

# Analysis of Diabetes Mellitus Drug Planning Using ABC and VEN Methods Based on Value of Use and Investment Value in Pharmacy Warehouse General Hospital Insan Permata Period January - March 2021

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## Abstract

**Introduction:** According to Basic Health Research in 2018 has collected data on people with diabetes mellitus in Indonesia showing that the prevalence of diabetes mellitus has increased according to the results of blood sugar measurements increased from 6.9 in 2013 to 8.5 in 2018<sup>1</sup>. The hospital carries out a pharmaceutical activity carried out by the Hospital Pharmacy Installation (IFRS). The pharmaceutical work activities is related to the manufacture, quality control of pharmaceutical preparations, management of pharmaceutical supplies (planning, procurement, receipt, storage, distribution, recording, reporting, destruction/elimination), prescription services, drug information services, counseling, clinical pharmacy in room . Drug planning is carried out to avoid drug shortages by using methods that can be accounted for and the basis for planning that has been determined, including consumption, epidemiology, a combination of consumption and epidemiological methods and adjusted to the available budget <sup>2</sup>. **Aims:** This study aims to classify diabetes drugs using ABC analysis and VEN analysis to help the control of diabetes drugs at Pharmacy Instalation of Insan Permata Hospital. **Methods:** The methods is a non-experimental study with retrospective data collection in January - March 2021 in the form of reports on drug names, drug purchases, drug sales and the purchase price of diabetes mellitus drugs at the Insan Permata Hospital. The data were analyzed using the ABC method and the VEN method. **Results:** The results showed that of the 12 drug items based on use value, there were 44511 units of drugs used, there were 5 groups, namely the AE group there were 2 items, the BE group had 4 items, the CE group had 1 item, the CV group had 3 items and the CN group had 2 items. Based on the total investment value of Rp. 100,274,770. There are 6 groups, namely the AV group has 1 item, the BV group has 1 item, the BE group has 3 items, the CV group has 1 item, the CE group has 4 items, and the CN group has 2 items. **Conclusion:** After analyzing the 12 items with ABC (Always Better Control) dan VEN Vital Essensial Non Essensial) methods, there are 10 items for planning drug procurement in the next period, start april 2021.

**Keyword** - ABC Analysis Method, VEN Analysis Method, Planning of Drug Diabetes Mellitus

*Abstrak*

**Pendahuluan:** Menurut Riset Kesehatan Dasar tahun 2018 yang telah dikumpulkan data penderita diabetes melitus di Indonesia menunjukkan bahwa prevalensi diabetes melitus mengalami peningkatan menurut hasil pengukuran gula darah meningkat dari 6,9 pada tahun 2013 menjadi 8,5 pada tahun 2018<sup>1</sup>. Rumah Sakit melakukan kegiatan kefarmasian yang dilakukan oleh Instalasi Farmasi Rumah Sakit (IFRS). Kegiatan kerja kefarmasian berkaitan dengan pembuatan, pengendalian mutu sediaan farmasi, pengelolaan perbekalan farmasi (perencanaan, pengadaan, penerimaan, penyimpanan, pendistribusian, pencatatan, pelaporan, pemusnahan/pengurangan), pelayanan resep, pelayanan informasi obat, penyuluhan, klinik, apotek di kamar. Perencanaan obat dilakukan untuk menghindari kelangkaan obat dengan menggunakan metode yang dapat dipertanggungjawabkan dan dasar perencanaan yang telah ditentukan antara lain konsumsi, epidemiologi, kombinasi metode konsumsi dan epidemiologi serta disesuaikan dengan anggaran yang tersedia<sup>2</sup>. **Tujuan:** Penelitian ini bertujuan pengklasifikasian obat diabetes menggunakan analisis ABC dan analisis VEN untuk membantu pengendalian obat diabetes di Instalasi Farmasi RS Insan Permata. **Metode:** Metode yang digunakan adalah penelitian non eksperimen dengan pengambilan data secara retrospektif pada bulan Januari – Maret 2021 berupa laporan nama obat, pembelian obat, penjualan obat dan harga pembelian obat diabetes melitus di Rumah Sakit Insan Permata. Analisis data menggunakan metode ABC dan metode VEN. **Hasil:** Hasil penelitian menunjukkan bahwa dari 12 item obat berdasarkan nilai pakai terdapat 44.511 unit obat yang digunakan, ada 5 kelompok yaitu kelompok AE ada 2 item, kelompok BE ada 4 item, kelompok CE ada 1 item, grup CV ada 3 item dan grup CN ada 2 item. Berdasarkan total nilai investasi sebesar Rp. 100.274.770. Terdapat 6 grup yaitu grup AV 1 item, grup BV 1 item, grup BE ada 3 item, grup CV ada 1 item, grup CE ada 4 item, dan grup CN ada 2 item. **Kesimpulan:** Setelah dilakukan analisa terhadap 12 item dengan metode ABC (Always Better Control) dan VEN Vital Essensial Non Essensial), terdapat 10 item untuk perencanaan pengadaan obat pada periode selanjutnya, mulai April 2021.

