COMMUNITY-LEVEL HEALTH MARKETING

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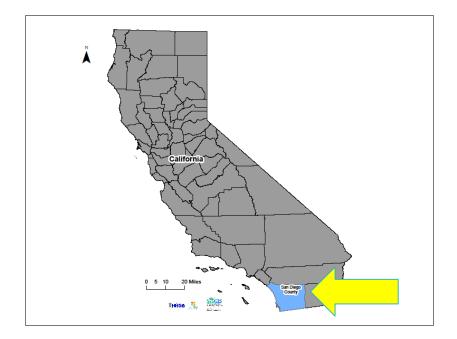
County of San Diego, HHSA, Emergency Medical Services and Community Health Statistics Branch
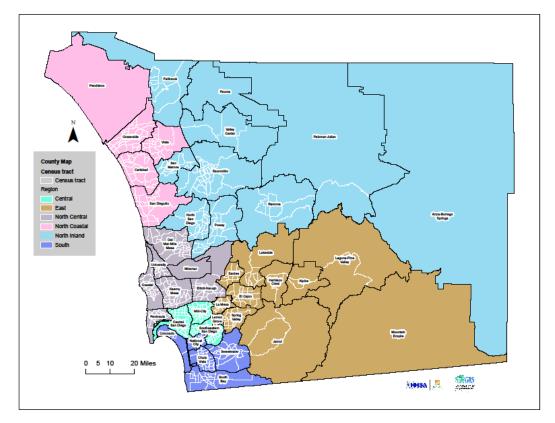
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LIVE WELL SAN DIEGO

San Diego County, CA Stats:
5th largest county in the U.S.
4,200 Sq mi, 18 Cities
3.1 million residents

6 HHSA administrative Regions
41 Subregional Areas: Communities of aggregated census tracts

BUILDING BETTER HEALTH

LIVE WELL SAN DIEGO

3 Lead to
BEHAVIORS

No Physical Activity
Poor Diet
Tobacco Use

4 Result in
DISEASES

Cancer
Heart Disease & Stroke
Type 2 Diabetes
Lung Disease

OVER **50**
PERCENT

of deaths
in San Diego

San Diego County diabetes medical encounter rates, 2012
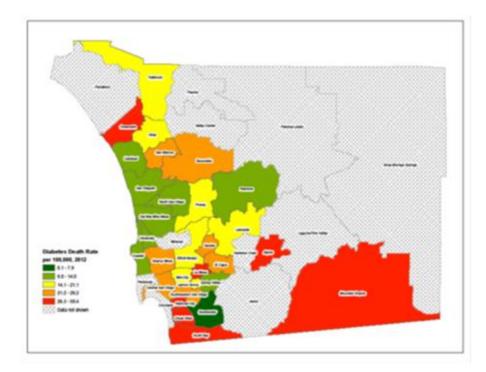
Death[2]: **20.7 per 100,000 residents**

Hospitalization[3]: **135.0 per 100,000 residents**

Emergency Department (ED) Discharge[4]: **143.4 per 100,000 residents**

In 2011, 7.8% of San Diego County adults had ever been diagnosed with diabetes[1].

Far more information on the disease than on behaviors that influence its outcome
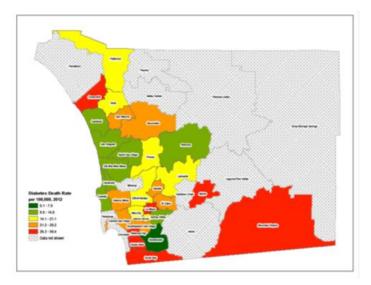

Diabetes Death Rates by SRA, 2012

Challenge: profile health behaviors at the community level

We have community level disease statistics

We know the prevalence of chronic disease varies widely by community

Available data from our largest State-wide health survey* is limited

- Same questions not asked each year

- Not asked of the same populations (adult, teen, child)

- Some data at the Regional level, but may be statistically unstable even with over-sampling

We have looked to other sources of information on what people do

*California Health Interview Survey

Diabetes Death Rates by SRA, 2012

GOAL: USE MARKET POTENTIAL DATA TO PROFILE COMMUNITIES

Market Potential: Estimates likely demand for goods & services

Purchased through ESRI (2013 data)

