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Analysis on the list of medcines used at Ngu Hanh Son General Hospital in 2021 by ABC/VEN analysis method

Phân tích danh mục thuốc sử dụng tại Bệnh viện Đa khoa Ngũ Hành Sơn năm 2021 theo phương pháp phân tích ABC/VEN

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Abstract

Purpose: Analyze the list of medcines used at Ngu Hanh Son General Hospital in 2021 according to ABC/VEN analysis method. Subjects and methods: The study was carried out by retrospective descriptive method with the list of drugs used at the hospital in 2021 including 237 drugs. Results: Class A drugs accounted for 20.25% of the total number of drugs, accounting for 80% of the use value; class B drugs accounted for 21.52% in quantity and 14.94% in use value; class C drugs accounted for 58.23% in quantity and 5.06% in use value. In class A, the class of traditional medicine preparations accounts for 18.75% in quantity and 21.56% in use value. Class AN has 9 brand name drugs belonging to the class of traditional medicine preparations. Conclusion: major drug classs have been identified with the main consumption structure, serving as a scientific basis for the Drug and Treatment Council to evaluate and select drugs for the following year.

Keywords: The list of medcines used; quantity; use value; 2021.

Tóm tắt

Mục đích: Phân tích danh mục thuốc sử dụng tại Bệnh viện Đa khoa Ngũ Hành Sơn năm 2021 theo phương pháp phân tích ABC/VEN. Đối tượng và phương pháp: Nghiên cứu được thực hiện theo phương pháp mô tả hồi cứu danh mục thuốc sử dụng tại bệnh viện năm 2021 gồm 237 thuốc. Kết quả: Thuốc nhóm A chiếm 20.25% về số lượng và 80% giá trị sử dụng; thuốc nhóm B chiếm 21.52% về số lượng và 14.94% về giá trị sử dụng; thuốc nhóm C chiếm 58.23% về số lượng, chiếm 5.06% về giá trị sử dụng. Trong nhóm A, nhóm các chế phẩm y học cổ truyền chiếm tỷ lệ về số lượng là 18.75% và 21.56% về giá trị sử dụng. Nhóm AN có 9 biệt dược thuộc nhóm các chế phẩm y học cổ truyền. Kết luận: Bằng phương pháp phân tích ABC, các nhóm thuốc chủ yếu đã được xác định cùng với cơ cấu chi phí, có thể sử dụng làm cơ sở khoa học cho Hội đồng Thuốc và Điều trị đánh giá, lựa chọn thuốc cho năm sau.

Từ khóa: danh mục thuốc sử dụng; số lượng; giá trị sử dụng; 2021.

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1. Introduction

Currently, although the Ministry of Health of Vietnam has issued many legal documents regulating the use of drugs in medical examination and treatment facilities, such as Circular 23/2011/TT-BYT, Circular 52/2017/TT-BYT [1], [2]; however, the situation of drug use in hospitals still has many unreasonable problems: abuse of brand-name drugs, drug prices that are not strictly controlled, misuse of antibiotics, commercial prescriptions, etc. Among the reasons that increase the burden on costs for patients, reduce the quality of health care and the reputation of medical examination and treatment facilities. Therefore, the management of drug use at health facilities is one of the important tasks that plays a decisive role in the quality of medical examination and treatment at the facility, thereby finding solutions in the use of drugs. Reasonable use of drugs, suitable to the hospital's disease model, will contribute to saving medical examination and treatment costs and improving the effectiveness of treatment quality for patients.

