



# Innovative and Emerging Models of Chronic Disease Prevention

*A Public Health Perspective*

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# Overview

- Burden of chronic disease/conditions (e.g., hypertension, prediabetes, diabetes, obesity, others)
- Approach to addressing this burden from a public health perspective
- Federal and local initiatives aligned with these emerging models and efforts
- Examples:
  - i. Active Transportation
  - ii. National Diabetes Prevention Program
  - iii. CTSI's Healthy Aging Initiative

# Los Angeles County

## The Landscape

- 4,000 square miles
- 10 million residents
  - 24% obese adults
  - 23% obese children
  - varies widely by region
- 88 cities
- 80 schools districts + LACOE
- Opportunity for broad reach





# Burden of Chronic Diseases





# Trends in the Leading Causes of Death Los Angeles County, 2001-2010

Age-adjusted rate/100,000

<b><u>Cause of Death</u></b>	<b><u>2001</u></b>	<b><u>2010</u></b>	<b><u>% Change</u></b>
Coronary heart disease	220	138	-37%
Stroke	56	36	-36%
Lung cancer	42	33	-21%
Emphysema	36	30	-17%
Alzheimer's disease	12	25	108%
Pneumonia & influenza	32	22	-31%
Diabetes	24	21	-13%
Colorectal cancer	18	14	-22%
Chronic liver disease	12	12	0%
Breast cancer (female)	24	21	-13%