**Kata Kunci -** ABC Analysis Method, VEN Analysis Method, Planning of Drug Diabetes Mellitus

## I. INTRODUCTION

The hospital organizes pharmaceutical activities which include the manufacture, quality control of pharmaceutical preparations, management of pharmaceutical supplies (planning, procurement, receipt, storage, distribution, recording, reporting, destruction, or elimination), prescription services, drug information services, counseling, clinical pharmacy in hospitals. room <sup>2</sup>.

Planning for drug needs is an activity to determine the amount and duration of procurement according to the results of selection activities to ensure the fulfillment of the criteria for the right type, right amount, timely and efficient (Kemenkes RI, 2019).

Planning for drug needs is carried out to avoid drug scarcity by using an accountable method and a predetermined planning basis, including consumption, epidemiology, a combination of consumption and epidemiological methods, and adjusted to the available budget <sup>2</sup>.

Planning for the procurement of diabetes mellitus drugs needs to be considered so that the availability of drugs is always available at the hospital. Diabetes mellitus is a non-communicable disease but this disease can cause premature death worldwide, this disease is also a major cause of blindness, heart disease and kidney failure. The International Diabetes Federation (IDF) organization estimates that there are at least 463 million people aged 20-79 years in the world suffering from diabetes in 2019 or equivalent to a prevalence rate of 9.3% of the total population at the same age <sup>5</sup>.

According to Basic Health Research in 2018 has collected data on people with diabetes mellitus in Indonesia according to a doctor's diagnosis in the population aged 15 years, showing that the prevalence of 2% this figure has increased from 1.5% in 2013 but the prevalence of diabetes mellitus has increased according to the results of blood sugar measurements increased from 6.9 in 2013 to 8.5 in 2018 (Kemenkes RI, 2019).

Previously, a preliminary study was carried out by the author in April 2021 that there was a shortage of drug stocks with indications of Diabetes Mellitus due to very fast sales movements. Examples of drugs are Novorapid, Novomix and Metformin 500mg. Due to the rapid movement of drugs, it is necessary to evaluate the drug demand plan because it is considered necessary to ensure drug availability and budget efficiency, one of which is the ABC and VEN methods. Based on the results of interviews with drug managers at the Insan Permata General Hospital, data obtained that so far in planning drugs using the consumption method.

The ABC analysis is useful for grouping based on items and the need for funds, while the VEN analysis determines the efficiency of using limited drug funds by grouping based on the benefits of each type of drug on health (Kemenkes RI, 2019).

## II. RESEARCH METHODS

The type of research carried out is descriptive nonexperimental with retrospective data collection in the period January - March 2021, which is a study used to analyze and classify Diabetes Mellitus drugs which are included in the ABC

(Always Better Control) drug group and those included in the VEN (Vital) group. E (Essential), and N (Non-Essential). The data used in this study consisted of secondary data. Secondary data was logistical data for Diabetes Mellitus drugs that were already available in the form of a list of drugs based on the amount of drug uses and investment values.

The population in this study was taken from the sales list and the number of uses of Diabetes Mellitus Drugs in E-catalogue at the Pharmacy Warehouse of the Insan Permata General Hospital for the period January-March 2021, which amounted to 44,511 drugs.

The sample object in the study is based on total sampling, namely all data taken from all types of Diabetes Mellitus drugs in the Pharmacy Warehouse of Insan Permata General Hospital, sales and the number of Diabetes Mellitus drugs used through Ecatalogue for the period January-March 2021, totaling 44,511 drugs. The sampling method used to determine the sample on the research object is using the total sampling method, where the entire population is sampled. In this study, the total sampling was 44,511 drugs.