Derived from consumer spending/use surveys, census tract level

Used by business to understand & target consumers

Many health-related behavior variables: diet, exercise, smoking, medication use, medical encounter, etc.

| Automobiles & Automotive Products Market Potential |
| Baby Products, Toys & Games Market Potential |
| Civic Activities & Political Affiliation Market Potential |
| Clothing, Shoes & Accessories Market Potential |
| Electronics & Internet Market Potential |
| Financial & Insurance Market Potential |
| Grocery & Alcoholic Beverages Market Potential |
| Health & Personal Care Market Potential |
| Home Improvement, Garden & Lawn Market Potential |
| Household Goods, Furniture & Appliances Market Potential |
| Leisure Activities/Lifestyle Market Potential |
| Media - Magazines & Newspapers Market Potential |
| Media - Radio & Other Audio Market Potential |
| Media - TV Viewing Market Potential |
| Pets & Products Market Potential |
| Phones & Yellow Pages Market Potential |
| Psychographics & Advertising Market Potential |
| Restaurants Market Potential |
| Shopping Market Potential |
| Sports Market Potential |
| Travel Market Potential |

DEVELOP EVIDENCE BASE ABOUT WHAT PEOPLE DO, WHY, & WHERE THEY DO IT

⬇

ENHANCE PUBLIC HEALTH PROGRAMS THAT TARGET COMMUNITIES MORE EFFECTIVELY

⬇

REDUCE THE BURDEN OF CHRONIC DISEASE

Data presented

Percent of San Diego County adults, minimum/maximum % by community

Bivariate correlations with diabetes death, hospitalization, ED discharge rates

  Positive/black; negative/red, significance (blue shading; * <0.05; ** <0.01)

  Results show correlation, not causation

Notes:
- *Although market potential data is "likely demand", we use present/past tense as a convenience for presentation*

- *Military communities not included, limited medical outcome data available*

Try to eat healthy w/nutrition focus
Diet control to maintain weight
Diet control for physical fitness
Diet control for weight loss
Buy foods specifically labeled as fat-free
Buy foods specifically labeled as high fiber
Buy foods specifically labeled as high protein
Buy foods specifically labeled as low-calorie
Buy foods specifically labeled as low-carb
Buy foods specifically labeled as low-cholesterol
Buy foods specifically labeled as low-fat
Buy foods specifically labeled as low-sodium
Buy foods specifically labeled as natural/organic
Buy foods specifically labeled as sugar-free