2. Subjects and methods

2.1. Subjects: Drugs on the list of drugs used at Ngu Hanh Son General Hospital in 2021.

2.2. Methods:

2.2.1. Research design: Retrospective descriptive method, as presented in Figure 2.1

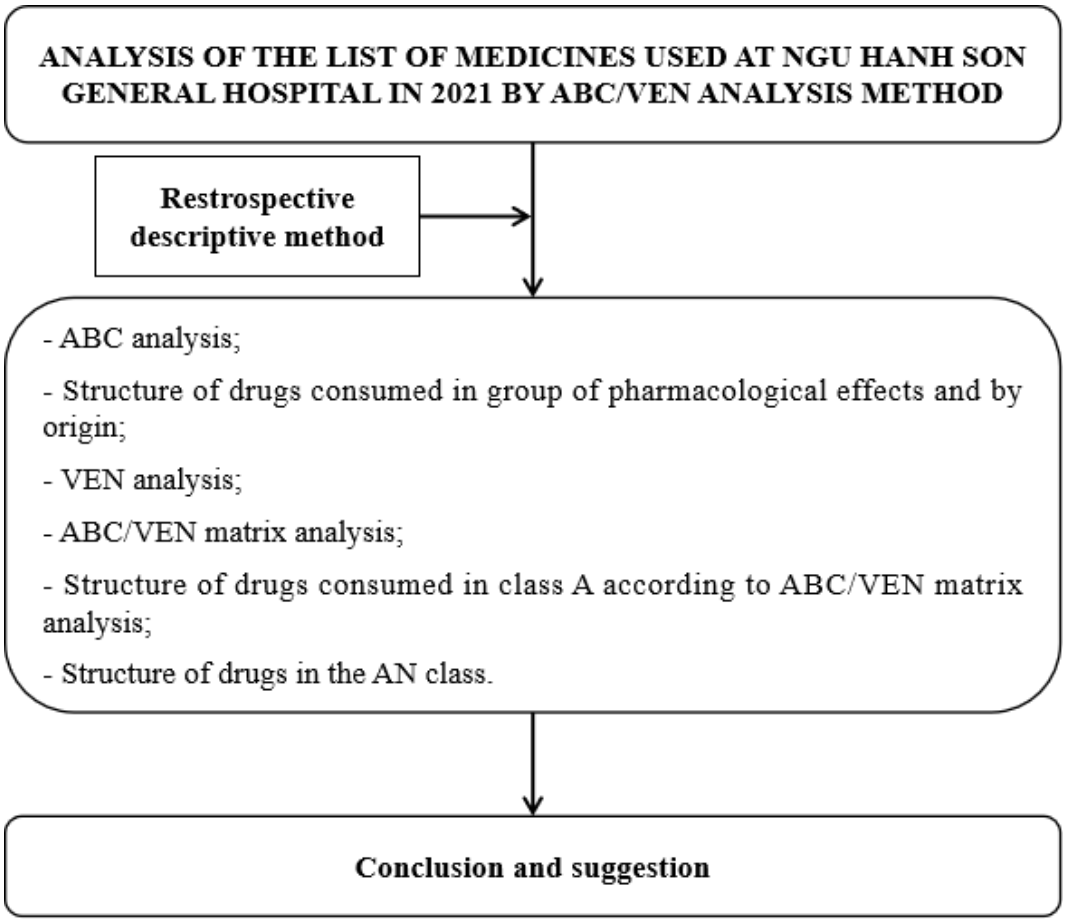

Figure 2.1. Research design flowchart

2.2.2. The method of data collection

Retrospective data on drug use at Ngu Hanh Son General Hospital in 2021 was collected: Name of drug, name of active ingredient, concentration, content, dosage form, unit of calculation, unit price, quantity, country of manufactured.

2.2.3. Analytical methods

Proportion calculation.

ABC analysis; VEN analysis; ABC/VEN integrated matrix analysis [3];

Therapeutic category analysis.

2.2.4. Methods of presenting and processing data

Collected data is encrypted and cleaned, managed using Microsoft Excel 365 as importing data software. Microsoft Word 365 software was used for preparing tables, graphs, charts and diagrams.

3. Results

3.1. Quantity and value of drug use at Ngu Hanh Son General Hospital according to ABC analysis method

Table 3.1. Summary analysis result of ABC analysis on quantity of drug use and expenditure

NO	Class	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	A	48	20.25	3906.75	80.00
2	B	51	21.52	729.83	14.94
3	C	138	58.23	246.99	5.06
Total		**237**	**100.00**	**4883.57**	**100.00**

Analysis results show that only 20.25% of class A drugs (48 drugs) account for about 80.00% of total consumption value (on average, each class A drug accounts for 3.95% of total consumption value). medicine in the hospital). Class B includes 51 drugs (accounting for 21.52%), with use value accounting for 14.94%. Class C includes 138 drugs, accounting for 58.23% and 5.06% of the drug value used.

