of drug agents	% out of the total amount
1	Antiallergic drugs and medicine agents used in anaphylactic shock	I	15	10,5%
2	Drugs used for mental disorders and non-narcotic analgesics, non-steroidal, anti-inflammatory agents	II	12	8,4%
3	Vitamins and solutions, correcting water , electrolyte and acid-base imbalance	III	8	5,6%
4	Drugs for the treatment of functional disorders of the gastrointestinal tract andtools to improve cerebral circulation	IV	6	4,12%

Non-narcotic, nonsteroidal anti-inflammatory drug means is -12 (8.4 %). Diuretics – 3 names are % 2 (8.4 %). The largest group has a range of «Antiallergic means and drugs», used in anaphylactic shock - 15, which corresponds to 10, 5%. Other consumables for 12 items correspond to 8, 4%.

It was thus established that the Drugs' assortment content is mainly formed in the range of 9 pharmacotherapeutic groups, which are represented by 83 drug agents and meet 57.73 % of drug consumption, which make up the sum of 6833.1, which corresponds to 63.2 % of the total (Tab. 2).

During the detailed analysis it has been stated that the group of drugs used for mental disorders: chlorpromazine 2.5% in ampoules of 2 # 10, karbomazelil tablets of 200mg #50, tablets of benzonal in 0,1 # 10, chlorpromazine pills of the weight of 0,025 # 10, diazepam (Relanium) in 2 ml of 10. Other drugs in the given group are presented in fewer amounts.

Hereafter, expert assessment of drug assortment to study the rationality of drug prescription in the

boarding house of psych neurological direction have been carried out by neurologists of this hospital.

Expert assessment has been realized according to specially developed drugstore, including more than 100 names of drug agents.

To range drug agent according to the level of rationality of prescribing at hospital the experts have been suggested the following indicators (in points);

2,0 - drug agent which is optimal according to pharmacotherapeutical effect and price;

1,0 - DA of the reserve (replacing in case of the absence of the main one);

0,0 - no need in DA.

Based on the data the division into assortment groups has been performed: vital -V; necessary -E; extra-N.

At the next stage of the research formulary list of drugs for the treatment of children with disabilities who are hospitalized at a boarding house of neuropsychiatric profile has been formed.

Studies have identified the existing problems in the drug provision of children with disabilities that are in boarding houses of neuropsychiatric profile.

As it has been mentioned above; this is related to the shortage off financing of the non-developed awareness and not thought out assortment policy of medical supply.

The solution of the problem is evident in improving existing formulators list of treatment. The

purpose of improving of formulator system is gaining maximum medical effect in patient treatment in more economically profitable method of treatment, which includes medical supply.

Thus, the implemented analysis allows to formulate the follow wing methodical approaches to developing the system of the employment of drug agent assortments in boarding houses of psych neurological direction.