COLOR SHOWS DIETARY PATTERNS BY COMMUNITY

GREEN, TOP QUARTILE, HIGHER % OF HEALTHY BEHAVIORS

RED, BOTTOM QUARTILE, LOWER % OF HEALTHY BEHAVIORS

SRA	Eat Healthy	Maintain Weight	Physical Fitness	Weight Loss	Fat-free	High fiber	High protein	Low-calorie	Low-carbohydrate	Low-cholesterol	Low-fat	Low-sodium	Natural Organic
San Dieguito	43.1%	13.5%	14.0%	14.7%	15.0%	12.1%	6.9%	12.0%	6.7%	7.5%	14.1%	11.5%	14.8%
Coastal	41.7%	12.8%	14.6%	12.9%	14.4%	10.9%	6.7%	12.2%	7.1%	6.9%	13.6%	10.7%	14.9%
Coronado	40.7%	12.8%	12.3%	11.1%	15.2%	10.5%	7.7%	11.9%	6.0%	6.3%	13.3%	9.3%	13.3%
Del Mar-Mira Mesa	39.5%	11.8%	13.1%	15.9%	14.2%	11.6%	7.4%	12.3%	7.0%	7.0%	14.2%	10.5%	11.9%
Carlsbad	39.3%	12.8%	12.6%	14.9%	14.2%	11.2%	6.9%	11.5%	6.9%	7.2%	13.9%	11.2%	13.3%
Poway	39.3%	13.6%	13.6%	15.2%	15.2%	12.0%	7.0%	12.5%	7.3%	7.6%	14.6%	11.6%	12.2%
Kearny Mesa	39.2%	11.4%	11.8%	13.7%	13.9%	10.4%	6.2%	11.4%	6.2%	7.6%	13.1%	11.6%	12.2%
Peninsula	39.0%	11.3%	12.4%	12.9%	13.6%	10.4%	6.3%	10.7%	6.1%	7.2%	12.8%	10.0%	13.4%
Elliott-Navajo	38.6%	12.3%	12.4%	14.0%	14.2%	10.7%	6.2%	11.6%	6.4%	7.4%	13.6%	11.5%	12.3%
North San Diego	38.3%	13.2%	13.3%	16.2%	15.0%	11.8%	7.1%	12.7%	7.6%	7.4%	14.9%	11.1%	12.2%
Jamul	38.3%	13.3%	12.3%	14.5%	14.2%	12.0%	6.2%	11.8%	6.5%	7.1%	13.1%	11.4%	12.1%
Alpine	37.9%	12.0%	11.6%	13.3%	13.2%	11.3%	6.4%	10.2%	6.0%	6.9%	12.5%	10.5%	11.6%
La Mesa	37.2%	11.6%	11.4%	14.2%	14.2%	10.7%	6.1%	11.0%	6.5%	8.3%	12.3%	11.7%	10.7%
Central San Diego	37.0%	10.4%	11.8%	11.7%	12.2%	8.9%	5.8%	10.5%	6.1%	6.2%	11.6%	9.2%	12.6%
Valley Center	37.0%	12.6%	11.8%	14.8%	13.0%	10.5%	5.5%	10.9%	5.9%	7.1%	13.6%	11.4%	11.1%
Escondido	36.2%	10.7%	9.9%	12.8%	12.0%	9.4%	5.8%	9.8%	5.6%	6.7%	11.4%	9.6%	8.9%
Fallbrook	36.1%	12.4%	11.1%	14.3%	13.0%	10.5%	5.5%	11.1%	6.2%	6.7%	13.2%	10.4%	9.6%
Mid-City	36.0%	9.6%	8.9%	11.7%	12.7%	8.6%	5.3%	9.4%	5.4%	6.0%	10.2%	8.5%	8.7%
Spring Valley	35.8%	11.3%	10.6%	13.8%	12.5%	10.0%	5.9%	10.3%	5.8%	6.9%	12.2%	10.7%	9.6%
El Cajon	35.8%	10.4%	10.0%	13.4%	13.4%	10.0%	5.2%	10.3%	5.7%	6.6%	11.9%	10.4%	9.4%
University	35.2%	10.2%	12.3%	10.6%	11.9%	8.4%	5.4%	10.4%	6.0%	5.7%	11.6%	8.7%	12.9%
Sweetwater	35.1%	12.6%	12.7%	16.5%	14.5%	11.8%	7.5%	12.4%	7.3%	6.8%	13.9%	11.4%	11.1%
Oceanside	34.9%	10.9%	10.7%	13.5%	12.5%	9.8%	5.8%	10.0%	5.8%	7.2%	11.7%	10.2%	9.1%
Chula Vista	34.7%	9.7%	8.5%	11.0%	10.9%	8.2%	5.4%	8.9%	4.8%	6.4%	10.6%	9.1%	7.2%
Vista	34.7%	10.7%	9.6%	12.7%	11.7%	9.2%	5.7%	9.9%	5.4%	6.9%	11.4%	10.2%	8.9%
Ramona	34.5%	11.8%	11.2%	14.5%	12.3%	10.0%	6.0%	10.8%	5.9%	6.8%	13.0%	10.5%	9.5%
San Marcos	34.5%	11.9%	10.5%	14.3%	13.1%	10.4%	6.0%	11.1%	6.4%	7.0%	12.3%	10.1%	8.9%
National City	34.2%	9.0%	7.1%	9.4%	9.0%	6.9%	4.9%	7.3%	4.3%	5.6%	9.0%	7.2%	6.3%
Santee	33.7%	11.6%	11.3%	14.7%	13.0%	10.2%	5.8%	10.9%	6.5%	7.3%	13.0%	11.3%	9.6%
Southeastern San Diego	33.5%	9.3%	8.6%	11.1%	10.1%	7.6%	5.2%	8.3%	4.6%	6.1%	9.9%	8.6%	7.1%
Lemon Grove	33.2%	9.5%	10.0%	13.1%	12.1%	8.7%	5.3%	9.5%	4.7%	6.6%	11.5%	9.9%	7.8%
Lakeside	33.1%	10.4%	10.5%	14.1%	12.7%	9.6%	5.3%	9.9%	5.5%	6.6%	11.7%	10.1%	8.6%
Harbison Crest	32.3%	12.4%	11.2%	16.0%	13.4%	10.6%	5.8%	11.7%	6.6%	7.2%	13.7%	11.0%	9.7%
Laguna-Pine Valley	31.6%	10.6%	10.0%	14.0%	13.3%	9.5%	5.2%	10.8%	6.5%	7.0%	11.8%	10.6%	8.6%
South Bay	31.4%	9.0%	8.3%	10.9%	9.8%	7.5%	5.4%	8.1%	4.5%	5.6%	9.6%	7.7%	6.7%
Palomar-Julian	31.4%	12.8%	9.8%	15.2%	14.3%	10.4%	4.7%	11.0%	6.6%	7.5%	12.8%	12.3%	7.9%
Pauma	31.4%	11.1%	10.6%	15.4%	13.3%	10.9%	6.7%	11.1%	6.4%	6.6%	12.1%	8.9%	8.9%
Anza-Borrego Springs	29.5%	11.7%	8.6%	13.2%	13.4%	9.7%	4.2%	9.7%	6.0%	7.7%	11.0%	11.7%	7.4%
Mountain Empire	29.3%	10.3%	9.0%	13.3%	13.2%	9.2%	5.2%	10.6%	6.6%	6.8%	11.5%	10.0%	8.4%