It can be seen that with 189 drugs of class B and C (accounting for 79.75% of the total drugs in the list) only accounted for 20.10% of the total consumption value. Meanwhile, class A drugs account for a smaller proportion of the number of drugs (20.25%), but account for nearly four times the monetary value, compared to the total use value of class B and class C drugs.

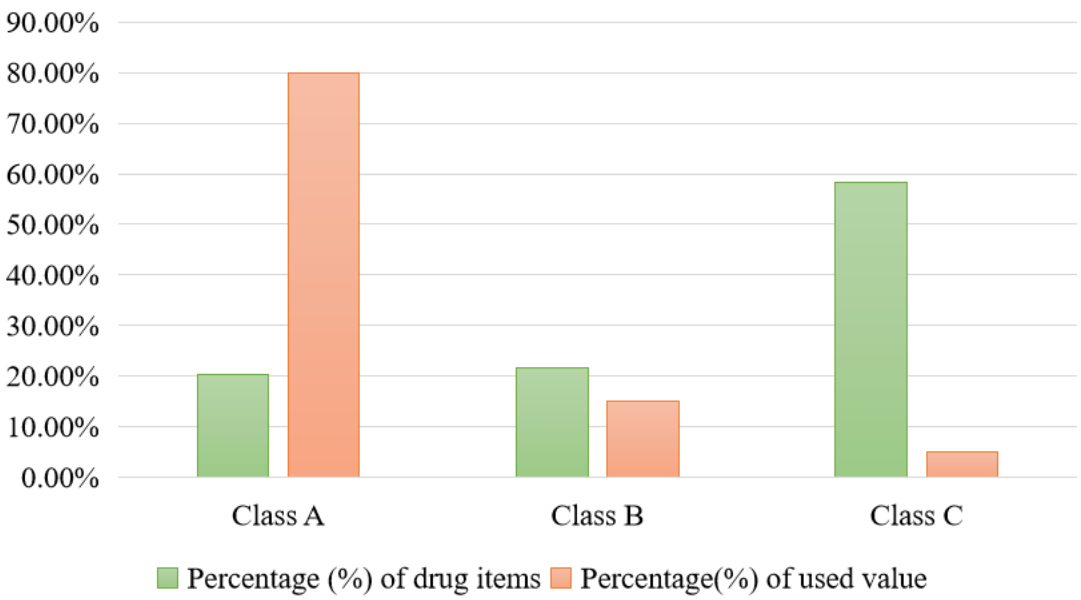

Figure 3.1. Percentage (%) of quantity and value of drug used according to ABC analysis method

3.2. Analysis of class A drugs on quantity and expenditure, by therapeutic category and origin

3.2.1. Therapeutic category analysis

Table 3.2. Summary of class A drugs by therapeutic category

NO	Therapeutic category	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	Traditional medicine products	9	18.75	842.28	21.56
2	Anti-parasitic drugs, anti-infectives	7	14.58	535.16	13.70
3	Cardiovascular drugs	7	14.58	694.44	17.78
4	Gastrointestinal drugs	6	12.50	223.43	5.72
5	Minerals and vitamins	5	10.42	311.75	7.98
6	Hormones and other endocrine drugs	5	10.42	645.72	16.53
7	Analgesics, antipyretics, nonsteroidal anti-inflammatory drugs, drugs used to treat gout, and disease-modifying antirheumatic drugs	3	6.25	151.30	3.87
8	Drugs acting on the respiratory tract	1	2.08	30.78	0.79
9	Antiallergics and drugs used in anaphylaxis	1	2.08	27.56	0.71
10	Antipsychotic drugs and drugs acting on the nervous system	1	2.08	27.47	0.70
11	Medicines to treat eye, ear, nose and throat diseases	1	2.08	313.40	8.02
12	Anticonvulsants, Antiepileptics	1	2.08	33.94	0.87
13	Medicines for the treatment of urinary tract diseases	1	2.08	69.52	1.78
Total		**48**	**100.00**	**3906.75**	**100.00**

From the above research results (Table 3.2), there are 48 class A drugs, can be divided into 13 therapeutic categories.