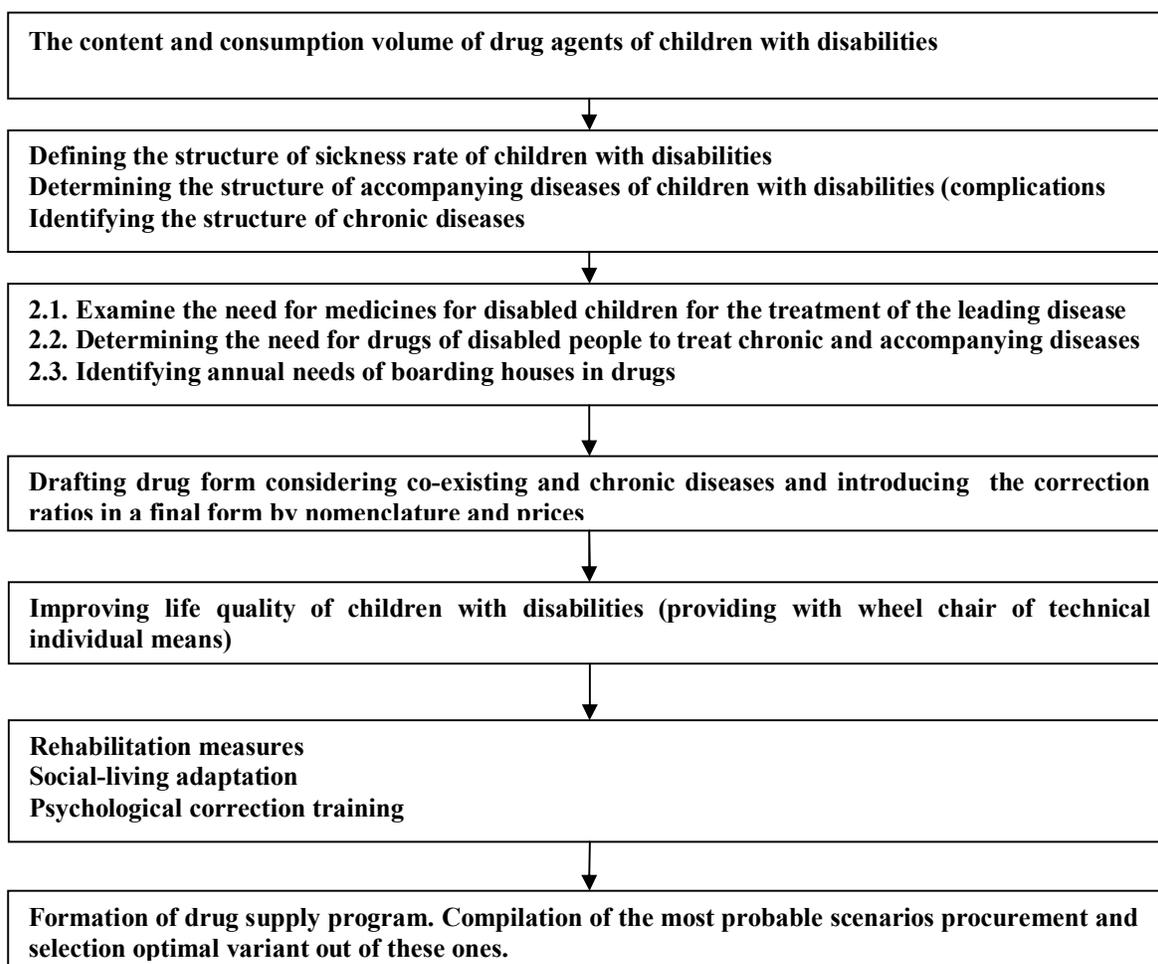


Figure 5 - The objectives of marketing research of the needs of hospitals of boarding school type in drug agents (for example, child psycho-neurological boarding school)

In methodological approaches it is supposed to use them in marketing management system of the state supply. Thus, to determine the structure and scope of needs in drug agents of children with disabilities, we have studied the structure of the first stage of their disease, and the structure of accompanying complications and chronic diseases has been determined. Further, need of disabled children in drug agents for the treatment of the leading disease, as well as chronic and accompanying diseases have been investigated.

Based on these data we have determined the annual demand of boarding houses in drugs agents.

According to the result of analysis and research the final form based on chronic diseases and accompanying diseases has been formulated and correction coefficient on nomenclature and prices has been submitted.

The purpose of the work at this stage is the formation of the final form of drugs agent list.

At the final stage of the study regulatory-cost analysis of the developed final form list, which

defined the average consumption of drugs, the amount of needs has been identified, the average price of the studied drugs has been revealed. The sum has been determined, provided for the purchase of the budget.

Results of the study are introduced into the work of infant psych neurological MSI.

4. Discussions

In the studies we obtained the following. Discussions:

1. Comparative analysis of the dynamics of children disability due to mental retardation has revealed its growth rates in the world, and Kazakhstan as well.