Top quartile: Communities where 39-43% adults who try to eat healthy

Bottom quartile: Lower proportion, 29-33% try to eat healthy

Communities with more people who try to eat healthy also rank higher for healthy diet intent, buy based on product labeling

Healthy/unhealthy behaviors cluster

DIETARY CHOICES & DIABETES MEDICAL ENCOUNTER

Proportion of Adults Who Use/Purchase Goods or Services Correlated with Diabetes Medical Encounter, 2012						
Market Potential Variable (2013)	**San Diego County (%)**	**Min (%)**	**Max (%)**	**Death**	**Hospitalization**	**ED Discharge**
Do not try to eat healthy	4.5%	3%	7%	.568**	.661**	.634**
Occasionally try to eat healthy w/nutrition focus	11.9%	8%	15%	.551**	.592**	.553**
Frequently try to eat healthy w/nutrition focus	45.9%	38%	53%	.210	.039	-.045
Try to eat healthy w/nutrition focus	36.6%	29%	43%	-.570**	-.457**	-.377*
Rarely check food ingredients before buying	13.3%	9%	20%	.582**	.404*	.335*
Occasionally check food ingredients before buying	26.5%	21%	36%	.224	.273	.216
Frequently check food ingredients before buying	38.5%	35%	41%	-.283	-.445**	-.407*
Usually check food ingredients before buying	21.1%	17%	25%	-.340	-.251	-.163

Eating healthy:

- 8 of 10 adults try/frequently try to eat healthy (67%-96%)

Negatively correlated with death, hospitalization, ED discharge

Do not/occasionally try positively correlated with medical encounter

Checking ingredients:

6 of 10 adults usually/frequently check ingredients (52%-66%)

Associated with lower medical encounter

Rarely/occasionally check positively correlated with medical encounter
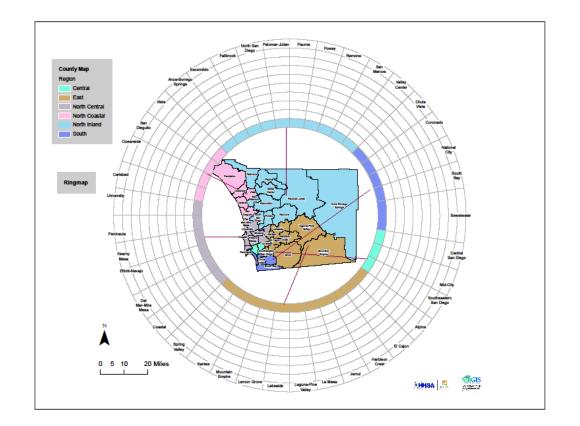
AREA MAP + A RING MAP TO SHOW TIME (OR MULTIPLE VARIABLES) IN A SINGLE FIGURE