Regarding the number of drugs in each class: Traditional medicine preparations account for the highest proportion in quantity, at 18.75%; The second is the class of drugs to treat parasites, anti-infectives and the class of cardiovascular drugs, accounting for 14.58% (7 products).

Regarding the used value compared to the total used value of class A drugs:

- The class of drugs of traditional medicine and pharmaceutical preparations accounts for the highest proportion of used value (21.56%), the average used value for a drug in this class is about 2.40%.

- Meanwhile, the class of drugs to treat eye, ear, nose and throat diseases, although having a lower value (8.02%), but on average for one drug is about 8.02%, much higher than this rate. of the class of drugs and traditional medicinal preparations.

- Cardiovascular drugs also have a fairly large value (accounting for 17.78%) and the average for one drug is about 2.54%.

- Hormonal drugs and drugs affecting the endocrine system ranked third with the rate of 16.53%. The average used value for a drug in this class is also quite high, about 3.31%.

- Anti-parasitic and anti-infective drugs ranked second in quantity, but only ranked fourth with the rate of 13.70%. average for one drug is about 1.96%.

3.2.2. Origin analysis results

Table 3.3. Analysis results on quantity and expenditure of class A drugs by origin

NO	Origin	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	Domestic drugs	29	60.42	2390.70	61.19
2	Imported drugs	19	39.58	1516.05	38.81
Total		**48**	**100.00**	**3906.75**	**100.00**

As shown in Table 3.3, the use of domestic drugs accounts for the main proportion in the list of class A drugs. The number of domestic drugs accounts for 61.19% of the total value, the average use value for a drug is about 2.11%.. Imported drugs account for a smaller proportion of 39.58% in volume with 19 products. accounting for 38.81% and the average use value for each drug is about 2.04%.

3.3. VEN analysis result

Table 3.4. VEN analysis on quantity and expenditure of drugs used

NO	Class	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	V	29	12.24	107.36	2.20
2	E	190	80.17	3853.75	78.91
3	N	18	7.59	922.46	18.89
Total		**237**	**100.00**	**4883.57**	**100.00**

From the results (Table 3.4), out of 237 drugs used by the hospital, the highest number of class E drugs was 190 (accounting for 80.17%), the least number of class N drugs with 18 drugs (accounting for 7.59%). Regarding drugs in class E, the largest amount was 3853.75 million VND (accounting for 78.91%) more than 04 times higher than drugs in class N 922.46 million VND (accounting for 18.89%). Class V drugs ranked second in quantity with 29 products (accounting for 12.24%) but the lowest value was 107.36 million VND, accounting for 2.20% (Figure 3.2).

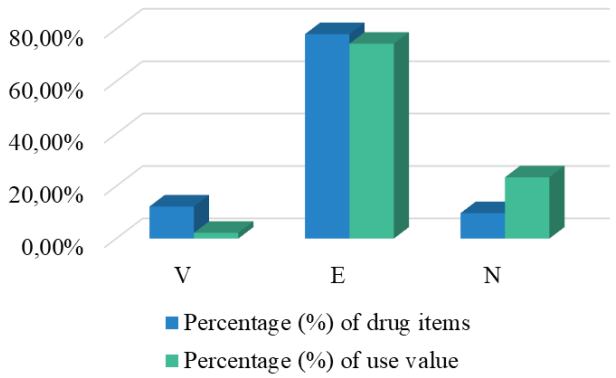

Figure 3.2. Percentage (%) of quantity and value used according to VEN analysis method

3.4. Quantity and expenditure of drugs used, according to ABC/VEN integrated matrix analysis.

Table 3.5. ABC/VEN matrix analysis result of quantity and expenditure of all drugs used

NO	Class	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	AV	1	0.42	30.78	0.63
2	AE	38	16.03	3033.69	62.12
3	AN	9	3.80	842.28	17.25
4	BV	3	1.27	51.67	1.06
5	BE	44	18.57	607.09	12.43
6	BN	4	1.69	71.07	1.46
7	CV	25	10.55	24.91	0.51
8	CE	108	45.57	212.97	4.36
9	CN	5	2.11	9.11	0.19
Total		**237**	**100.00**	**4883.57**	**100.00**

From the results in Table 3.5, it can be seen that in all three classes A, B, and C, class E drugs are rare, with the highest number of 38/48 class A drugs; 44/51 class B drugs and 108/138 class C drugs.

