Travel, Food & Beverages Industry: Adverse Event Reporting Analysis

Case Study Overview

Background

The CAERS database contains adverse event and product complaint reports related to foods, dietary supplements, and cosmetics from 2004 to Q2 2017. It includes detailed records using MedDRA terminology to ensure standardized reporting.

Objective

Analyze the CAERS dataset to understand adverse events associated with foods, dietary supplements, and cosmetics reported to the FDA. Identify patterns and trends in event distribution, demographics, symptom types, and severities to enhance product safety surveillance, inform regulatory policies, and improve public health outcomes.

Data Source

[CAERS_ASCII_2004_2017Q2.csv](https://drive.google.com/file/d/1KlKIEL4e68XekgMe-rLqlR_JxuYwYQyQ/view?usp=sharing)

Updated Data After Cleaning

[CAERS_ASCII_2004_2017Q2.csv](https://drive.google.com/file/d/1KlKIEL4e68XekgMe-rLqlR_JxuYwYQyQ/view)

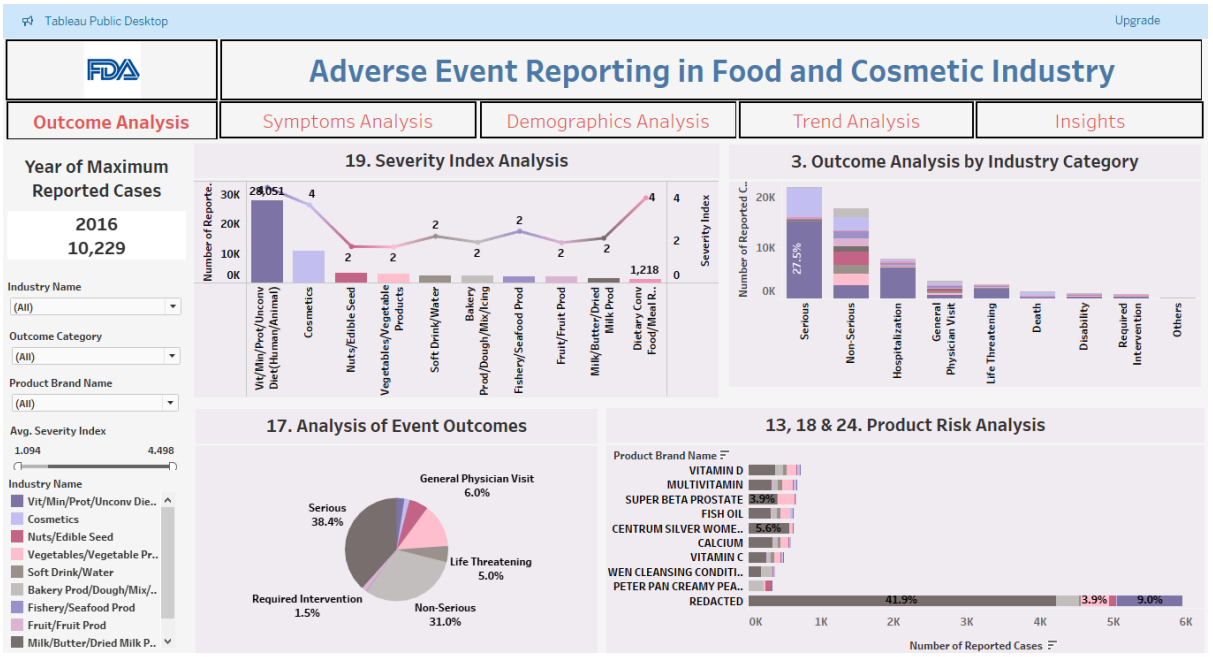
Analysis Steps in Tableau

1. **Data Preparation**: Import and clean the CAERS dataset in Tableau.
2. **Adverse Event Analysis**: Analyze the distribution of events across product categories.
3. **Severity of Events Analysis**: Assess common severe outcomes by product.
4. **Demographic Analysis**: Study the impact on different age and gender groups.
5. **Symptom Frequency Analysis**: Identify common symptoms across product categories.
6. **Temporal Trends**: Investigate reporting trends over time.
7. **Product Severity Impact**: Correlate product types with event severity.
8. **Predictive Model**: Create a model to predict event outcomes based on initial reports.