2. Approximate indices of the economic losses of children disability according to the modified model. However, these figures give an idea of the total required funding of boarding house institutions and advisability on programs development aimed at improving regional Health Care in this direction.

3. Socio-demographic profile of the patient's of infant psych neurological MSI of Shymkent has been defined: this is a boy (53%) aged 8 to 12 from single-parent family.

4. It has been identified that mental disorders (adolescent insanity, in the level of micropsychia, idiocy) take the first place in the structure of sickness rate among children with disabilities living in boarding houses. The second place is inborn abnormalities of the CNS: myelocoele, hydrocephalus, macrocephaly and others. The third place are various chronic diseases and the effects of acute illness.

5. Maximum indices of infectious and parasitic diseases, diseases of the skin and hypoderm have been identified. More than half of children (53%) have 6 or more diseases.

6. It has been revealed that medical rehabilitation of mentally retarded children is a complex system of measures; having pediatric and psychiatric aspects. The first of these foresees the control of physical development of children, conducting recreational activities, elimination of accompanying disorders. The second one, based on the diagnostic approach, aims at identifying the degree of mental retardation and related psychological symptoms and medicated impact to find prerequisites for psychological-educational rehabilitation.

7. The content analysis of Drug Agent assortment, assortment segment analysis have been

implemented, expert assessment of assortment rationality in terms of children boarding house has been realized.

8. Amount of funding of medicine supply of MSI patient has been identified on the basis of formulated final DA list which is introduced into the work of MSI.

9. Methodical bases of research and development strategies of organization of medical supply of infant boarding houses of psych neurological direction have been designed.

Corresponding Author:

Dr. Shertaeva
South Kazakhstan state pharmaceutical academy
Sq. Al-Farabi, 1, 160019, SKR, Shymkent, Kazakhstan
Email: kairat_phd@mail.ru

References

1. Shertayeva K.D., Sultanbekov A.A., Blinova O.V. Tendencies and prospects of pharmaceutical assistance to disabled children at contemporary stage. Materials of International scientific-practical conference «Innovative ideas of young scientists as contribution to science development», Shymkent, 2013; 192-194.
2. Shertayeva K.D., Umurzakhova G.Zh., Sultanbekov A.A. Research of developing of Human Resource management in the subjects of sphere of Drug Agents circulation at regional level. *Medicine and ecology*, 2013; 1: 333-334.
3. Shertayeva K.D., Sultanbekov A.A., Blinova O.V. Social demographic situation of children with disabilities with psychoneurological diseases. The collection of works of International scientific-theoretical conference, Turkestan, 2013; 353-358.
4. Datkhayev U., Shopabayeva A., Zhakipbekov K., Yermekbayeva D., Orazbekov E., Turgumbayeva A. Basic aspects of the organization of the pharmaceutical industry. *Life Sci J* 2013; 10(7s): 677-683] (ISSN:1097-8135). <http://www.lifesciencesite.com>. 106.
5. Botabayeva R., Shertaeva C., Blinova O., Datkhayev U., Shopabayeva A., Zhanabayeva N., Zhakipbekov K. Methodical approaches to a strategy of diversification to advance domestic production of medicines. *Life Sci J* 2013;10(12s):302-309. (ISSN:1097-8135). <http://www.lifesciencesite.com>. 53.
6. Zhumabayev N., Makhatov B., Makhatova A., Magay T., Zhakipbekov K., Sapakbay M., Makhatova B. The use of mathematical methods of analysis in the pharmaceutical area of Kazakhstan. *Life Sci J* 2013;10(10s):36-40. (ISSN:1097-8135). <http://www.lifesciencesite.com>. 7.
7. Utegenova G., Blinova O., Shertaeva C., Tulemissov S., Sapakbay M., Umurzakhova G., Zhakipbekov K. About the standards of development and the placement of pharmacy network in the Republic of Kazakhstan. *Life Sci J* 2013; 10(12s):664-672. (ISSN: 1097-8135). <http://www.lifesciencesite.com>. 107.