A *Fresh Kitchen* way to combat the diabetes burden in Mexico

Nicole McBride
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Obesity & Diabetes in Mexican Adults

- 42.2% increase in adult obesity since 2000[1]

- Diabetes is the second leading cause of non-communicable disease death[2]

Share of adults that are obese, 1975 to 2016

Obesity is defined as having a body-mass index (BMI) equal to, or greater than, 30. BMI is a person's weight (in kilograms) divided by their height (in meters) squared.

Our World in Data
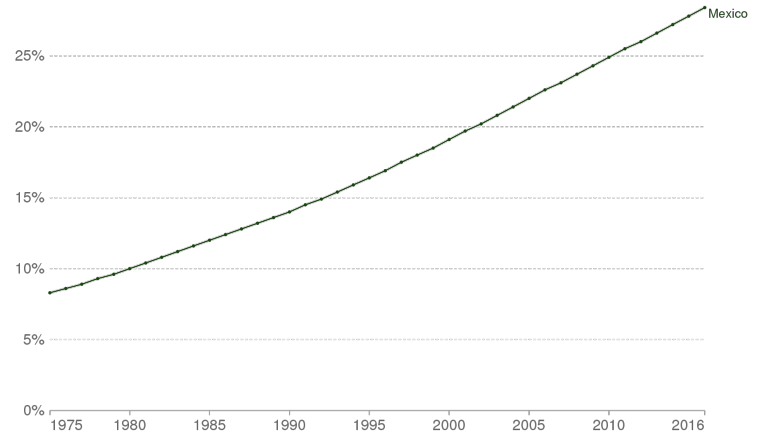
Mexico

Source: WHO, Global Health Observatory

1. 2018 National health and nutrition survey (ENSANUT)
2. https://doi.org/10.1016/S0140-6736(20)30925-9

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Mexican Food Landscape

- Native diet has shifted from fresh/unprocessed foods to ultra-processed

- 23.1% of the total dietary energy comes from ultra-processed food products

- Fast-food industry continues to grow

Barquera S, Rivera JA. Obesity in Mexico: rapid epidemiological transition and food industry interference in health policies. Lancet Diabetes Endocrinol. 2020 Sep;8(9):746-747. doi: 10.1016/S2213-8587(20)30269-2.

Fresh Kitchen

- 📍 Local restaurant chain in Florida (n=8)

- 🍎 Chef inspired high quality fresh food

- 👍 Delivered as "fast as you can point"

- ♥ Passionate about creating healthy communities

https://www.eatfreshkitchen.com/

Goal

Strategically recommend locations for *Fresh Kitchen* to expand their restaurant business in Mexico based on "need".
Need will be informed by:

01
DEMOGRAPHICS

Age, sex, poverty level, education level

02
HEALTH CONDITIONS

Prevalence of obesity, hypertension, and diabetes by state

03
DEATHS DUE TO DIABETES

Mortality rates by state

Methodology

Data Sources

2018 National Survey of Health and Nutrition (ENSANUT)

2020 National Institute of Statistics, Geography and Informatics (INEGI) Population and Housing Census

INEGI Mortality Statistics

Data Cleaning

Google sheets used for all data cleaning
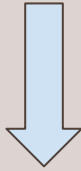
Exploratory Data Analysis