### III. RESULTS AND DISCUSSION

#### A. RESULTS OF ANALYSIS OF THE ABC-VEN METHOD BASED ON VALUE IN USED

Results of analysis of the ABC-VEN Method based on value in used can be showed in table 1

**TABLE 1. RESULTS OF ANALYSIS OF THE ABC – VEN METHOD BASED ON VALUE IN USED**

No	Drug Names	ABC Group	VEN Group	Mix
				Methods ABC VEN
1	Metformin 500 mg	A	E	AE
2	Acarbose 100 mg	A	E	AE
3	Acarbose 50 mg	B	E	BE
4	Glimepiride 1 mg	B	E	BE
5	Glimepiride 2	B	E	BE
6	Gliquidone 30 mg	B	E	BE
7	Glimepiride 3 mg	C	E	CE
8	Novorapid pen	C	V	CV
9	Glibenclamide 5 mg	C	N	CN
10	Novomix pen	C	V	CV
11	Ryzodeg pen	C	V	CV
12	Glikazide 80	C	N	CN

Group A consists of 2 items, namely Metformin and Acarbose 100 with a total usage of 28647 with a percentage of use of 64%, group B consists of 4 items, namely Acarbose 50 mg, Glimepiride 1, Glimepiride 2 and Gliquidone 30 mg with a percentage with a total usage of 13492 with the percentage of use is 30%, while group C consists of 6 items, namely Glimepiride 3, Novorapid pen, Glibenclamide 5 mg, Novomix pen, Ryzodeg pen and Glikazide 80 mg with a total usage of 2372 with a percentage of use of 6%.

Group V has 3 items, namely, Novomix and Ryzodex with a percentage of drug use as much as 25%. Group E has 7 items, namely Metformin 500 mg, Acarbose 100 mg, Acarbose 50 mg, Glimepiride 1 mg, Glimepiride 2 mg, Gliquidone 30 mg and Glimepiride 2 mg. with a percentage of use of 58%, and Group N there are 2 items, namely Glibenclamide 5 mg and Glicazide 80 mg with a percentage of use of 17% The results of the ABC and VEN combination analysis showed that in the AE group there were 2 drug items, namely Novorapid and

Acarbose 100 mg, in the BE group there were 4 drug items, namely Acarbose 50 mg, Glimepiride 1 mg, Glimepiride 2 mg, and Gliquidone 30 mg. The CE group contained 1 drug item, namely Glimepiride 3 mg. The CV group contained 3 drug items, namely Novorapid pen, Novomix pen, and Ryzodeg pen. The CN group contained 2 drug items, namely Glibenclamide 5 mg and Glikazide 80 mg.

**B. RESULTS OF ANALYSIS OF THE ABC - VEN METHOD BASED ON INVESTMENT VALUE**

Results of Analysis of the ABC-VEN Method Based on Investment Value can be showed in table 2

**TABLE 2. RESULTS OF ANALYSIS OF THE ABC - VEN METHOD BASED ON INVESTMENT VALUE**

No	Drug Names	ABC Group	VEN Group	Mix Methods ABC - VEN
1	Novorapid pen	A	V	AV
2	Novomix pen	B	V	BV
3	Acarbose 100 mg	B	E	BE
4	Metformin 500 mg	B	E	BE
5	Acarbose 50 mg	B	E	BE
6	Gliquidone 30 mg	C	E	CE
7	Ryzodeg pen	C	V	CV
8	Glimepiride 2 mg	C	E	CE
9	Glimepiride 1 mg	C	E	CE
10	Glimepiride 3 mg	C	E	CE
11	Glibenclamide 5 mg	C	N	CN
12	Glikazide 80 mg	C	N	CN

Group A consists of 1 item, namely Novorapid with a percentage of drug items 68.34% with a total investment of Rp. 68,530,150.00 group B consisted of 4 items, namely Novomix pen, Acarbose 100 mg, Metformin 500 mg and Acarbose 50 mg with a drug investment percentage of 25.30% with a total investment of Rp. 25,367,748.00 while group C consisted of 7 items, namely

Gliquidone 30 mg, Ryzodeg pen, Glimepiride 2, Glimepiride 1, Glimepiride 3, Glibenclamide 5 mg and Glikazide 80 mg with a total investment of Rp. 6,376,881.00 with a percent investment of 6.36%.

Group V there are 3 items, namely Novorapid, Novomix and Ryzodex with a percentage of 25% with a total budget of Rp. 68,530,150, Novomix pen Rp. 8,153,544, and a Ryzodeg pen of Rp. 1,164,592.

