



HOW DO WE ANALYZE DATA: SAN DIEGO COUNTY

Wilma J. Wooten, M.D., M.P.H.

HOAC Semi-Annual Conference

Berkeley, CA / April 14, 2016



AUTHORITY AND MANDATES



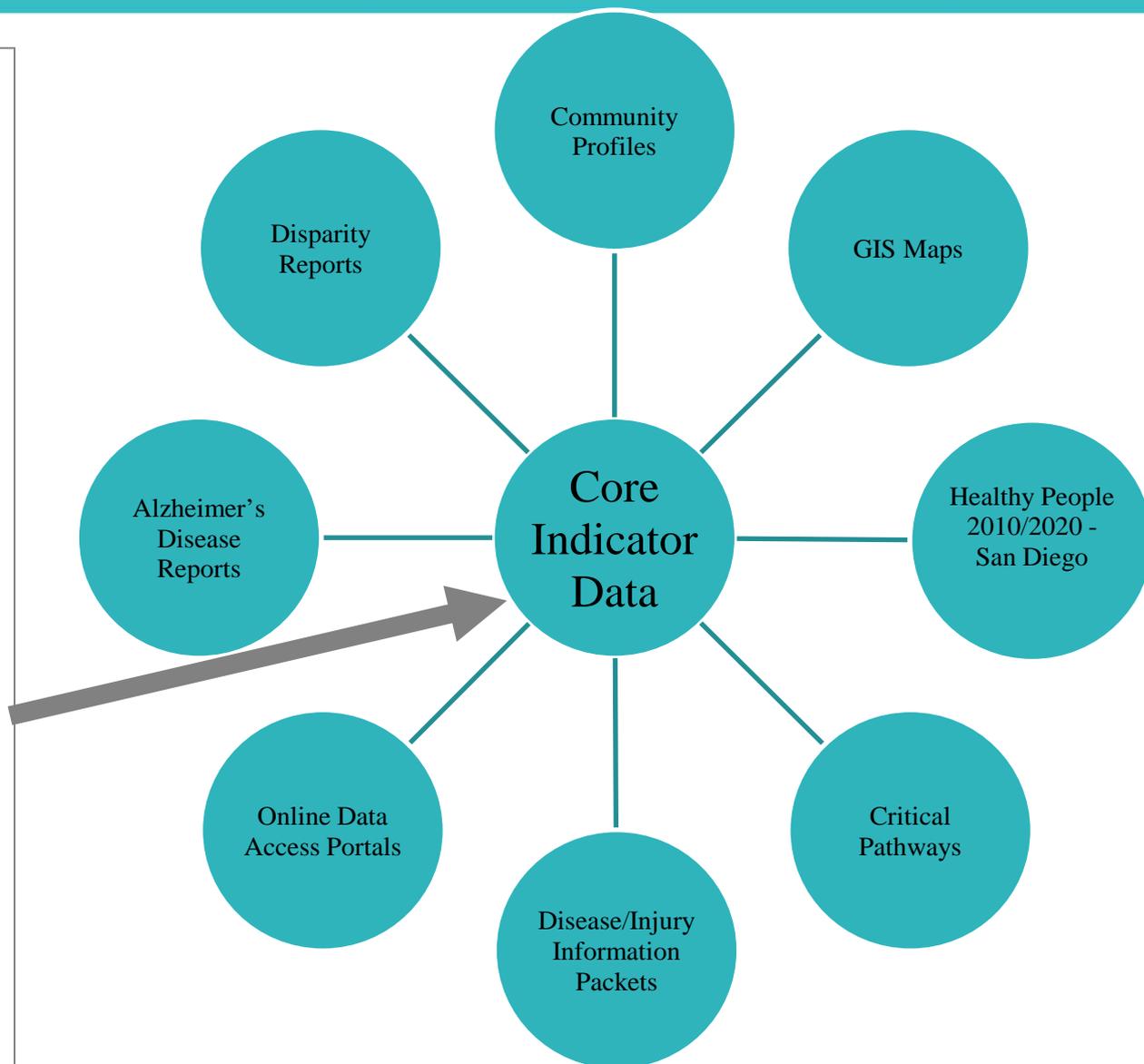
Data Type	CA Code of Regulations	CA Health & Safety Code	Public Health Essential Services	Public Health Accreditation	Public Health Services Strategic Plan
Population	Title 17: Public Health	Division 1 and 101: Administration of Public Health Division 20: Misc. Health & Safety Provisions Division 102: Vital Records and Health Statistics, and Division 105: Communicable Disease Prevention & Control	Monitor Health Status (1), Diagnose and Investigate (2), Inform, Educate, and Empower (3), Evaluate Effectiveness (9)	Domains 1,7,10 EXAMPLE 1.3.1 A: Data analyzed and public health conclusions drawn	Epidemiology & Immunization Services Goals 1-3, 6 HIV, STD, & Hepatitis Branch Strategies 7.5 and 7.6 Tuberculosis Control & Refugee Health Goal 4 Emergency Medical Services Goals 16-20
Client	Title 17: Public Health Title 22: Social Security	Division 1 and 101: Administration of Public Health Division 10.5 Alcohol and Drug Programs Division 108 CA Children & Families Program	Same as above, plus Link to/Provide Care (7)	Domains 1,2,7,10	Epidemiology & Immunization Services Goals 1-3 HIV, STD, & Hepatitis Branch Strategies 7.5 and 7.6 Maternal, Child, and Family Health Services Goal 1 Emergency Medical Services Goal 21
Patient	Title 17: Public Health Title 22: Social Security	Division 2.5 Emergency Medical Services Division 106 Personal Health Care	Same as above	Domains 1,2,7,10	Epidemiology & Immunization Services Goals 1-3 HIV, STD, & Hepatitis Branch Strategies 7.5 and 7.6 Tuberculosis Control & Refugee Health Goal 4 Emergency Medical Services Goals 16, 21-23

POPULATION DATA SOURCES (N=3.2 MILLION RESIDENTS)



PHS Data Sources

- Birth Certificates
- CHIS (survey)
- Death Certificates
- Demographics
- Reportable Diseases
- Emergency Department
- Immunizations
- Inpatient Hospitalization
- Prehospital (911)
- STDs, HIV/AIDS, TB
- SWITRS (traffic crashes)
- YRBSS (survey)