Descriptives + visuals on various demographic variables

Visual summary of health conditions by state

Density of diabetes death by state

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HEALTH CONDITION INSIGHTS

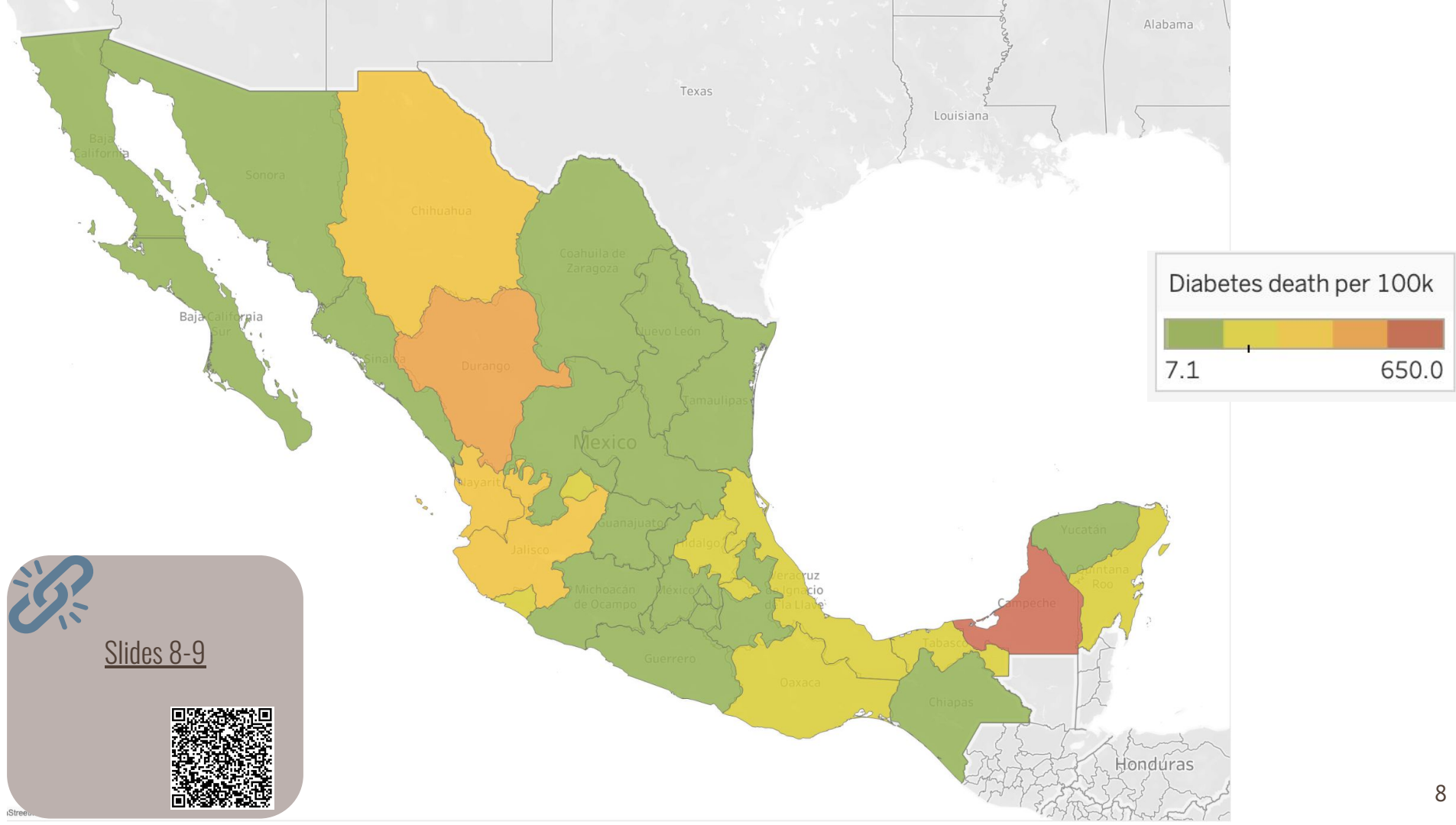# 36.1% | 18.4% | 10.3%

are
obese

are
hypertensive

are
diabetic

Rates in USA respectively: 41.9%, 47%, 11.3% (CDC, NHANES)

Diabetes death per 100k

7.1   650.0

Slides 8-9

	Obesity Prevalence %	Diabetes Prevalence %
Campeche		
Tamaulipas		
Hidalgo		
Distrito Federal		
Nuevo León		
Coahuila		
Tabasco		
Morelos		
Veracruz		
Sonora		
Guerrero		
Zacatecas		
Durango		
San Luis Potosí		
Colima		
Yucatán		
Sinaloa		
Oaxaca		
Baja California		
Michoacán		
Guanajuato		
Nayarit		
Tlaxcala		
Chihuahua		
Puebla		
México		
Baja California Sur		
Chiapas		
Jalisco		
Aguascalientes		
Querétaro		
Quintana Roo		

Obesity Prevalence %

Diabetes death per 100k

7.1   650.0

Diabetes Prevalence %

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Diabetes death per 100k

7.1 ─────────── 650.0

TOP RECOMMENDATIONS
Campeche
Durango
Chihuahua
Jalisco
Nayarit

Future Work

FOOD LANDSCAPE

- Fast-food restaurant density by state

INCOME

- Income strata per state to inform price points
- Economics of current restaurant practices