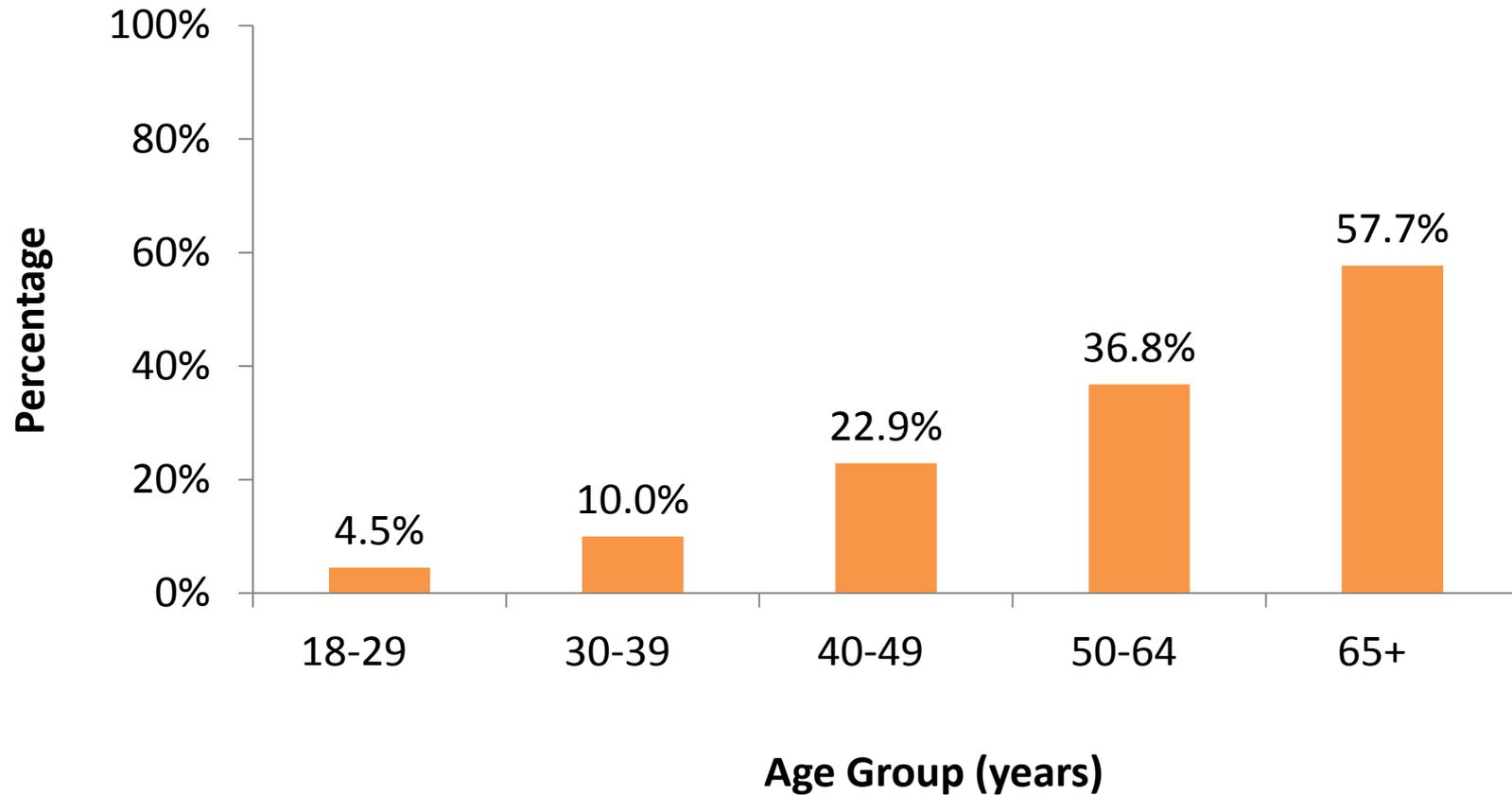


# Leading Causes of Death by Race/Ethnicity, Los Angeles County, 2010

Race/ethnicity Number of deaths Age-adjusted death rate	#1 cause	#2 cause	#3 cause	#4 cause	#5 cause
White 28,738 667 per 100,000	Coronary heart disease 6,845 151 per 100,000	Emphysema/COPD 1,743 40 per 100,000	Lung cancer 1,655 40 per 100,000	Stroke 1,534 34 per 100,000	Alzheimer's disease 1,509 31 per 100,000
Hispanic 13,751 529 per 100,000	Coronary heart disease 2,555 111 per 100,000	Stroke 780 34 per 100,000	Diabetes 690 29 per 100,000	Liver disease 587 18 per 100,000	Lung cancer 441 18 per 100,000
Black 7,438 891 per 100,000	Coronary heart disease 1,721 208 per 100,000	Stroke 446 54 per 100,000	Lung cancer 433 51 per 100,000	Diabetes 294 35 per 100,000	Emphysema/ COPD 289 35 per 100,000
Asian/Pacific Islander 6,343 429 per 100,000	Coronary heart disease 1,451 98 per 100,000	Stroke 501 34 per 100,000	Lung cancer 400 26 per 100,000	Pneumonia/ Influenza 296 21 per 100,000	Diabetes 237 16 per 100,000
Los Angeles County Total* 56,538 615 per 100,000	Coronary heart disease 12,635 138 per 100,000	Stroke 3,278 36 per 100,000	Lung cancer 2,941 33 per 100,000	Emphysema/COPD 2,622 30 per 100,000	Alzheimer's disease 2,242 25 per 100,000