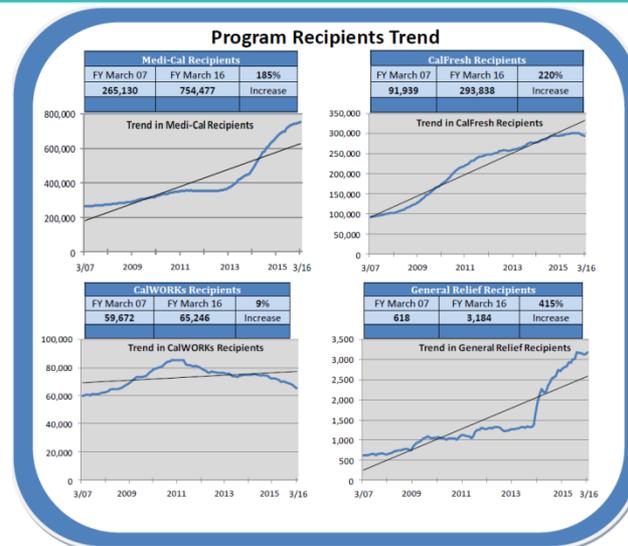
CLIENT DATA SOURCES (N=1 MILLION RESIDENTS)



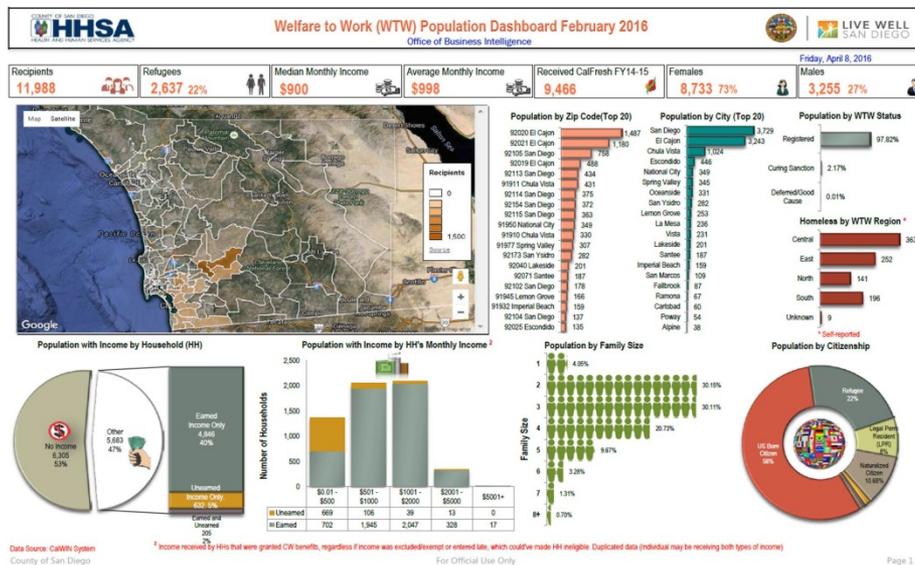
Data Sources

- Aging & Independence Services
- Behavioral Health Services
- Cal-Fresh Recipients
- CalWORKs Recipients
- Care Transitions
- Child Welfare Services
- General Relief Recipients
- Homeless Services
- Medi-Cal Recipients
- Veteran Services

TRENDS



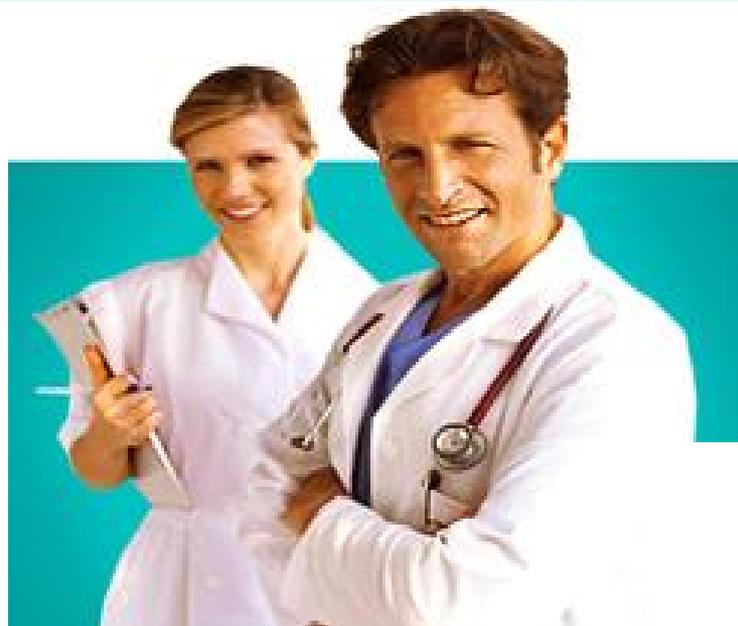
MAPS, DASHBOARDS





PHS Data Sources

- Black Infant Health (BIH)
- County Medical Services
- Family Nurse Partnership
- Low Income Health Program (prior collection)
- Medi-Cal (forthcoming)
- Reportable Communicable Disease Outbreaks & Investigations
- Sexually Transmitted Diseases (STD)
- Tuberculosis (TB)



STANDARDIZATION



Data is standardized and reported by number, percent, or rate by Region and Community (geography) and by age, gender, race/ethnicity, and SES

- If we talk the same language
- If we use the same denominators
- If we use the same methods



Then we can compare data
all of our data eliminate
programmatic data silos

Example: What is the primary health problem in South Region?

Highest cost

Number of deaths

RATE OF DEATH

PREVALENCE OF DISEASE

Age specific rates

Lowest
quality of life

Number
of
Episodes

Percentage of behaviors

NUMBER OF CLIENTS SERVED

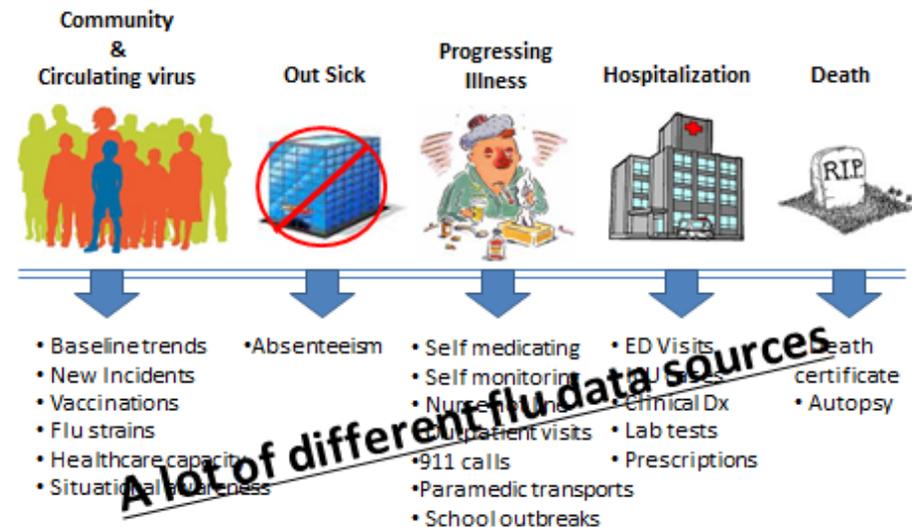
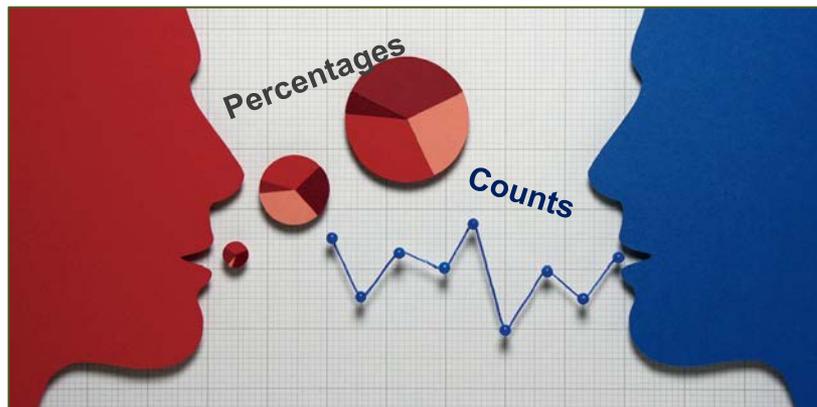
COMPARABILITY