Class N drugs in class A and B ranked second in quantity, with class AN having 9 drugs (accounting for 3.80%), class of patients having 4 drugs (accounting for 1.69%) but only ranked last with the number of drugs in the class. in class C (5 drugs, accounting for 2.11%).

Regarding, in all three classes A, B, C, class E drugs have the largest amount, class AE accounts for 62.12% (use value accounts for 3033.69 million VND); class BE has the number of 12.43% with the value of use accounting for 607.09 million dong); class CE has 4.36% of the quantity (accounting for 212.97 million VND).

Class N was in the lowest class C but ranked second in class A and class B, namely: class AN (17.25%), class BN (1.46%) and class CN accounted for 0.19%.

3.5. ABC/VEN matrix analysis result of quantity and expenditure of class A drugs used

Table 3.6. Number of drug and expenditure of classs AV, AE, AN

NO	Class	Quantity	Proportion (%)	Expenditure (million dong)	Proportion (%)
1	AV	01	0.42	30.78	0.63
2	AE	38	16.03	3033.69	62.12
3	AN	09	3.80	842.28	17.25
Total		**48**	**20.25**	**3906.75**	**80.00**

Survey results for class A drugs according to the ABC/VEN matrix (Table 3.6): group AV has 1 drug and accounts for 0.63% of the use value of class A drugs; group AE has 38 drugs and accounts for 62.12% of the use value of class A drugs; Group AN has 09 drugs, accounting for 17.25% of the use value of class A drugs.

The list of drugs used in the AN class is presented in Table 3.7.

Table 3.7. List and use value of drugs used in the AN class

NO	Drugs	Dosage forms	Expenditure (million dong)	Proportion (%)
1	Duong cot hoan	Hard Pills	220.50	4.52
2	Bo huyet ich nao BDF	Soft capsule	151.22	3.10
3	Bo gan tieu doc Livsin-94	Film-coated tablets	147.04	3.01
4	Sang mat	Hard Capsules	67.75	1.39
5	Con xoa bop Jamda	Herbal Tincture	67.10	1.37
6	Duong tam an than HT	Sugar coated tablets	63.07	1.29
7	Hoat huyet Phuc Hung	Film-coated tablets	56.52	1.16
8	Thuoc ho K/H	Syrup	38.08	0.78
9	Bo gan P/H	Sugar coated tablets	31.01	0.63

As shown in Table 3.7, among class AN, Duong Cot Hoan has 220.50 million VND, accounting for 4.52% of the value used at the hospital; Medicines containing Diep Ha Chau (02 drugs) were 178.05 million VND, accounting for about 3.64% of the total use value; Bo huyet ich nao BDF 151.22 million VND, accounting for 3.10% of the total value of use; the value of using hard capsules is 67.75 million VND, accounting for 1.39%; Con xoa bop Jamda (accounting for 1.37%); Duong tam an than HT (accounting for 1.29%); Hoat huyet Phuc Hung (accounting for 1.16%); Thuoc ho K/H (accounting for 0.78%).

4. Discussion

In addition to treatment class analysis, ABC analysis is also a useful tool in identifying existing problems in drug use as well as in allocating hospital budgets to drug purchases.

The drug use situation is assessed through the drug consumption structure according to the ABC analysis method. Generally, in term of monetary value, class A drugs account for 75-80%, class B drugs accounts for 15-20%, and class C accounts for 5-10%.