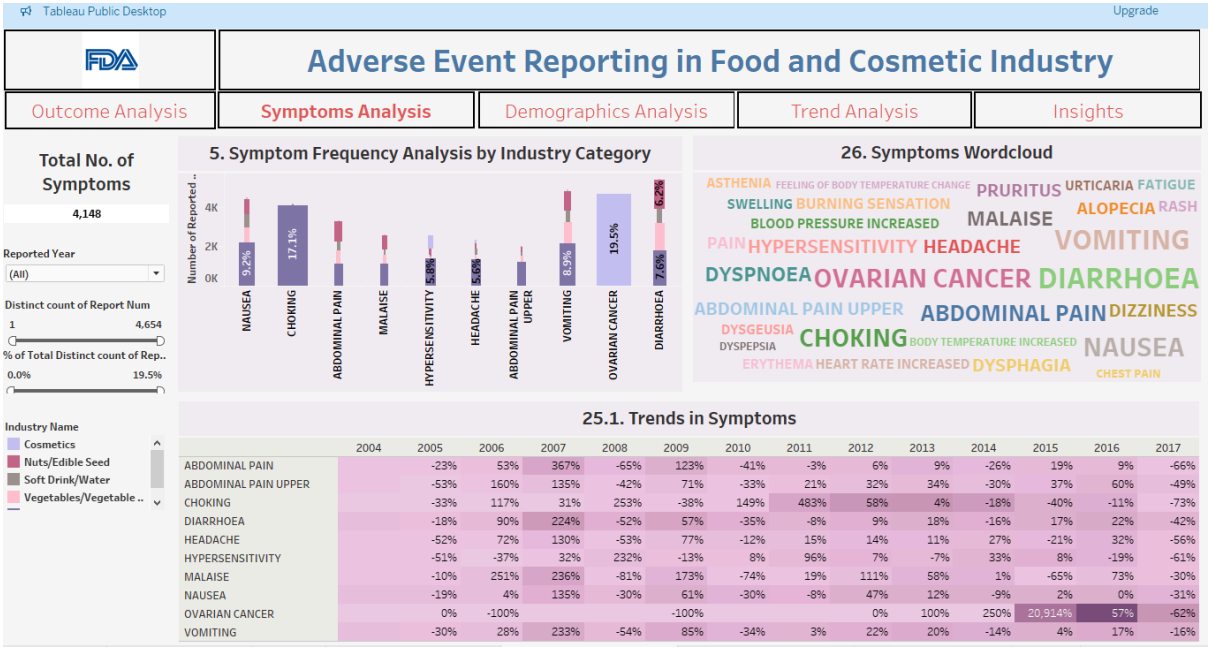
Dashboard

Home page

Report 1: Outcome Analysis

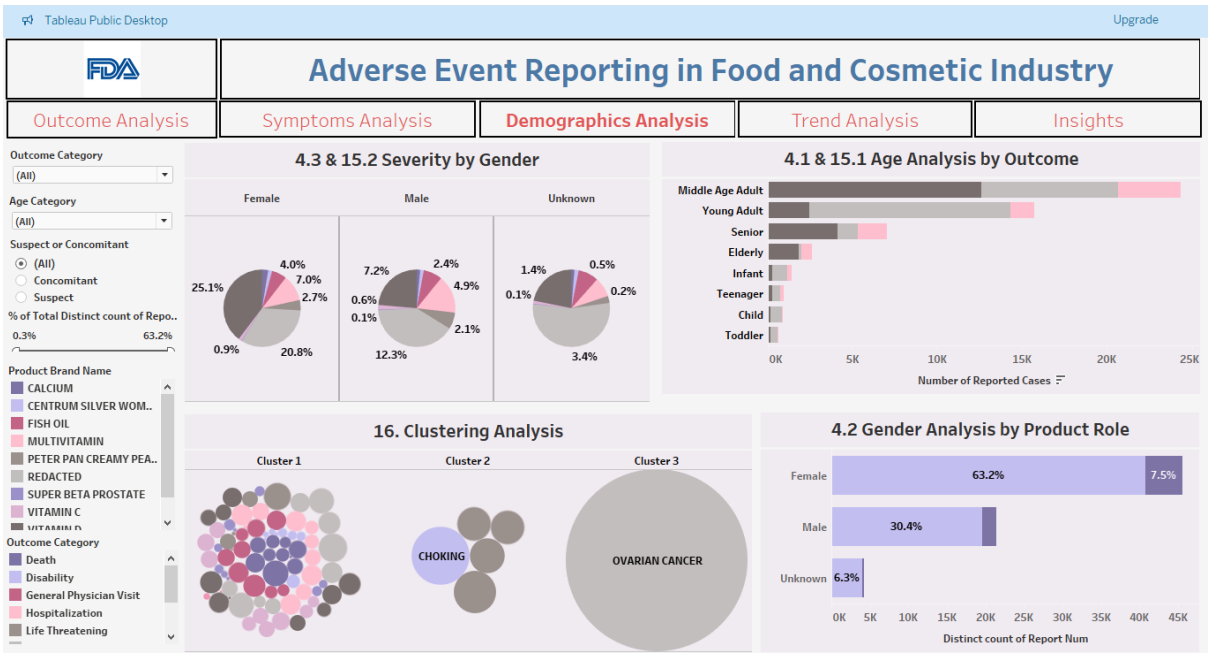


Report 2 Symptoms Analysis

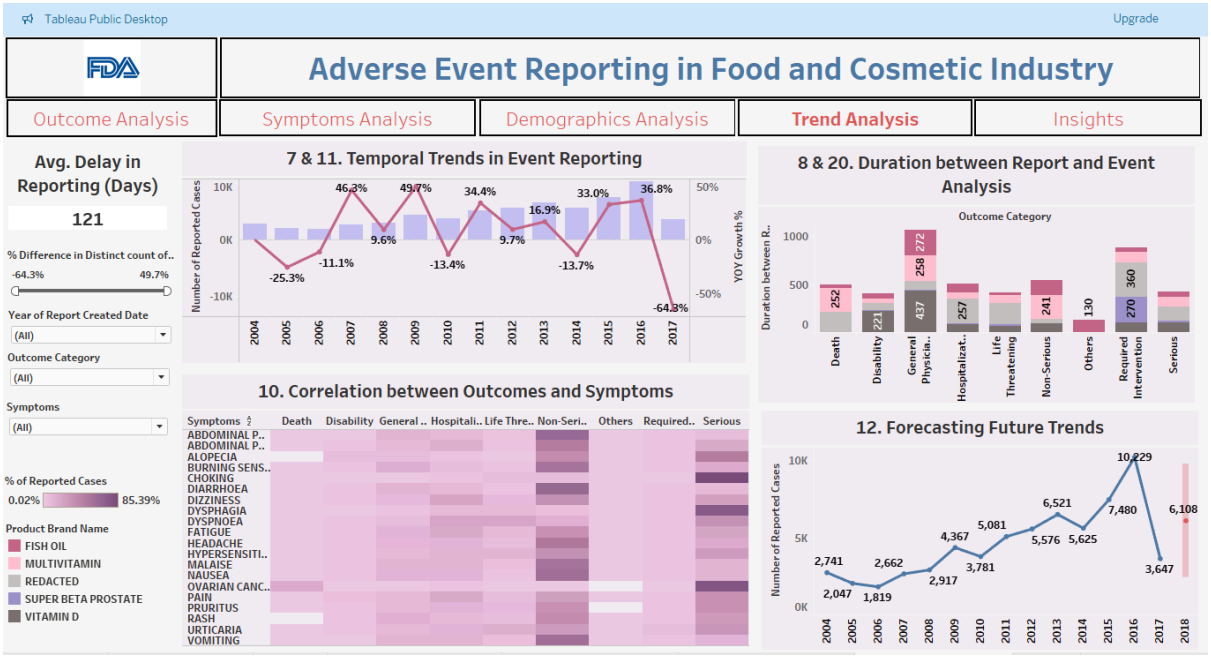


	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ABDOMINAL PAIN		-23%	53%	367%	-65%	123%	-41%	-3%	6%	9%	-26%	19%	9%	-66%
ABDOMINAL PAIN UPPER		-53%	160%	135%	-42%	71%	-33%	21%	32%	34%	-30%	37%	60%	-49%
CHOKING		-33%	117%	31%	253%	-38%	149%	483%	58%	4%	-18%	-40%	-11%	-73%
DIARRHOEA		-18%	90%	224%	-52%	57%	-35%	-8%	9%	18%	-16%	17%	22%	-42%
HEADACHE		-52%	72%	130%	-53%	77%	-12%	15%	14%	11%	27%	-21%	32%	-56%
HYPERSENSITIVITY		-51%	-37%	32%	232%	-13%	8%	96%	7%	-7%	33%	8%	-19%	-61%
MALAISE		-10%	251%	236%	-81%	173%	-74%	19%	111%	58%	1%	-65%	73%	-30%