Are we speaking the same language?



How bad is this flu season?



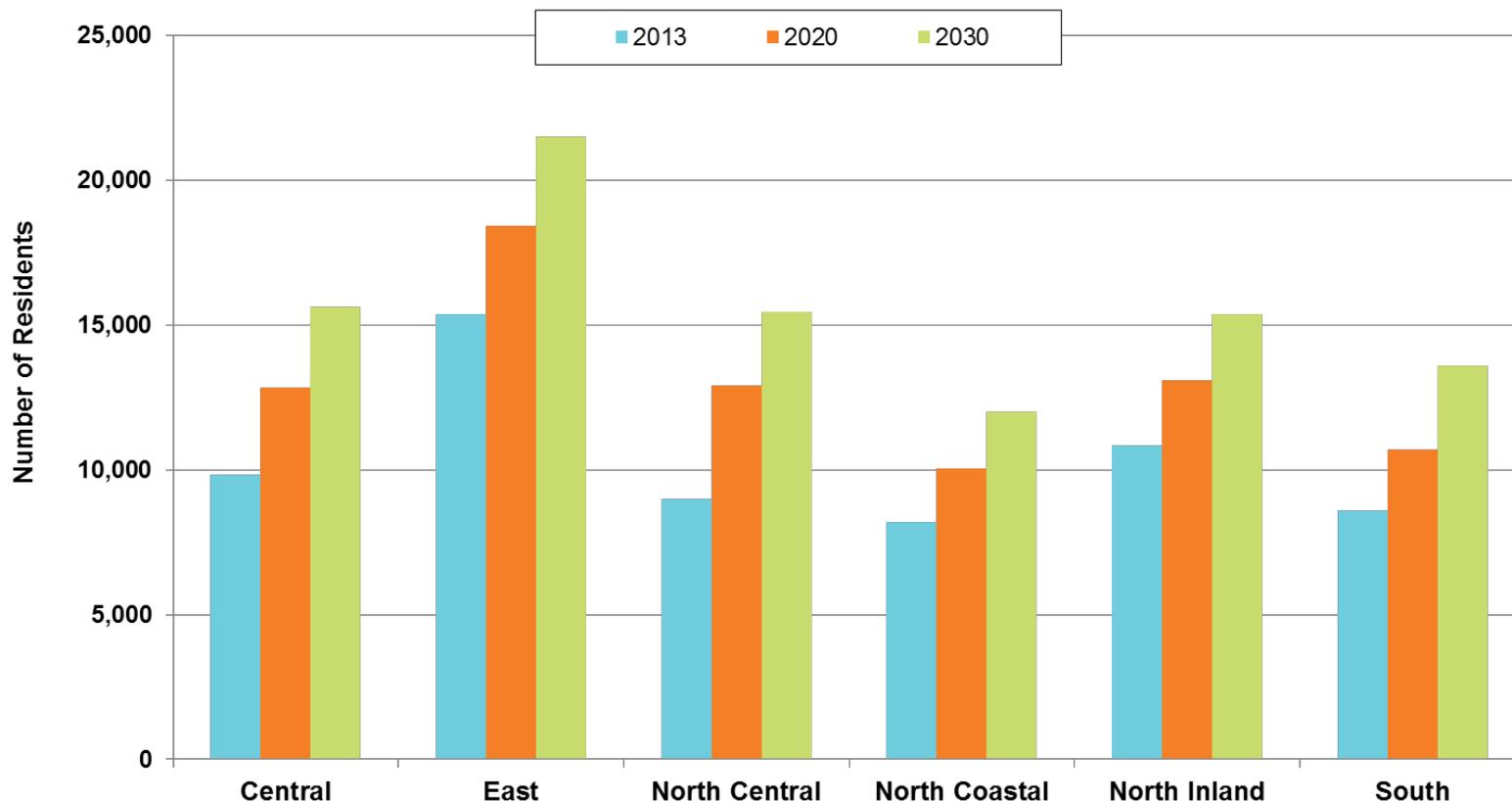
After standardization, it is important to ensure comparability of data from different sources to tell the story about any given health issue or situation.



Once data is standardized, then it can be tied to population projections to estimate the future disease burden to identify impending problems

EXAMPLE: BOS ALZHEIMER'S PROJECT

Estimate of the Number of Residents with Alzheimer's Disease and Other Dementias by Health and Human Services Agency Regions, 55 Years and Older, San Diego County, 2012-2030



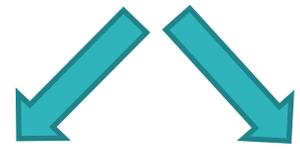


QUALITATIVE VS QUANTITATIVE



Data is the “collection of facts, such as numbers, words, measurements, observations or even just descriptions of things.”

Data



Qualitative data (words)

- friendly demeanors
- civic minded
- environmentalists
- positive school spirit

Descriptive info

Quantitative data (numbers)

- 672 students
- 394 girls, 278 boys
- 68% on honor roll
- 150 students accelerated in mathematics

Numerical info

<https://www.mathsisfun.com/data/data.html>

Example from: Oswego City School District. Regents Exam Prep Center.