MENU DEVELOPMENT & SUPPLIER

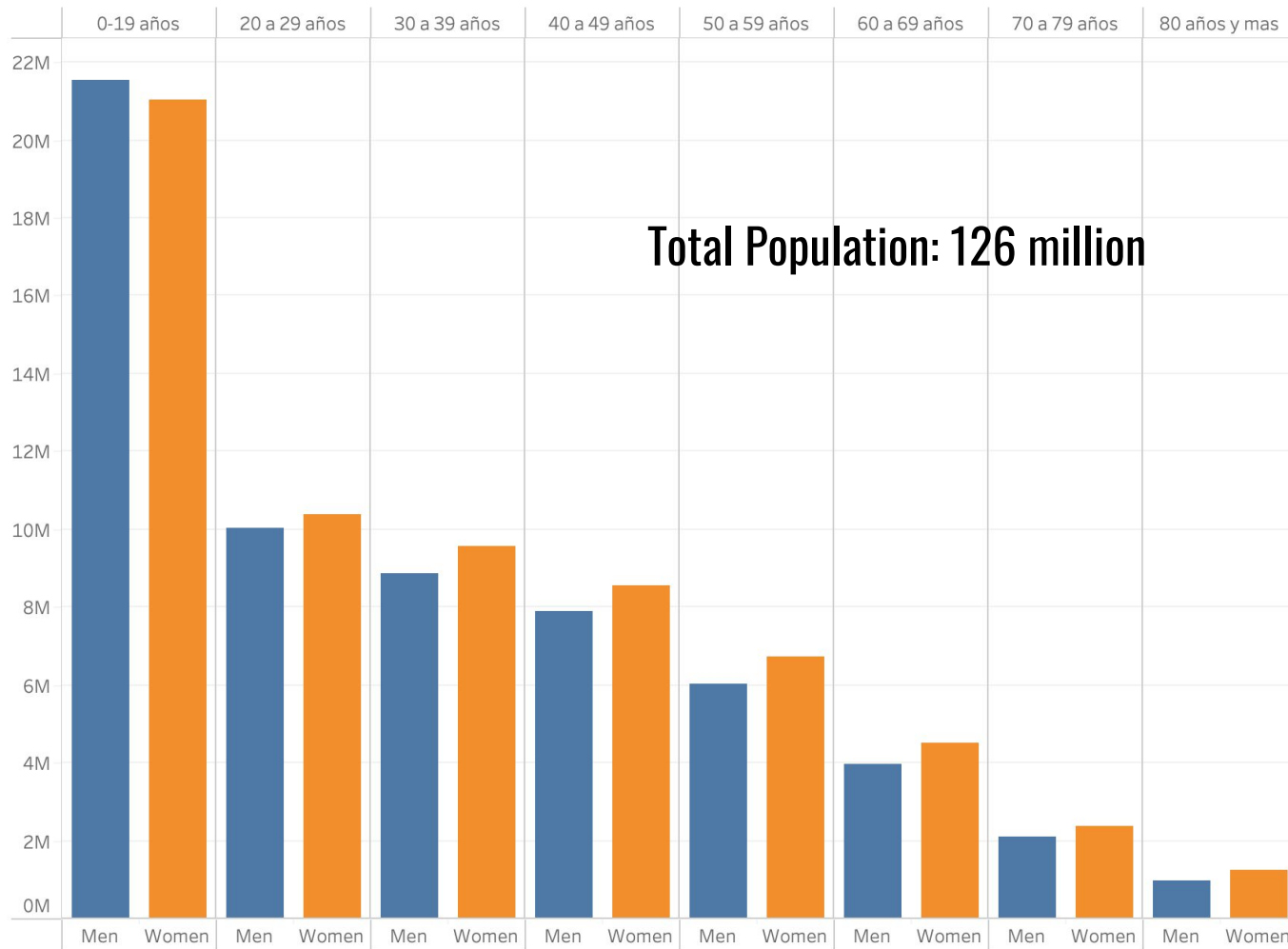- Logistics of food suppliers
- Native cuisine background

THANKS!

FK

ANY QUESTIONS?