Very effective graphic tool

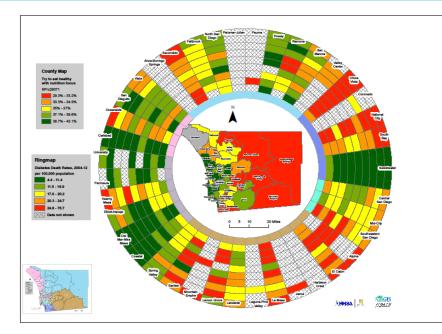Area map shows geographic distribution of a dietary choice variable

Ring spokes represent the communities, grouped by region identified by inner ring color

Rings show rates by year (2004-12)
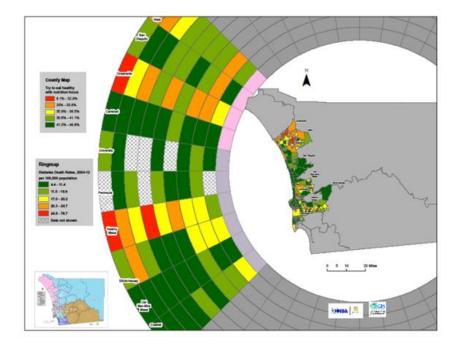
DIETARY CHOICES: EATING HEALTHY

Coastal/central areas: Lower death rates, higher % of adults who try to eat healthy

North-west: Higher death rates & lower % who try to eat healthy

Rural/eastern areas – less attempt to eat healthy

- *Some areas have statistically unstable death rates, not shown*

- *Following maps will show only the North Coastal, North Central communities (more data, less busy)*

Census tract level (area) map

More nuanced pattern

Neighborhoods within communities show healthy/less healthy dietary choices
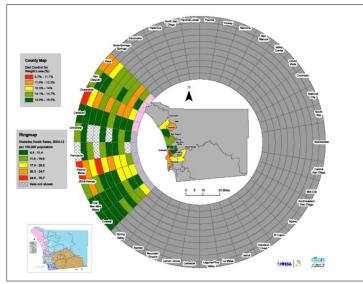
Proportion of Adults Who Use/Purchase Goods or Services Correlated with Diabetes Medical Encounter, 2012

Market Potential Variable (2013)	San Diego County (%)	Min (%)	Max (%)	Death	Hospitalization	ED Discharge
Presently controlling diet	35.6%	26%	41%	-.498**	-.755**	-.747**
Diet control for blood sugar level	6.6%	5%	9%	.427*	.235	.221
Diet control for cholesterol level	8.8%	6%	12%	-.151	-.277	-.360*
Diet control to maintain weight	11.2%	9%	14%	-.536**	-.686**	-.701**
Diet control for physical fitness	11.1%	7%	15%	-.677**	-.757**	-.712**
Diet control for salt restriction	3.2%	2%	4%	.526**	.204	.168
Diet control for weight loss	13.3%	7%	17%	-.461*	-.557**	-.585**
Used doctor`s care/diet for diet method	2.5%	2%	3%	.474**	0.722**	.792**
Used exercise program for diet method	8.4%	6%	11%	-.474**	-.653**	-.638**

- 36% of adults presently control their diet

- Most common reasons: weight loss, maintain weight, physical fitness

- Most variables have negative correlation with diabetes medical encounter

- Diet control for blood sugar, salt restriction & doctor's care for diet method- positive correlations

DIET INTENT

Top left: Diet control for weight loss

- 13% of adults county-wide, 7-17% across communities (negative assn.)
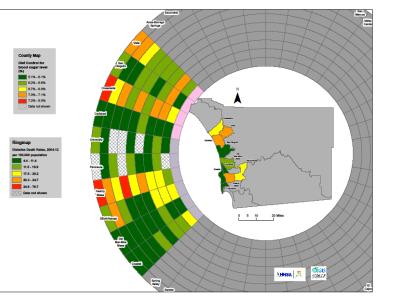
Bottom left: Use of exercise as diet method

- 8% use exercise as diet method, 6-11% across communities (negative assn.)