# Percent of Adults Diagnosed with Hypertension by Age Group, Los Angeles County, 2011



Source: Los Angeles County Health Survey, 2011



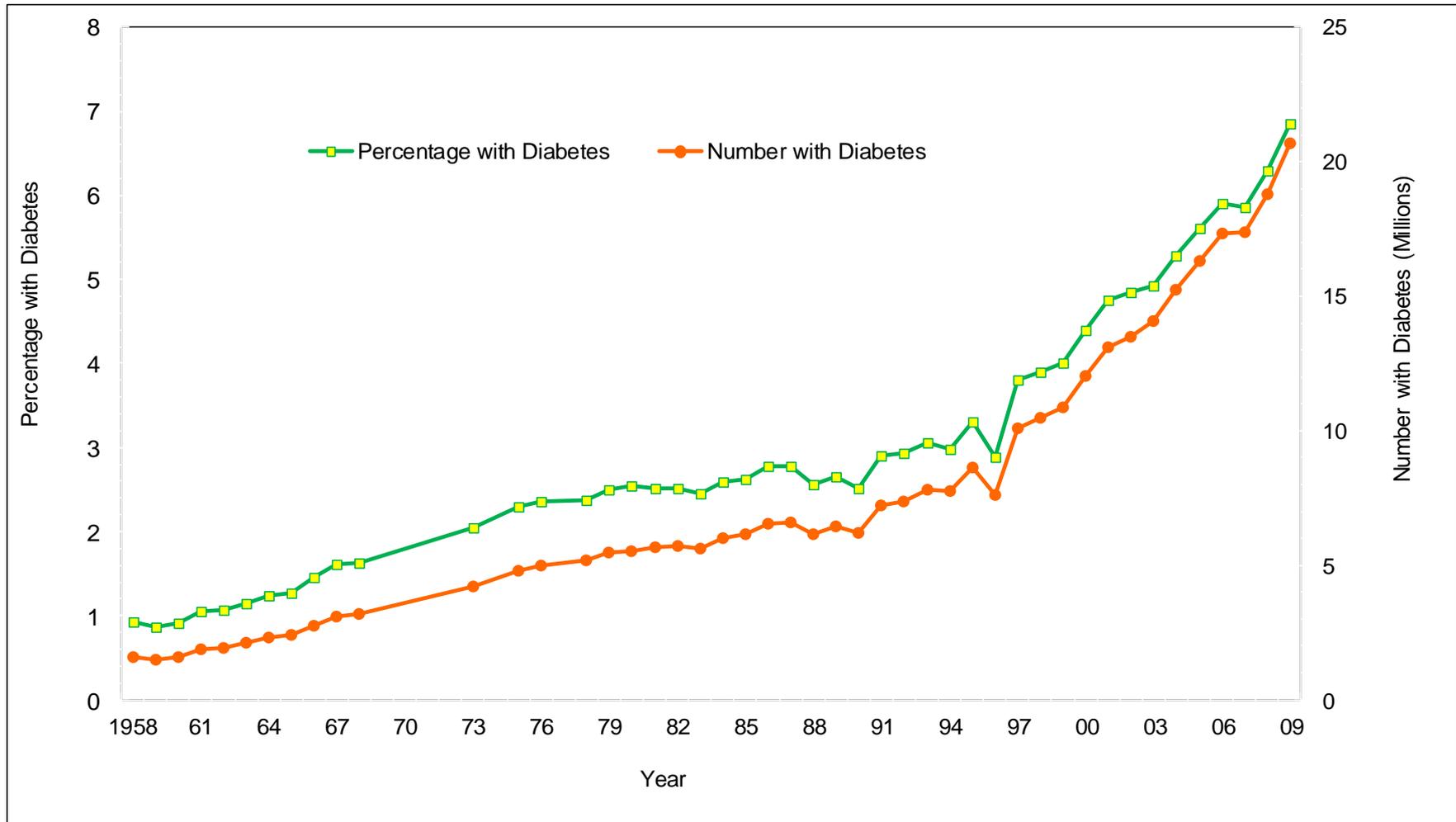
# Potential Decrease in Cases of Hypertension and Annual Savings in Hypertension Treatment Costs from Reducing Sodium Consumption in LA County

Scenario: Percent Reduction in Population Sodium Intake	Average Systolic Blood Pressure Reduction (mm Hg)	Percent Decrease in the Frequency of Hypertension	Decrease in the Number Cases of Hypertension	Potential Annual Cost Savings [in 2014 dollars] (\$)
10% (344 mg)	0.71	1.7%	31,953	69.5 million
20% (687 mg)	1.41	2.8%	52,629	114.3 million
30% (1,031 mg)	2.11	4.2%	78,944	171.5 million
40% (1,374 mg)	2.82	5.3%	99,619	216.3 million
50% (1,718 mg)	3.52	6.8%	127,814	276.9 million

Annual cost savings numbers have been updated. Original table sourced from: Division of Chronic Disease and Injury Prevention. (2010) *The Potential Health Impact of Reducing Excess Sodium Consumption in Los Angeles County*. Los Angeles, CA: Los Angeles County Department of Public Health.

