Diabetes Dashboard Project Documentation (Professional Aliases Applied)

This document details the preparation, measures, visuals, and design decisions for the CDC Diabetes Health Indicators 2015 dataset dashboard in Power BI. Column names and measures have been updated with professional aliases for clarity and presentation.

Step 1: Target Variable Definition (Diabetes Status)

Objective: - Define and standardize the target variable for analysis.

Column: `Diabetes Status` (renamed from `Diabetes_012`)

Mapping: - `0` → No Diabetes - `1` → Prediabetes - `2` → Diabetes

Impact: - Enables prevalence analysis and stratification by risk factors - Consistent use across all pages and measures

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Step 2: Binary Indicators to Readable Text

Columns Updated: - High Blood Pressure, High Cholesterol, Cholesterol Check (5 Years), Smoking Status, Stroke, HeartDiseaseorAttack, Physical Activity (Last 30 Days), Consumes Fruit Daily, Consumes Vegetables Daily, Heavy Drinker, Has Health Insurance, Skipped Doctor Due to Cost, Difficulty Walking/Climbing Stairs

Action: - 0 → No, 1 → Yes

Impact: - User-friendly slicers and KPI cards - Improves dashboard clarity

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Step 3: Ordinal & Categorical Columns to Readable Text

Columns Updated: - General Health Rating: 1 → Excellent, 2 → Very Good, 3 → Good, 4 → Fair, 5 → Poor - Gender: 0 → Female, 1 → Male - Education Level: 1 → None/K, 2 → Elementary, 3 → Some HS, 4 → HS Grad, 5 → Some College, 6 → College Grad

Impact: - Intuitive labels for demographic analysis - Supports clear slicers and tables

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Step 4: Age, Income, and BMI Categories

Columns Created: - **Age Group:** 1 → 18-24, 2 → 25-29, ..., 13 → 80+, else Unknown - **Annual Income:** 1 → <$10k, 2 → $10k-$15k, ..., 8 → $75k+, else Unknown - **BMI Category:** <18.5 → Underweight, 18.5-24.9 → Healthy, 25-29.9 → Overweight, ≥30 → Obese, else Unknown

Impact: - Enables demographic and risk factor segmentation - Improves clarity of visuals and KPIs

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Step 5: Executive Overview Page

Objective: - High-level summary of diabetes prevalence and population demographics.

Measures (Professional Aliases): - **Total Participants** - **Diabetes Prevalence** - **Prediabetes Rate** - **Avg. BMI**

Visuals: - **KPI Cards:** Total Participants, Diabetes Prevalence, Prediabetes Rate, Avg. BMI - **Donut Chart:** Diabetes Status distribution - **Bar / Column Chart:** Total Participants by Education Level - **Bar / Column Chart:** Total Participants by Gender - **Slicers:** Age Group, Gender, Annual Income, Education Level

Reason for This Design: - Provides immediate insight into dataset size and diabetes burden - Adds demographic context (education and gender) without overwhelming the page - Prepares users for deeper analysis in subsequent pages

Impact: - Clear at-a-glance understanding of *who* is represented in the data - Strong foundation for interpreting risk and quality-of-life analyses

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Step 6: Risk Factor Analysis Page

Measures: - **Total with High BP & High Blood Pressure Rate:**

```
Total with High BP =
CALCULATE(COUNTROWS('diabetes_012_health_indicators_BRFSS2015'),
 'diabetes_012_health_indicators_BRFSS2015'[High Blood Pressure] = "Yes")
High Blood Pressure Rate = DIVIDE([Total with High BP], [Total Participants], 0)
```

- **Total with High Cholesterol & High Cholesterol Rate:**

```
Total with High Cholesterol =
CALCULATE(COUNTROWS('diabetes_012_health_indicators_BRFSS2015'),
 'diabetes_012_health_indicators_BRFSS2015'[High Cholesterol] = "Yes")
```

```
High Cholesterol Rate = DIVIDE([Total with High Cholesterol], [Total
Participants], 0)
```

Visuals: - Clustered Bar Chart: Diabetes Status vs High Blood Pressure and High Cholesterol - KPI Cards: High Blood Pressure Rate, High Cholesterol Rate - Risk Heat Map (Matrix): Rows = Age Group, Columns = BMI Category, Values = Diabetes Prevalence - Toggle/Slicer: Smoking Status, Heavy Drinker, Physical Activity (Last 30 Days)

Step 7: Quality of Life & Healthcare Access Page

Measures: - **Avg. Physically Unwell Days:**

```
Avg. Physically Unwell Days =
AVERAGE('diabetes_012_health_indicators_BRFSS2015'[Days Physical Health Bad
(Last 30)])
```

- **Avg. Mentally Unwell Days:**

```
Avg. Mentally Unwell Days =
AVERAGE('diabetes_012_health_indicators_BRFSS2015'[Days Mental Health Bad (Last
30)])
```

- **Cost Barrier Rate:**

```
Cost Barrier Rate = DIVIDE(
    CALCULATE(COUNTROWS('diabetes_012_health_indicators_BRFSS2015'),
'diabetes_012_health_indicators_BRFSS2015'[Skipped Doctor Due to Cost] = "Yes"),
    [Total Participants], 0)
```

- **Insurance Coverage %:**

```
Insurance Coverage % = DIVIDE(
    CALCULATE(COUNTROWS('diabetes_012_health_indicators_BRFSS2015'),
'diabetes_012_health_indicators_BRFSS2015'[Has Health Insurance] = "Yes"),
    [Total Participants], 0)
```

Visuals: - Matrix: General Health Rating vs Diabetes Status - Clustered Bar Chart: Avg. Physically Unwell Days & Avg. Mentally Unwell Days vs Diabetes Status - Stacked Bar Charts: Cost Barrier Rate and Insurance Coverage % vs Diabetes Status - KPI Cards: Cost Barrier Rate, Insurance Coverage %

Step 8: Predictor Tool Page

Components: - Key Influencers Visual: Diabetes Status (focus on Diabetes) explained by BMI, Age Group, High Blood Pressure, High Cholesterol, Smoking Status, Physical Activity, General Health Rating - Gauge Chart: Value = Diabetes Prevalence - Slicers: BMI Category, Age Group, High Blood Pressure, High Cholesterol

Impact: - Personalizable predictive insights - Supports scenario analysis and interactive exploration - Complements descriptive and risk factor pages