Healthy behaviors correlate with lower diabetes medical encounter rates

Above: Diet control for blood sugar

Positively associated with death rates

- Along with salt restriction and using doctor's care for diet, may reflect response to an existing diagnosis
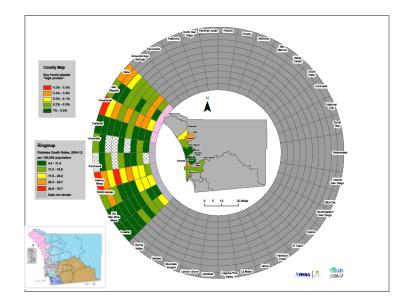
DIETARY CHOICES: RESPONSE TO PRODUCT LABELING

Proportion of Adults Who Use/Purchase Goods or Services Correlated with Diabetes Medical Encounter, 2012						
Market Potential Variable (2013)	San Diego County (%)	Min (%)	Max (%)	Death	Hospitalization	ED Discharge
Buy foods specifically labeled as fat-free	13.0%	9%	16%	-.435*	-.758**	-.744**
Buy foods specifically labeled as high fiber	9.9%	7%	12%	-.493**	-.712**	-.727**
Buy foods specifically labeled as high protein	6.1%	4%	9%	-.596**	-.626**	-.589**
Buy foods specifically labeled as lactose-free	2.2%	1%	2%	-.305	-.112	-.104
Buy foods specifically labeled as low-calorie	10.6%	7%	13%	-.549**	-.796**	-.745**
Buy foods specifically labeled as low-carb	6.0%	4%	8%	-.430*	-.770**	-.737**
Buy foods specifically labeled as low-cholesterol	6.8%	5%	8%	-.180	-.422**	-.435**
Buy foods specifically labeled as low-fat	12.3%	9%	15%	-.586**	-.769**	-.745**
Buy foods specifically labeled as low-sodium	10.0%	6%	12%	-.341	-.464**	-.506**
Buy foods specifically labeled as natural/organic	10.5%	6%	15%	-.574**	-.689**	-.635**
Buy foods specifically labeled as sugar-free	10.1%	8%	12%	-.355	-.666**	-.668**

People respond to product labeling – they actively select health messaging

Largest responses to ingredients: fat, calorie, sugar, salt, fiber and natural/organic

All dietary choice variables are negatively correlated with diabetes medical encounter

As with diet intent, results probably reflect a pattern of healthy diet behaviors

Information that can help craft public health messaging and improve community (health) outreach

BASED ON SURVEY, PROJECTED BEHAVIORS

SUBJECT TO BIAS/ERROR ON PART OF THOSE SURVEYED

MARKET POTENTIAL METHODOLOGY: POSSIBLE AUTOCORRELATION WITH VARIABLES SUCH AS INCOME

ASSOCIATION WITH NEAR TERM BEHAVIORS & EXISTING MEDICAL OUTCOME IS STRICTLY CORRELATIVE

WHAT THIS ADDS TO OUR UNDERSTANDING OF OUR COMMUNITIES

LIVE WELL SAN DIEGO

- Array of information on health behaviors/choices

- Insight into how people respond to messaging

- Provides census tract-level data for detailed analysis of communities, neighborhoods

- May help focus on areas to do outreach, enhanced public health messaging

- Create detailed health behavior profiles for each community

- More in-depth spatial analysis of health behaviors

- Explore more market potential data: grocery/alcohol purchasing, doctor visits, medication use

- Other chronic diseases: heart disease, stroke, cancer, respiratory disease

Thank you to: Ta-Chien Chan for publishing his ring map tool

Looking at Temporal Changes
Use this Python tool for creating ring maps
Arc User, Fall 2013

By Ta-Chien Chan, Chien-Min Wang, and Yung-Mei Lee, Center for Geographic Information Science, Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan

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