<http://regentsprep.org/regents/math/algebra/ad1/qualquant.htm>

PRIMARY VS SECONDARY DATA

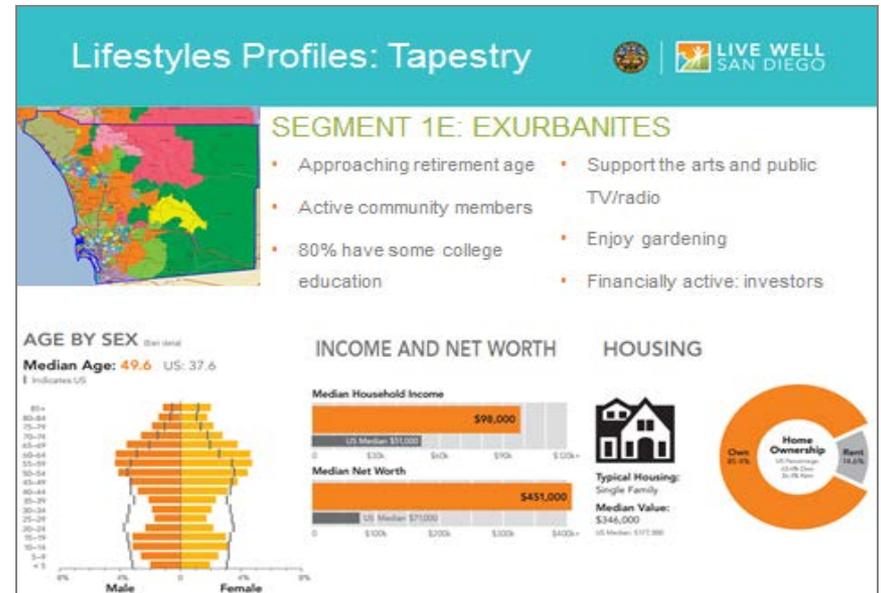
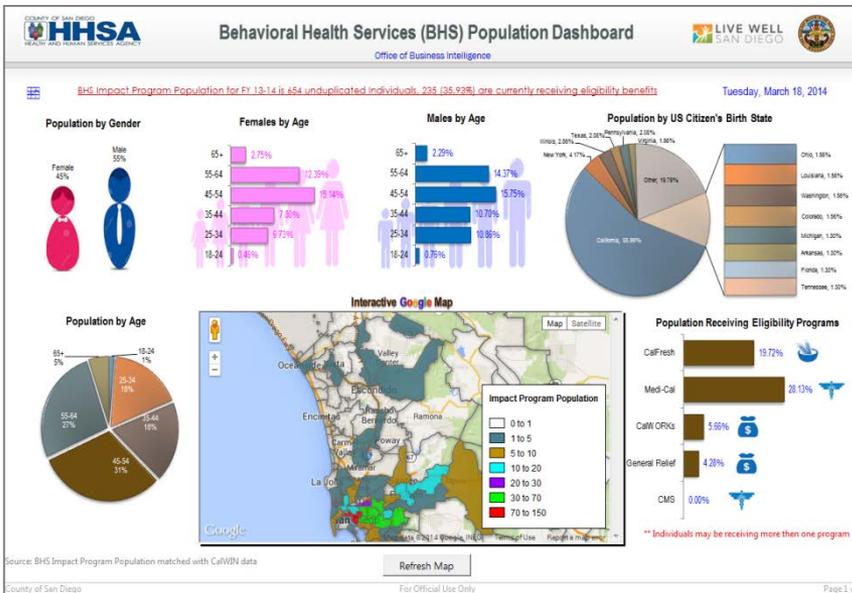


Primary Data

Ex: Office of Business Intelligence - Client Services data

Secondary Data

Ex: Community Health Statistics Unit - Population data





COST ANALYSIS

- Determine costs of services per recipient for programs like CalFresh
- Calculate economic burden of disease on the population:
 - The total lifetime cost of care for San Diegans currently diagnosed with Alzheimer's disease and other dementias was estimated to be between \$13.5 and \$27 billion dollars.
- Provide a Return on Investment (ROI) for Aging and Independence Services' Care Transitions Intervention (CTI) by determining readmission rates and cost among patients who received a CTI Clinic Care Coordinator and those who did not
 - The average cost of readmission for patients with a care coordinator was \$30K vs \$40K for patients without a care coordinator.

TRANSPARENCY & ACCESSIBILITY



From newly processed excel sets ...