NAUSEA		-19%	4%	135%	-30%	61%	-30%	-8%	47%	12%	-9%	2%	0%	-31%
OVARIAN CANCER		0%	-100%			-100%			0%	100%	250%	20,914%	57%	-62%
VOMITING		-30%	28%	233%	-54%	85%	-34%	3%	22%	20%	-14%	4%	17%	-16%

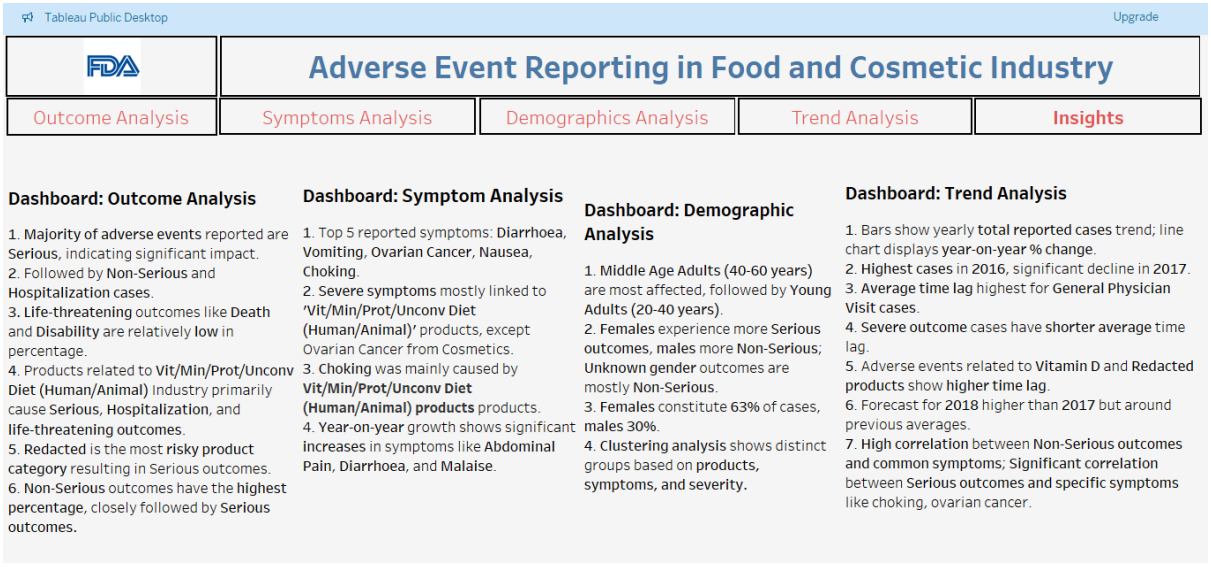
Report 3: Demographic Analysis:



Report 4: TrendAnalysis



Report 5: Insights



Key Findings

- Most frequently reported products and symptoms.
- Demographic insights on adverse event reports.
- Trends in adverse event reporting over time.

Conclusion

My Tableau project analyzed FDA food adverse data, focusing on identifying trends and patterns in reported food-related health issues. Using visualizations, I explored various aspects such as the types of adverse reactions, common food categories implicated, and geographic distribution of incidents. The project aimed to understand which foods and reactions are most frequently reported and whether there are seasonal or regional variations. Interactive dashboards were created to highlight key insights, allowing users to filter data by food type, reaction severity, and demographic factors. Additionally, trends over time were examined to track changes in reporting patterns and identify emerging concerns. The project emphasized the importance of food safety monitoring and provided actionable insights for public health agencies and food manufacturers to improve consumer safety measures. Overall, it showcased Tableau's capabilities in visualizing complex FDA datasets and communicating findings effectively to stakeholders and the general public.