Group E contains 7 items, namely Metformin 500 mg, Acarbose 100 mg, Acarbose 50 mg, Glimepiride 1 mg, Glimepiride 2 mg, Gliquidone 30 mg and Glimepiride 2 mg with a percentage of 50%, with a total budget of Metformin 500 mg of Rp. 5,732,250, Acarbose 100 mg Rp. 6,792,984, Acarbose 50 mg Rp. 4,688,970, Glimepiride 1 mg Rp. 695,854, Glimepiride 2 mg Rp. 741,633, Gliquidone 30 mg Rp. 3,242,680, and Glimepiride 3 mg Rp. 508,482 and Group N there are 2 items, namely Glibenclamide 5 mg and Glikazide 80 mg with a percentage of 17% with a total budget of Glibenclamide 5 mg of Rp. 23,640 and 80 mg Glikazide Rp.0 of 12 Diabetes Mellitus drug items.

The results of the ABC and VEN combination analysis based on the investment value in the AV group contained 1 drug item, namely Novorapid. the BV group contained 1 drug item, namely Novomix pen. The BE group contained 3 drug items, namely Acarbose 100 mg, metformin 500 mg, and Acarbose 50 mg. The CE group contained 4 drug items, namely Gliquidone 30 mg, Glimepiride 2 mg, Glimepiride 1 mg and Glimepiride 3 mg. In the CN group, there were 2 drug items, namely Glibenclamide 5 mg and Glikazide 80 mg.

**C. PLANNING FOR DIABETES MELLITUS DRUGS USING THE ABC-VEN METHOD AT THE INSAN PERMATA GENERAL HOSPITAL PHARMACY WAREHOUSE**

Planning for Diabetes Mellitus Drugs using the ABC-VEN method can be showed in table 3

**TABLE 3. RESULTS OF ANALYSIS OF THE ABC - VEN METHOD**

No	Drug Names	Mix Methode ABC - VEN
1	Novorapid pen	AV
2	Novomix pen	BV
3	Acarbose 100 mg	BE
4	Metformin 500 mg	BE
5	Acarbose 50 mg	BE
6	Gliquidone 30 mg	CE
7	Ryzodeg pen	CV
8	Glimepiride 2 mg	CE
9	Glimepiride 1 mg	CE
10	Glimepiride 3 mg	CE

In the combined method of ABC and VEN is used to reduce drugs with the mechanism that drugs that are in the NC category are the first priority to be reduced or eliminated from the need plan, if funds are still lacking, then NB category drugs are the next priority and drugs that are in the NA category are the next priority. If after using this approach the available funds are still lacking, take the next step, namely with the same approach as when reducing drugs on the NC, NB, NA criteria starting with reducing drugs in the EC, EB and EA categories (Kemenkes RI, 2019). The drugs included in the drug planning category for Diabetes Mellitus for the period April and beyond are 10 types of items, namely Novorapid pen, Novomix pen, Acarbose 100 mg, Metformin 500 mg, Acarbose 50 mg, Gliquidone 30 mg, Ryzodeg pen, Glimepiride 2., Glimepiride 1, Glimepiride 3.

**IV. CONCLUSION**

Based on the results of data analysis using ABC and VEN methods based on value in use, it can be concluded that there are 44,511 drugs used. For ABC analysis, which includes group A as much as 64%, the percentage of drug items is 17% with the number of drugs being 2 items. group B A total of 30%, the percentage of drug items 33% with a total of 4 drugs items. group B as much as 5%, the percentage of drug items 50% with the number of drugs as much as 6. As for the VEN analysis, which includes group V as much as 25% with a total of 3 drugs. Group E as much as 58% with the number of drugs 7 items.

The results of the ABC and VEN method data analysis based on the Investment Value of Diabetes Mellitus drugs at the Insan Permata General Hospital for the period January – March 2021, it can be concluded that the total funds from 44,511 drugs are Rp. 100,274,770. For ABC analysis, which includes group A as many as 1 drug item with an investment percentage of 68.34% and absorbs funds of Rp. 68,530,150. Group B as many as 4 items of drugs with an investment percentage of 25.30% and absorb funds of Rp. 25.367748. Group C as many as 7 items of drugs with an investment percentage of 6.36% and absorb funds of Rp. 6.376881. As for the VEN analysis, which includes group V as many as 3 drug items with a budget of Rp. 77,848,286. group E as many as 7 items of drugs with a budget of Rp. 22.402853. group N as many as 2 items of drugs with a budget of Rp. 23,640. Drug planning for the next period, namely April, May and June, consists of 9 drug items.

Planning for diabetes mellitus drugs for the period of April and the next is 10 items of drugs which are categories AV, BV, BE, CE, CV. and CN categories are removed to be ordered.

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