..to various interactive sites

CONDITION	OUTCOME	YEAR	Geography	RegionName	Total_Cases	Total_Rate	Age_Adjusted_Rate	Male_Cases	Male_Rate	Female_Cases	Female_Rate	White_Cases	White_Rate	Black
Arthritis	Hospitalization	2010	San Diego County (Actual Rate)	COUNTY	9570	309.17713	317.045805	4157	267.55849	5413	351.1209535	7042	469.451957	
Arthritis	Hospitalization	2010	Central Region	REGION CENTRAL	1078	222.53508	261.10904	421	169.9671	657	277.5393716	526	366.191261	
Arthritis	Hospitalization	2010	Central San Diego	CENTRAL	433	291.51521	293.820208	201	222.00018	232	309.1231296	284	345.131872	
Arthritis	Hospitalization	2010	Mid-City	CENTRAL	316	139.81509	247.9198756	187	131.76264	209	255.919472	175	376.749193	
Arthritis	Hospitalization	2010	Southeastern San Diego	CENTRAL	329	211.16139	234.8496809	113	148.74664	216	270.5512482	67	449.69461	
Arthritis	Hospitalization	2010	East Region	REGION EAST	1801	388.49417	389.5466716	795	348.80929	1006	427.9786567	1472	527.107355	
Arthritis	Hospitalization	2010	Alpine	EAST	83	652.64233	456.774662	39	522.83239	44	580.781415	73	638.967903	
Arthritis	Hospitalization	2010	El Cajon	EAST	407	326.83937	330.875862	183	300.36418	224	352.2012579	332	450.719322	
Arthritis	Hospitalization	2010	Harbison Crest/El Cajon	EAST	691	467.79387	450.4340324	288	422.0846	383	511.7809984	327	617.870105	
Arthritis	Hospitalization	2010	Jamal	EAST	59	311.21426	311.7501896	33	302.70057	26	322.6206725	49	402.7386603	
Arthritis	Hospitalization	2010	La Mesa	EAST	296	500.89688	448.9841384	136	482.50641	160	517.6150885	246	664.959381	
Arthritis	Hospitalization	2010	Laguna-Pine Valley	EAST	6	113.47942	113.9656519	3	128.871832	3	128.871832	3	128.871832	
Arthritis	Hospitalization	2010	Lakeside	EAST	395	348.89597	343.1732714	89	321.25325	106	374.5466951	169	413.739079	
Arthritis	Hospitalization	2010	Lemon Grove	EAST	82	275.06625	266.0150301	32	220.70488	50	326.5412748	59	621.217492	
Arthritis	Hospitalization	2010	Mountain Empire	EAST	37	487.54777	398.094358	20	489.71596	17	485.021198	31	748.973182	
Arthritis	Hospitalization	2010	Santee	EAST	212	418.49155	392.421779	86	347.20269	126	477.5440959	184	484.303797	
Arthritis	Hospitalization	2010	Spring Valley	EAST	180	222.21948	221.9366283	69	175.82409	111	296.864927	129	317.18148	
Arthritis	Hospitalization	2010	North Central Region	REGION N CENTRAL	1829	380.84014	368.7271337	827	270.87984	1002	335.7661298	1482	405.928417	
Arthritis	Hospitalization	2010	Coastal	N CENTRAL	322	427.19735	384.5662037	154	396.47904	168	459.8382104	288	473.444217	
Arthritis	Hospitalization	2010	Del Mar-Mira Mesa	N CENTRAL	313	339.81242	339.7121292	142	379.30958	173	220.8221656	226	297.544959	
Arthritis	Hospitalization	2010	Elliott-Navajo	N CENTRAL	355	398.4019	344.9087462	165	341.644048	190	414.1560373	287	477.640754	
Arthritis	Hospitalization	2010	Keamy Mesa	N CENTRAL	533	352.49458	348.5260914	240	318.52629	293	386.3227151	426	505.080445	
Arthritis	Hospitalization	2010	Escondido	N CENTRAL	166	263.76001	278.0833715	71	207.70558	95	330.4003061	146	304.401309	
Arthritis	Hospitalization	2010	University	N CENTRAL	138	220.00096	288.022804	55	177.01963	83	262.1852987	109	311.045374	
Arthritis	Hospitalization	2010	North Coastal Region	REGION N COASTAL	1577	312.75588	311.5796812	683	264.926429	894	342.5994629	1281	428.227588	
Arthritis	Hospitalization	2010	Carlsbad	N COASTAL	382	333.00788	271.2028891	184	329.92057	198	335.925495	340	402.962963	
Arthritis	Hospitalization	2010	Oceanside	N COASTAL	551	344.57871	350.1999805	197	248.56182	354	439.9482999	401	542.819428	
Arthritis	Hospitalization	2010	Piedmont	N COASTAL	333	356.04311	297.2938068	161	349.90872	172	361.9833119	304	414.50212	
Arthritis	Hospitalization	2010	San Diego	N COASTAL	311	309.49518	343.4800706	141	278.10192	170	341.8322007	234	531.561496	
Arthritis	Hospitalization	2010	North Inland Region	REGION N INLAND	2344	376.4653	333.9405374	908	323.71113	1236	427.6658933	1765	560.698379	
Arthritis	Hospitalization	2010	Acacia-Bonnie Springs	N INLAND	51	1148.4468	593.7110502	20	890.47165	31	1432.844194	47	1676.77488	
Arthritis	Hospitalization	2010	Escondido	N INLAND	583	357.62254	389.5295164	241	288.05547	342	416.3118251	464	652.601969	
Arthritis	Hospitalization	2010	Fallbrook	N INLAND	270	570.77826	433.988809	136	569.05045	136	572.4889507	233	853.233667	



CHSU

Aggregated Pop Health & Wellbeing Data: Socrata

Public download via ArcGIS on Line (AGOL) by SRA

Indicator	Measure	San Diego	California	United States
HEALTH - Enjoying good health and expecting to live a full life				
Life Expectancy	Measure of years of length and duration of life expected at birth	81.6 (2011)	80.8 (2011)	78.7 (2011)
Quality of Life	Percent of population that is sufficiently healthy to be able to live independently (not including those who reside in nursing homes or other institutions)	94.6% (2012)	94.5% (2012)	94.2% (2012)
KNOWLEDGE - Learning throughout the lifespan				
Education: High School Diploma or Equivalent	Percent of population with at least a High School Diploma or equivalent	84.6% (2012)	81.5% (2012)	86.4% (2012)
STANDARD OF LIVING - Having enough resources for a quality life				
Unemployment Rate	Percent of the total labor force that is unemployed (actively seeking employment and willing to work)	9.9% (2012)	11.4% (2012)	9.4% (2012)
Income: Spending Less Than 1/3 of Income on Housing	Percent of population spending less than 1/3 of household income on housing	49.0% (2012)	51.7% (2012)	61.9% (2012)
COMMUNITY - Living in a clean and safe neighborhood				
Sensitivity: Crime Rate	Number of crimes per 100,000 people (all crimes, including violent and property)	2,570.5 (2012)	3,181.8 (2012)	3,246.1 (2012)
Physical Environment: Air Quality	Percent of days that air quality was rated as unhealthy (No new data)	6.8% (2010)	12.5% (2010)	3.5% (2010)
Physical Environment: Distance to Park	Percent of population living within a half mile of a park (No new data)	50.0% (2010)	58.0% (2010)	36.8% (2010)
SOCIAL - Helping each other to live well				
Vulnerable Populations: Food Insecurity	Percent of population with income of 200 percent of poverty or less, who have experienced food insecurity	40.7% (2011-2013)	41.7% (2011-2013)	N/A
Community Involvement: Volunteerism	Percent of population who volunteer	31.2% (2012)	25.2% (2012)	26.5% (2012)

