

Assignment: Mid Term Exam

Course: BIA 810

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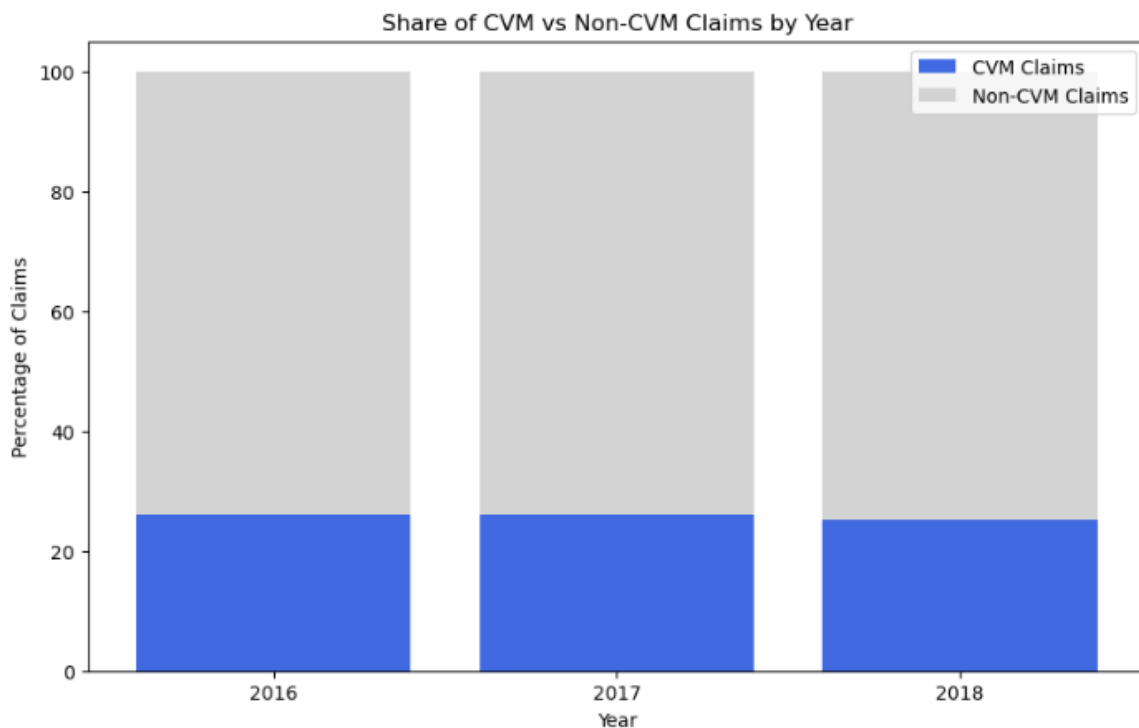
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## 1. Introduction

Cardiovascular Metabolic (CVM) diseases, like heart disease, stroke, and type 2 diabetes has been on an increase, posing serious health risks. They often involve interconnected issues like obesity, high blood pressure, and elevated blood sugar. Popular treatments include brands like Xarelto, Lantus, and Jardiance. The objective of this report is to understand and analyze trends in medical procedures related to CVM in hospitals and clinics using Syntegra dataset. These insights will support the Sales & Marketing team in making informed decisions.

## 2. Three Important Business Questions

Business Question 1: Below is the bar chart of the percentage of claims over the three years period (2016-2018)



Trend Analysis: Looking at the bar chart above, we observe two important trends:

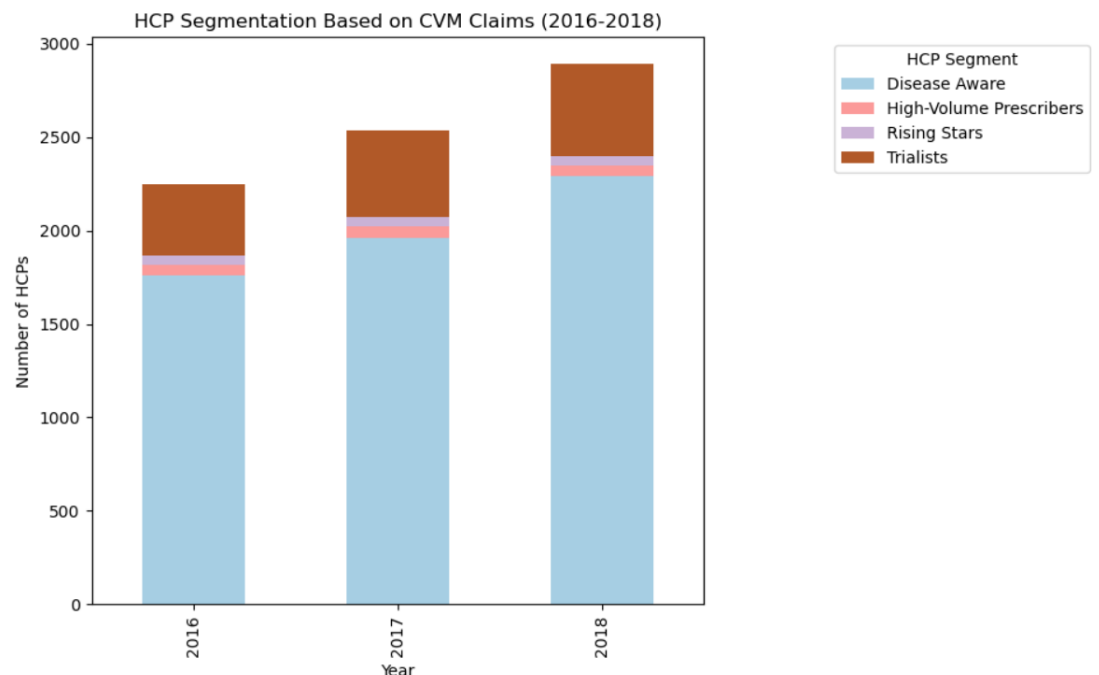
- 1) The percentage of non-CVM claims is greater than the percentage of CVM claims for all three years.
- 2) The percentage of CVM claims is around 26 percent for the years 2016 and 2017. This percentage decreases to 25 percent in year 2018.
- 3) For non-CVM claims, the percentage is 74 percent for the years 2016-2017. This percentage increases to 75 percent in year 2018.

#### Business Insights from the Trend Analysis

Based on the trend analysis of the percentage of claims (CVM vs non-CVM) for the three years period (2016-2018), the following business insights are derived:

1. A higher percentage of claims are associated with non-cardio vascular medical procedures as compared to cardio vascular medical procedures.
2. The CVS claims still makes 25 to 26 percent of the total claims, indicating that marketing and sales strategies should be targeting the cardio-vascular medical procedures.
3. Further exploration can be done to identify the regions with high CVM claims so that sales teams can be deployed accordingly.

Business Problem 2: Below is the bar chart of number of HCPs based on CVM claims over three years period (2016-2018)



Trend Analysis of HCPs behavior based on claims volume: Looking at the bar graph above we observed the following trends:

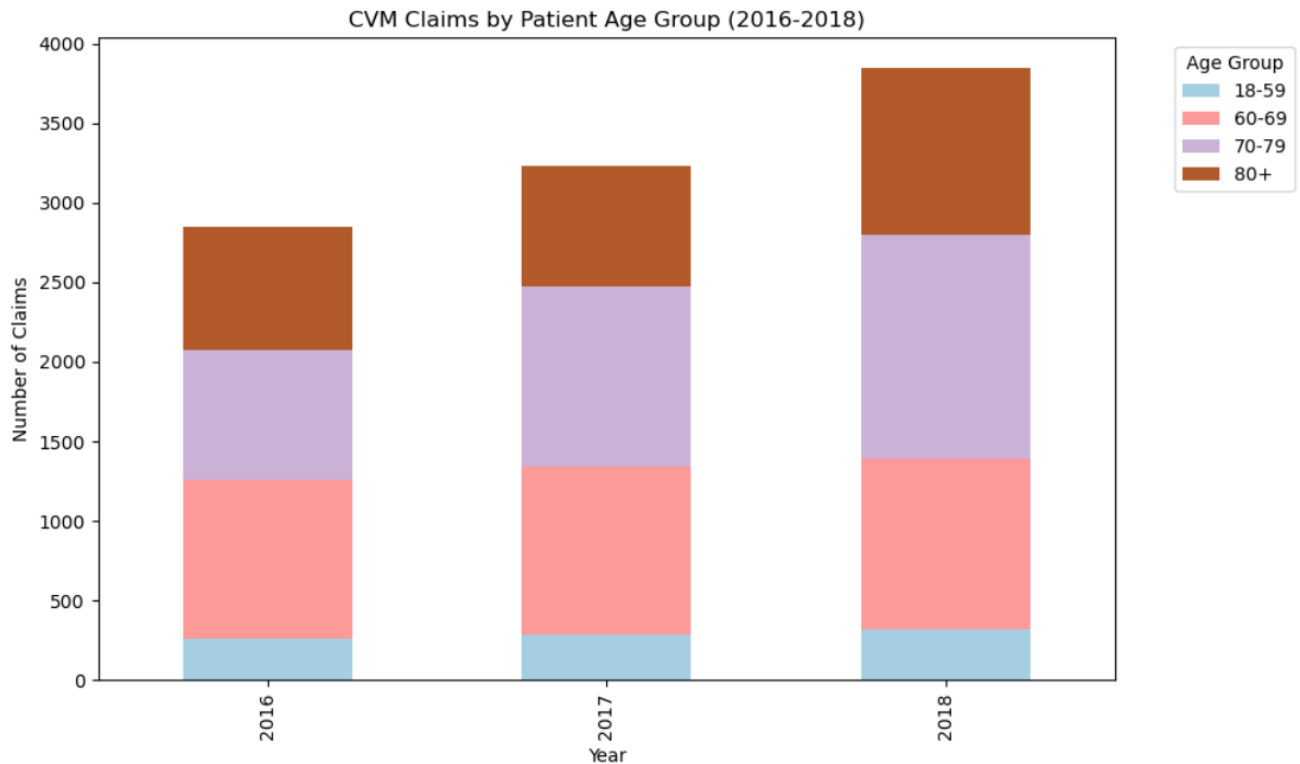
1. Overall, the number of HCPs for Disease Aware (single claim submitter) is greater than the other three categories of HCP segment for all three years.
2. The number of Disease Aware HCPs has increased from 1758 to 2291 in the three years period.
3. Trialists segment of HCPs comes second in terms of number of CVM claims. The number of HCPs in this group has increased from 386 to 489 in the three years period.
4. The High-Volume Prescribers and Rising Stars remained relatively stable over the three years period.

#### Marketing And Sales Strategies Recommendation

Based on the trends of the HCPs behavior based on CVM claims volume, the following marketing and sales plans are recommended:

1. Utilizing Non-Personal Promotions (NPP) such as emails, newsletters, social media marketing tools to engage these HCPs. In these campaigns the messaging should be around the awareness about early interventions and benefits of CVM treatments.
2. Allocating In-Person (sales force) to High-Volume Prescribers and Rising Stars since these are the HCPs who are submitting the most claims. Building and maintaining personal relationships with these HCPs is important. That is only possible by allocating the most capable and high performing sales professionals to these two segments.

Business Problem 3: Below is the bar chart of number of claims by patient age group for the three years period (2016-2018)



Below is the table of year-over-year percentage change in claims for four age groups for years 2016-2018

	Age 18-59	Age 60-69	Age 70-79	Age 80+
2016	0.0	0.0	0.0	0.0
2017	9.96	5.60	39.10	-2.45
2018	10.10	2.10	23.60	39.00

Trend Analysis: From the above bar chart and table, we observed the following trends:

1. The age group with the highest number of CVM claim is 70-79, followed by 60-69 for all three years.
2. The CVM claims for the age group 70-79 increased by 62 percent in the three years period, showing the highest increase as compared to other age groups.
3. The CVM claims for the age group 80+ increased by 37 percent in the three years period, showing the second highest increase as compared to other age groups.
4. The CVM claims for the age group 18-59 increased by 20 percent from 2016-2018.

5. The percentage increase in CVM claims for the age group 60-69 was around 7 percent.

#### Sales and Marketing Strategies Recommendations

Based on the trend analysis of CVM claims by patients age group, the following sales and marketing strategies are recommended.

1. The primary target for sales and marketing should be the people in the age groups 70-79 and 80+ since the highest number of claims are submitted for this each group.
2. In-person promotions for the age groups 70-79 and 80+, while Non-Personal Promotions (NPP), for the other two age groups.