Supplemental Slides

Total Population by Sex and Age Category

Total Population: 126 million

LINK TO INTERACTIVE DASHBOARD

Slides 7-8

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Poverty and Education per State
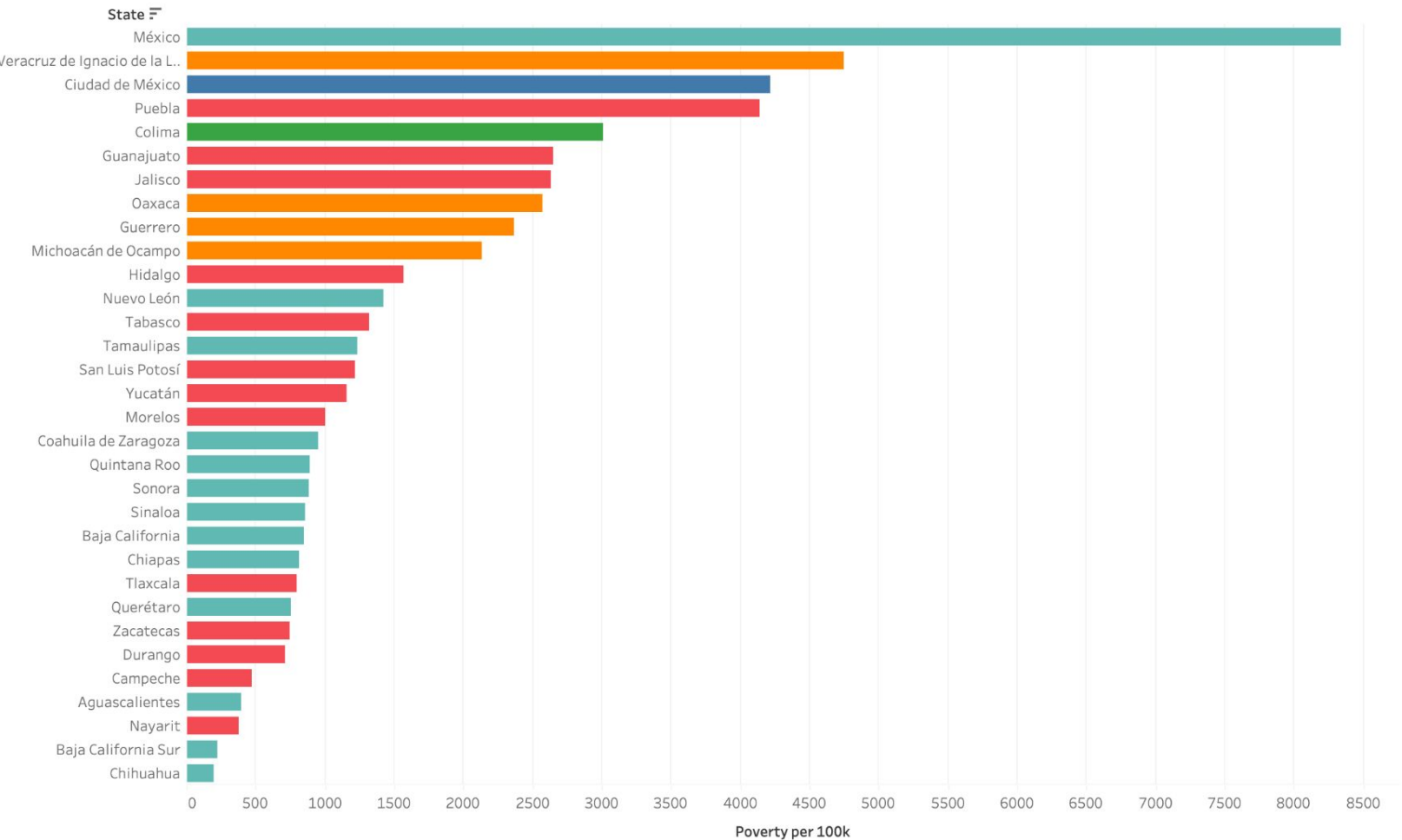
Avg years of school for 15+ age
- 7 (blue)
- 8 (orange)
- 9 (red)
- 10 (teal)
- 11 (green)

State ▼

State	Poverty per 100k	Avg years of school
México	~8300	10
Veracruz de Ignacio de la L..	~4750	8
Ciudad de México	~4200	7
Puebla	~4150	9
Colima	~3000	11
Guanajuato	~2650	9
Jalisco	~2620	9
Oaxaca	~2550	8
Guerrero	~2350	8
Michoacán de Ocampo	~2100	8
Hidalgo	~1550	9
Nuevo León	~1420	10
Tabasco	~1300	9
Tamaulipas	~1230	10
San Luis Potosí	~1200	9
Yucatán	~1150	9
Morelos	~1000	9
Coahuila de Zaragoza	~940	10
Quintana Roo	~880	10
Sonora	~870	10
Sinaloa	~840	10
Baja California	~830	10
Chiapas	~810	10
Tlaxcala	~790	9
Querétaro	~740	10
Zacatecas	~720	9
Durango	~700	9
Campeche	~450	9
Aguascalientes	~390	10
Nayarit	~370	9
Baja California Sur	~200	10
Chihuahua	~170	10

Poverty per 100k

MortalityxAge

Diabetes death per 100k