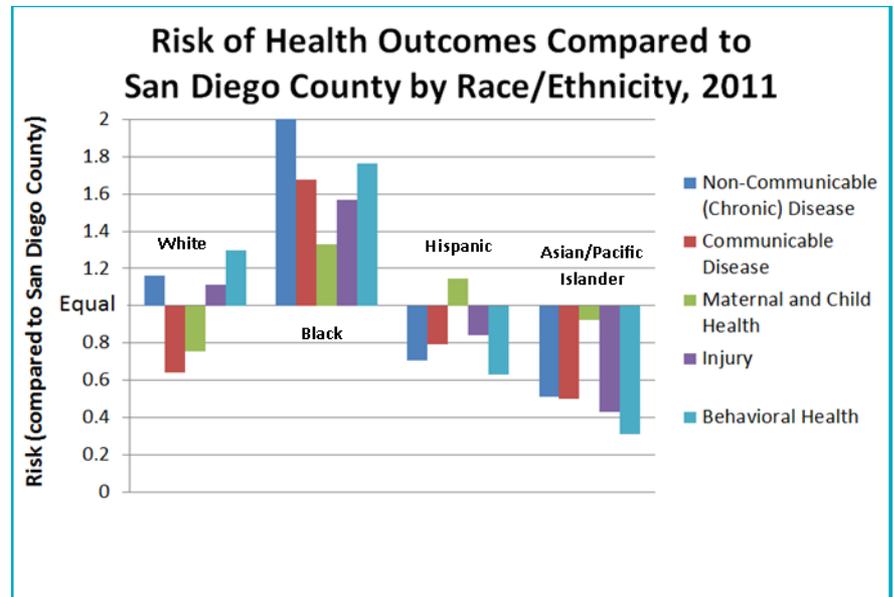
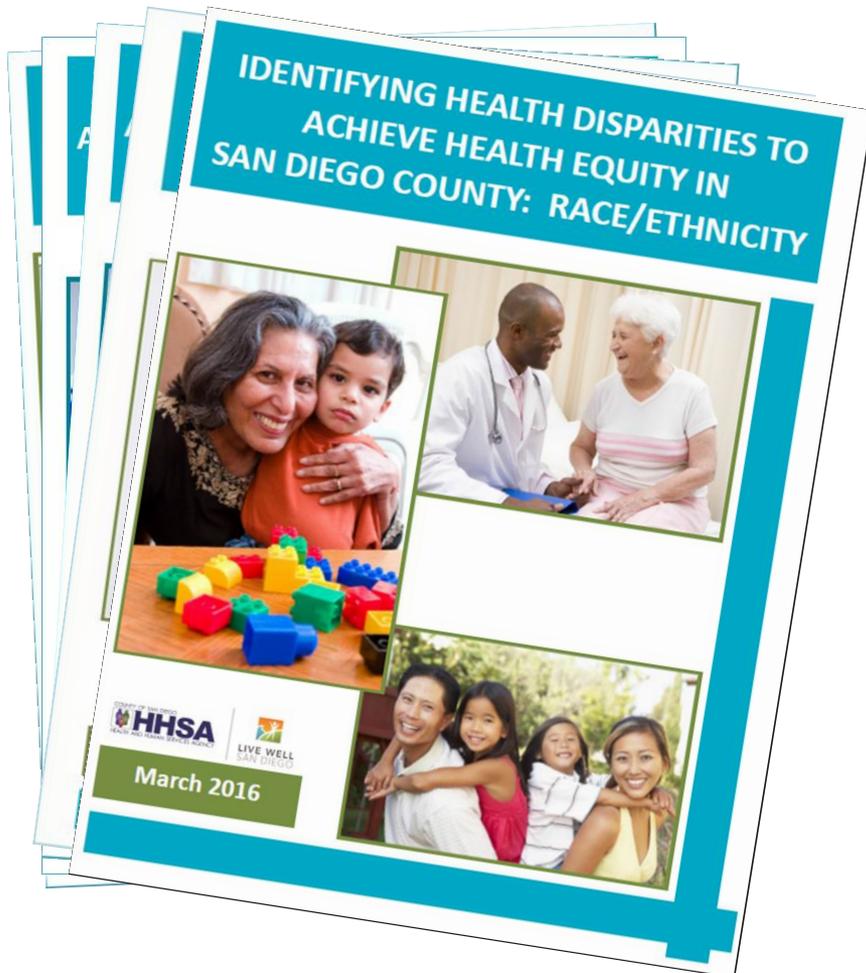
Note: The most current local data, that has state and national comparison data, is reported. N/A means data is Not Available. October 2014



DATA DRIVEN PROJECTS



DATA-DRIVEN PROJECTS: ACHIEVING HEALTH EQUITY



Black residents compose just over 4% of the population but are more likely to have every single poor health outcome compared to the county as a whole.

DATA-DRIVEN PROJECTS: THE LIVE WELL SAN DIEGO VISION



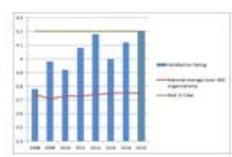
MEASURING RESULTS



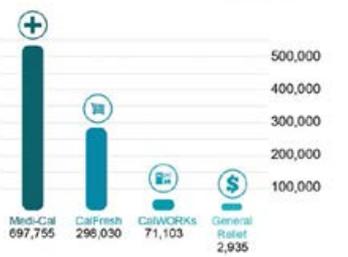
Areas of Influence	Definition	Top 10 Indicators
HEALTH	Enjoying good health and expecting to live a full life	Life Expectancy Quality of Life
KNOWLEDGE	Learning throughout the lifespan	Knowledge
STANDARD OF LIVING	Having enough resources for a quality life	Unemployment Rate Income
COMMUNITY	Living in a clean and safe neighborhood	Security Physical Environment Built Environment
SOCIAL	Helping each other to live well	Vulnerable Population Community Involvement



INDICATOR: Vulnerable Populations
 2 IN 5 PEOPLE WITH LOW-INCOME EXPERIENCE FOOD INSECURITY



43 million gallons of water saved at County Parks
 The County achieved a property tax collection rate of **99 percent.**



4,461 lost animals were reunited with their families



DATA-DRIVEN PROJECTS: BIG DATA PROJECT

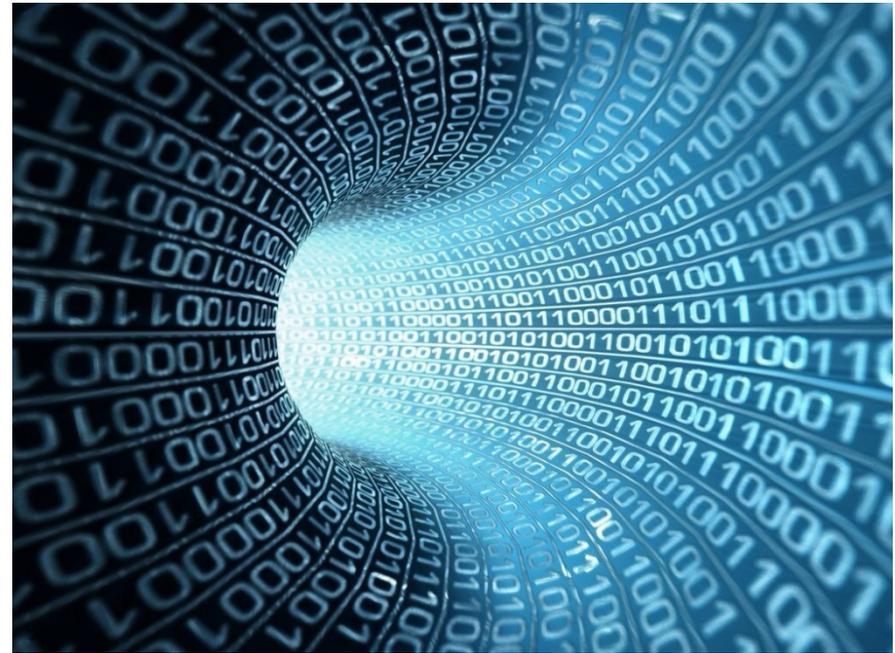


Percentage of Adults who Exercise by Location and Use of Selected Equipment		Exercise at home 2+ times per week	Exercise at club 2+ times per week	Exercise at other facility (not club) 2+ times/wk	Own elliptical	Own stationary bicycle	Own treadmill	Own weight lifting equipment
County Mean		27.9%	16.1%	8.1%	3.9%	5.1%	9.1%	12.6%
Min		19.4%	8.8%	5.2%	2.6%	2.6%	4.6%	6.9%
Max		33.4%	23.9%	10.8%	5.6%	8.6%	15.4%	17.4%
Correlation with Medical Outcome	3-4 50 Death							
	CHD Death							
	CHD Hosp							
	CHD EDD							
	Stroke Death							
	Stroke Hosp							
	Stroke EDD							
	Diabetes Death							
	Diabetes Hosp							
	Diabetes EDD							
	Asthma Hosp							
	Asthma EDD							
	COPD Death							
	COPD Hosp							
	COPD EDD							
Overall Cancer Death								