The results of the analysis of the drug list at Ngu Hanh Son General Hospital in 2021 include: class A includes 48 items out of a total of 237 drug items (accounting for 20.25% of drug items), which are of high use value, accounting for 80%. Class B includes 51 drug items (accounting for 21.52%), accounting for 14.94%. Class C includes 138 drug items (accounting for 58.23%), accounting for 5.06%. This result is quite consistent with the general recommendations of the World Health Organization and previous studies such as the number of class A drugs at Hue Central Hospital in 2008 was 16.29% [5].

The distribution of drugs in class A is very diverse in accordance with the disease model. It is worth mentioning that among class A drugs, the number of domestic drugs accounts for a higher proportion than foreign drugs at 20.84%. This result is largely thanks to the policy of promoting drug production activities as well as prioritizing the use of domestic drugs in treatment within country. Besides, in class A, there are still about 39.58% of foreign drugs imported from developing countries. This shows that with the criteria of drug selection with a quality assessment according to the country of origin, it can also help the hospital to choose and purchase good drugs.

The data show that drugs of anti-infection class and the cardiovascular class are still the class of drugs with a large proportion, ranking second in terms of quantity and value in the drug list of hospitals with 7 drugs accounting for 14.58% of class A drugs. Traditional medicine products lead with 9 drugs accounting

for 18.75% of class A drugs. The management of drug use and drug selection criteria need to be more specific because this may be an opening for some unhealthy marketing activities to stimulate demand, causing difficulties in supply. Worryingly, the fact that antibiotics are used a lot in hospitals, stemming from the antibiotic abuse, this phenomenon is increasing, leading to antibiotic resistance in hospitals.

The class of drugs affecting the endocrine system ranked fourth in terms of the number of active ingredients in the list, but ranked third, accounting for 16.53%. This is largely explained by the impact of changes in socio-cultural factors, so in recent years, the number of patients with glucose metabolism disorders has increased rapidly, leading to the higher number of drugs used for this class of patients. Injection drugs, which are mainly insulin, are relatively expensive and treat patients with chronic diseases, so the value of drug consumption accounts for a large amount.

Besides, in the list of class A drugs, there are adjunct drugs, such as vitamin 3B, drugs that support liver function and increase metabolism in the liver. In the class of supportive drugs, there is a huge amount of consumption, mainly manufactured in Vietnam, Korea, India and China. The analysis results partly showed the irrationality in the use of drugs, such as some drugs that are not really essential, only supportive in treatment, but are on the list of class A drugs. Specifically, they are vitamins, traditional and herbal medicines, such as: Hoat huyet Phuc Hung, Bo huyet ich nao BDF, Bo gan P/H, Bo gan tieu doc Livsin-94, Duong tam an than HT, Duong cot hoan. It is worth mentioning that these non-essential drug classs account for a large proportion of the hospital's total drug use budget in 2021. Overuse of adjunct drugs in treatment is also a common situation of many hospitals across the country when the research results of hospitals in 2012-2014 also clearly showed this problem [3], [4], [5], [6], [7]. As suggested of our analysis results, hospitals may need to manage strictly the use of these drug classs, avoid the use of high-priced drugs, large treatment costs are not really necessary and still ensure effective use. drugs, avoid wasting the budget, suitable with the health insurance fund and the affordability of the patient.

5. Conclusion

The results of ABC analysis showed that class A accounted for 20.25% of the total number of drugs, accounting for 80%. Class B has the number of drugs accounting for 21.52% and 14.94%. Class C has the largest number of drugs, accounting for 58.23%, but the smallest amount is only 5.06%.

In class A, traditional medicine products account for the highest proportion of 18.75% and 21.56% respectively. Anti-parasitic and anti-infective drugs ranked second in quantity with 7 products, but ranked fourth in terms of 13.70%. Cardiovascular drugs ranked second in quantity with 7 products and at the same time ranked second in value with 694.44 million VND, equivalent to 17.78%. In which, the AN class has 9 brand-name drugs belonging to the class of traditional medicine preparations.

By the ABC analysis method, major drug classs have been identified with the main consumption structure, serving as a scientific basis for the Drug and Treatment Council to evaluate and select drugs for the following year.

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