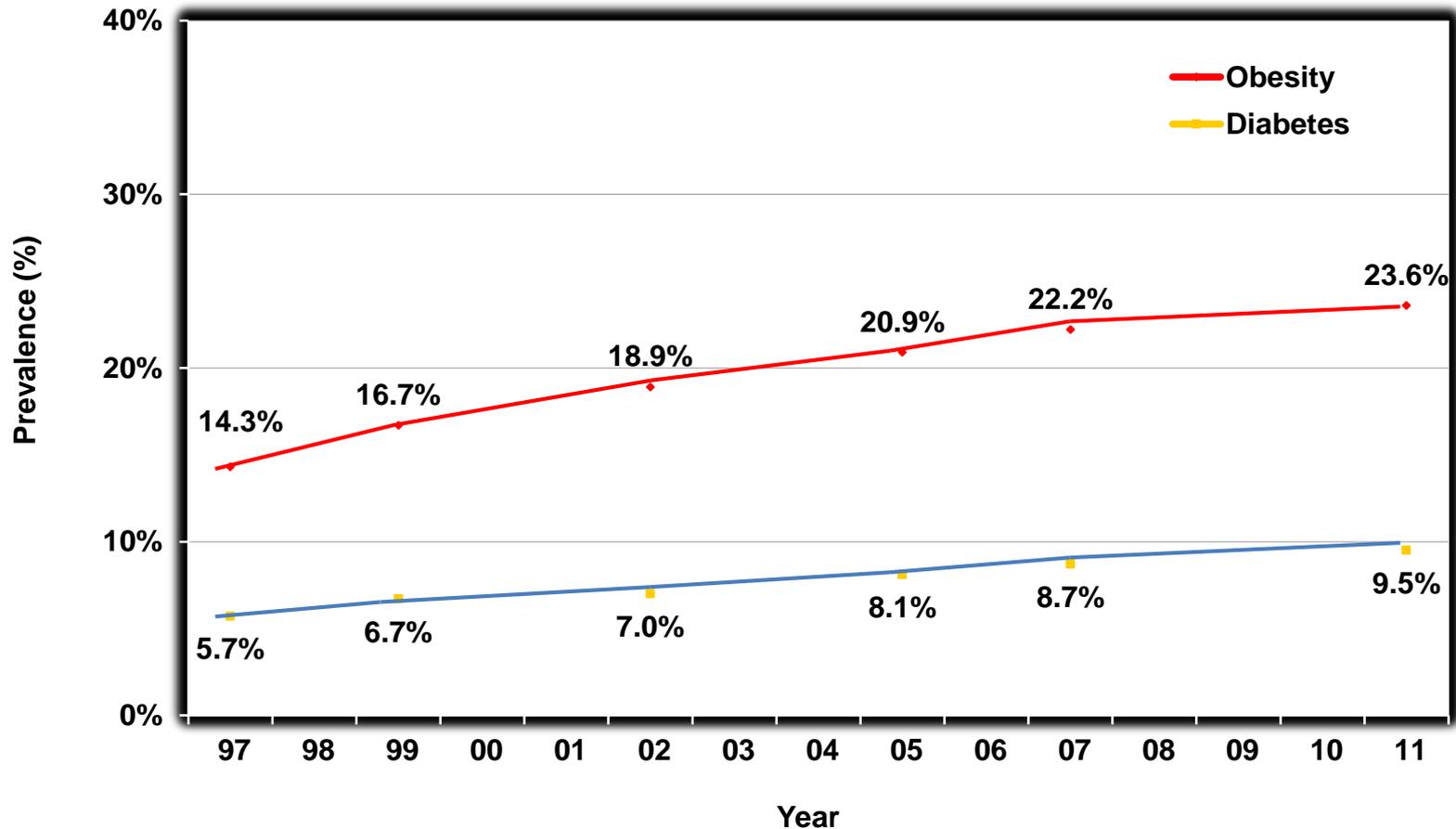


# Number and Percentage of U.S. Population with Diagnosed Diabetes, 1958-2009





# Prevalence of Obesity and Diabetes Among Adults in Los Angeles County, 1997-2011





## Combined Treatment Expenditures and Lost Productivity (in billions), by Chronic Disease, U.S.

Chronic Disease	Treatment Expenditure	Productivity Losses	Costs
Cancers	\$48	\$271	\$319
Diabetes	\$27	\$105	\$132
Heart disease	\$65	\$105	\$170
Hypertension	\$33	\$280	\$313
Mental disorders	\$46	\$171	\$217
Pulmonary conditions	\$45	\$94	\$139
Stroke	\$14	\$22	\$36

Source: MEPS, *National Health Care Expenses in the U.S. Civilian Noninstitutionalized Population, 2003*. November 2005.