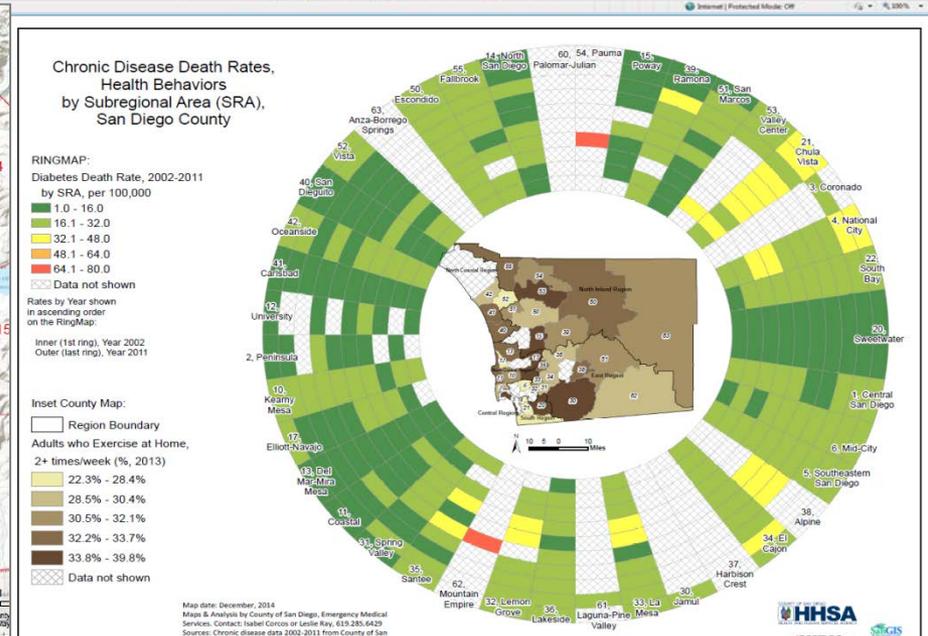
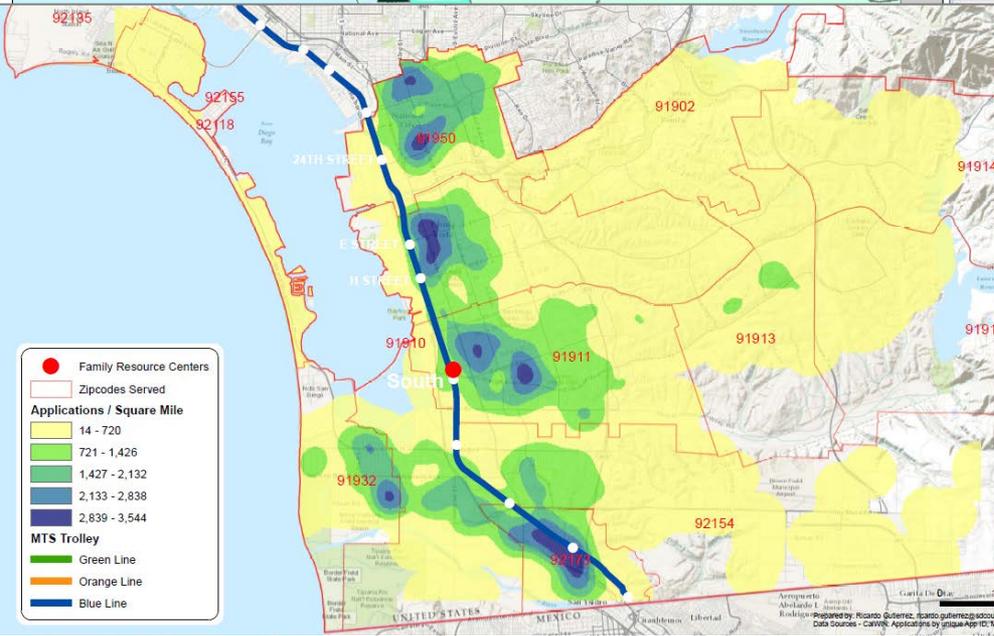
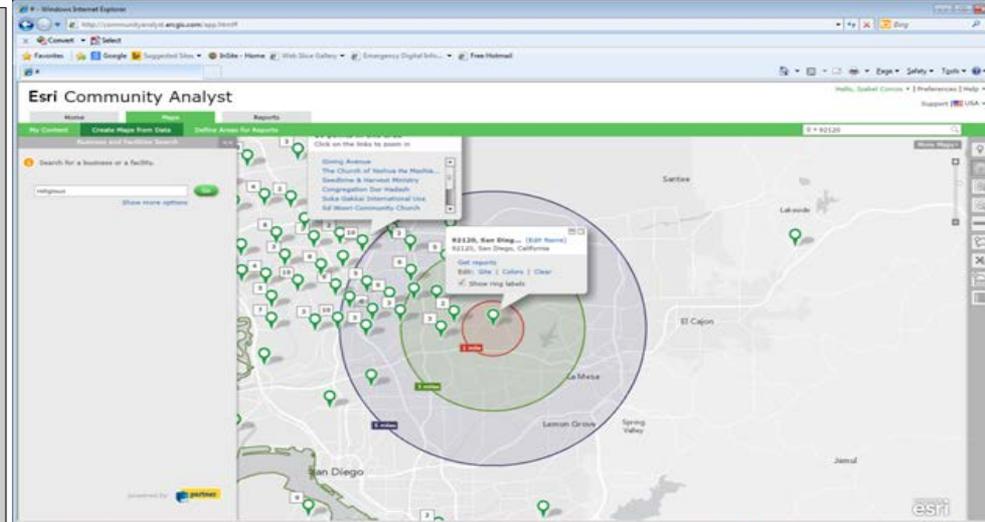
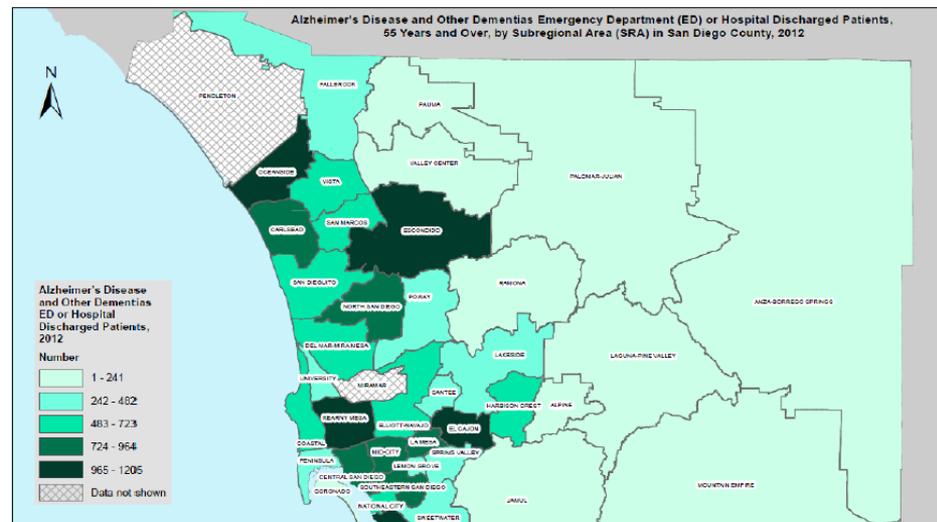
- Exercising at home 2 or more times per week is negatively correlated with 3-4-50 Deaths.