## ***Preliminary Findings:*** **Diabetes Costs in Los Angeles County, 2007 and 2030**

<b>Type</b>	<b>Estimated Population</b>	<b>LA County Total Cost</b>		<b>In the U.S. Total Cost</b>	
		<b><u>2007</u></b>	<b><u>2030</u></b>	<b><u>2007</u></b>	<b><u>2030</u></b>
Diabetes	642,000	780,214	\$6.4 bil	\$11.4 bil	\$170 bil
Pre-Diabetes*	116,000	141,857	\$51.4 mil	\$92.3 mil	\$25 bil

Projected population growth in LA County: 10.2 million (2007) to 11.7 million (2030); 7.4 million adults in 2007 vs. 8.9 million adults in 2030. Population projections accounted for migration, mortality, fertility trends, no natural catastrophes, etc.

\* Includes only medical costs and not lost productivity.

## Prediabetes in California: Nearly Half of California Adults on Path to Diabetes

### Supplemental Tables

#### LOS ANGELES SPA

#### Percent of Adults Estimated to Have Prediabetes by Los Angeles County Service Planning Area and Age, California, 2013-14

Los Angeles County Service Planning Area (SPA)	18-39		40-54		55-69		70+		All	
	%	(95% CI)								
Antelope Valley (SPA 1)	30%	(24.3 - 34.7)	50%	(39.9 - 60.7)	59%	(47.9 - 70.7)	48%	(32.7 - 62.6)	42%	(36.5 - 46.7)
San Fernando (SPA 2)	32%	(29.4 - 34.9)	49%	(44.2 - 53.0)	61%	(57.0 - 65.4)	58%	(51.6 - 65.0)	44%	(42.0 - 46.7)
San Gabriel (SPA 3)	35%	(31.3 - 38.0)	48%	(43.1 - 53.7)	55%	(48.5 - 61.3)	50%	(41.9 - 58.8)	45%	(42.5 - 48.0)
Metro (SPA 4)	36%	(32.3 - 39.1)	50%	(42.9 - 58.0)	50%	(36.4 - 62.9)	60%	(50.6 - 68.5)	43%	(39.8 - 46.5)
West (SPA 5)	29%	(25.1 - 33.5)	50%	(44.6 - 56.3)	60%	(53.7 - 66.3)	55%	(46.8 - 62.3)	46%	(43.0 - 50.0)
South (SPA 6)	36%	(31.6 - 39.8)	49%	(39.4 - 59.1)	60%	(52.1 - 67.3)	53%	(38.1 - 67.5)	45%	(41.3 - 49.4)
East (SPA 7)	35%	(31.0 - 38.5)	50%	(43.6 - 56.4)	57%	(49.6 - 65.4)	54%	(41.2 - 66.4)	44%	(41.0 - 47.6)
South Bay (SPA 8)	31%	(27.2 - 34.2)	44%	(38.0 - 50.1)	55%	(48.8 - 61.7)	62%	(55.3 - 68.0)	44%	(40.9 - 46.9)
<b>Los Angeles County</b>	<b>33%</b>	<b>(31.9 - 34.8)</b>	<b>48%</b>	<b>(45.9 - 50.9)</b>	<b>57%</b>	<b>(54.0 - 59.7)</b>	<b>56%</b>	<b>(52.3 - 59.1)</b>	<b>44%</b>	<b>(43.2 - 45.7)</b>

Source: 2013-14 California Health Interview Survey

Note: Estimates of prediabetes are based on predictive models developed using 2009-2012 NHANES data and applied to CHIS 2013-14 data. Prediabetes estimates include adults with undiagnosed diabetes. Nationally, approximately 3.9 percent of adults have undiagnosed diabetes.



# Impact of Alzheimer's Disease

- Healthcare costs – medical care; hospitalizations; skilled nursing; home care; long term care costs often lead to depletion of patient's personal savings and assets
- Personal costs – disease progression with memory loss, wandering, behavioral problems, injuries, depression
- Caregiving – caregiver stress, caregiver illness, paid and unpaid costs of caregiving
- Costs to businesses – absenteeism due to caregiving, etc.



# Public Health Framework for Chronic Disease Prevention in Los Angeles



# Growing Choose Health LA



**Early:**  
**September 2010-**  
**March 2011**

- Research &  
Development

**Early:**  
**March 2011**

- Launched  
website, social  
media and  
"Salt Shocker"  
campaign



**1st Year:**  
**October 2011**

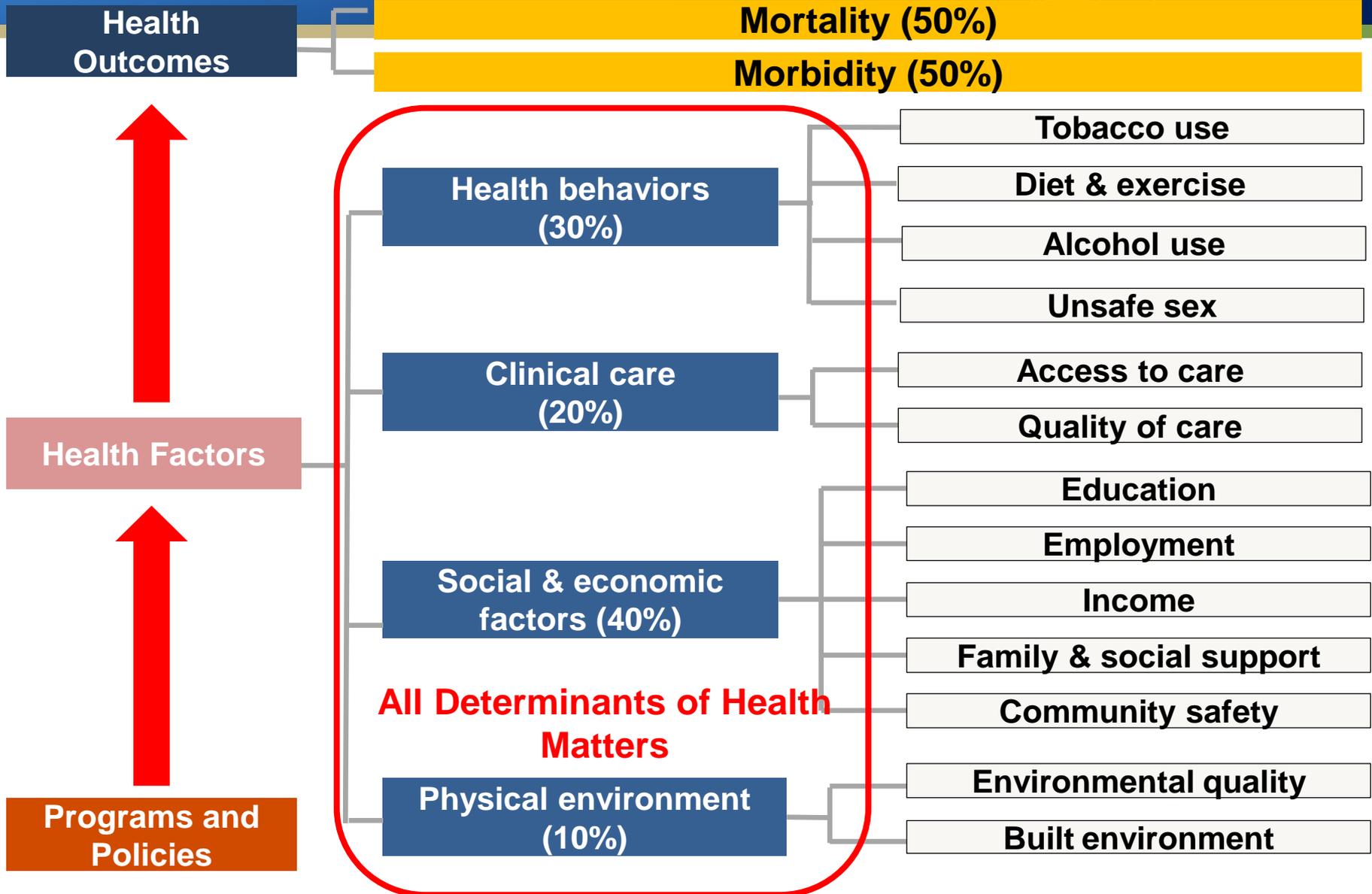
- Launched  
"Sugar Pack"  
campaign  
- "Eat, Move,  
Live LA" TV  
series  
- Continued