- Visualization
- Reports
- Storytelling
- Infographics



GIS AND MAPPING FROM DATA



South Region FRC CaWIN Application Density: May 2012 - May 2013



HEALTH EQUITY IN SAN DIEGO COUNTY: SOCIOECONOMIC STATUS

January 2014

HHSA

East Region Health Status Report

HHSA

Rural Health Status Report

HHSA

SEPTEMBER 2011

Alcohol Retailer Atlas San Diego County

HHSA

SEPTEMBER 2011

UNINTENTIONAL INJURY IN SAN DIEGO COUNTY

JUNE 2012

HHSA

THE ECONOMIC BURDEN OF SEXUALLY TRANSMITTED DISEASES IN SAN DIEGO COUNTY

January 2013

HHSA

Live Well, San Diego!

SAN DIEGO COUNTY SENIOR FALLS REPORT

HEALTH AND HUMAN SERVICES AGENCY

HHSA

September 2011

Live Well, San Diego!

Chronic Disease Atlas - Coronary Heart Disease - San Diego County

HHSA

JUNE 2012

3-4-50: Chronic Disease in San Diego County

HHSA

OCTOBER 2010

SAN DIEGO COUNTY SENIOR HEALTH REPORT Update and Leading Indicators

HEALTH AND HUMAN SERVICES AGENCY

HHSA

June 2013

LIVE WELL SAN DIEGO

Atlas of Foreign-born Populations in San Diego County, San Diego County, 2005-2009

HHSA

San Diego County Demographics Profile

Central Region

2011 Population Estimates

IDENTIFYING HEALTH DISPARITIES TO ACHIEVE HEALTH EQUITY IN SAN DIEGO COUNTY: SOCIOECONOMIC STATUS

HHSA

March 2016

Heat Vulnerability Atlas San Diego County

HHSA

AUGUST, 2012

The Economic Burden of Chronic Disease in San Diego County

HHSA

OCTOBER 2010

HEALTHY PEOPLE 2010: Health Indicators for San Diego County A Decade of Progress

AUGUST 2013

HHSA

LIVE WELL SAN DIEGO

San Diego County Community Profiles

Communicable (Chronic) Disease Profile by Region and Subregional Area (SRA)

REGIONS:
Central
East
North Central
North Coastal
North Inland
South

Published August 2013

Various Types of Reports



Continuing to use data to find new ways to tell the story...

SUICIDE AND SELF-INFLICTED INJURIES IN SAN DIEGO COUNTY

Intentional self-harm, or suicide, was the 8th leading cause of death in San Diego County in 2012. The information presented here is meant to serve as a starting point in developing solutions that will help close the gap in existing suicide and self-harm outcomes. As the County implements the *Live Well San Diego* plan, identifying disparities in suicide and self-harm are critical in developing prevention and intervention measures, ultimately leading to a healthy, safe and thriving San Diego.

Definitions:

- Suicide:** Death caused by self-directed violent behavior with intent to die as a result.
- Suicide attempt:** A non-fatal, self-directed injurious behavior with intent to die as a result. May or may not result in injury.
- Suicidal ideation:** Thinking about, considering, or planning suicide.
- Survivor:** A family member or friend of a person who died by suicide.

RISK FACTORS

Age: Older adults aged 65 and older have the highest suicide rates compared to other age groups.

Sex: Men are four times more likely than women to die from suicide. However, women are more likely to express suicidal thoughts and make suicide attempts.

Divorced or widowed: Suicide rates are the highest among the divorced, separated, and widowed; rates are the lowest among the married.

Veterans: Veterans have higher risk for suicide than nonveterans, especially women who had almost triple the rate of suicide compared to women who never served in the military.

Alcohol and/or drug abuse: Alcohol abuse can lead to suicidality through disinhibition, impulsiveness, and impaired judgement.




Life Expectancy - Measuring Length of Life Expected at Birth in Years

This Indicator is measured by tracking Life Expectancy in years. [Explore the data](#)

82.3

Years
Current as of Dec 2013

[Measuring](#)
[Show chart](#)

Cigarette Smoking
16.8
Percent of Population
[Explore the data](#)
This indicator measures percent of population who smoked cigarettes in the last 12 months.

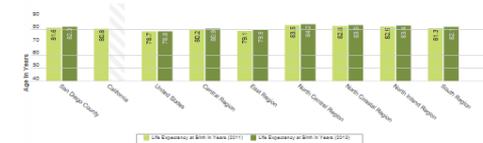
Exercise
54.4
Percent of Population
[Explore the data](#)
This indicator measures percent of population who walked the doctor or more hours exercising per week.

Doctor Visits
28.8
Percent of Population
[Explore the data](#)
This indicator measures percent of population who visited the doctor six or more times in the last 12 months.

AVERAGE LIFE EXPECTANCY FOR A BABY BORN TODAY

82.3 YEARS

84.5 YEARS FOR FEMALES | 80.1 YEARS FOR MALES


Legend: San Diego County (2013), Other Counties (2013), States (2013)

[Explore the data](#)

QUESTIONS?



 **LIVE WELL**
SAN DIEGO



ANY QUESTIONS?