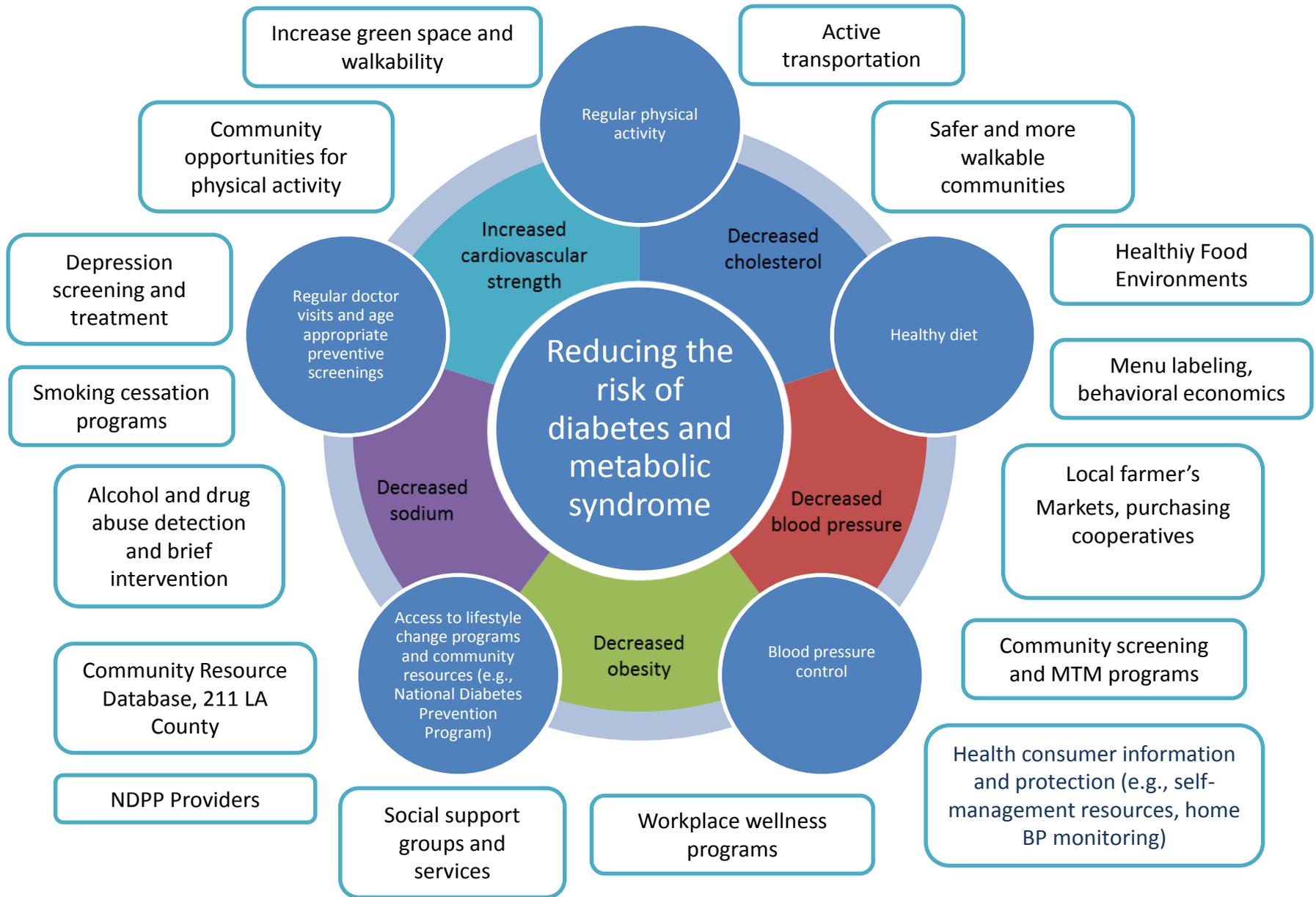


**2nd Year:**  
**October 2012**

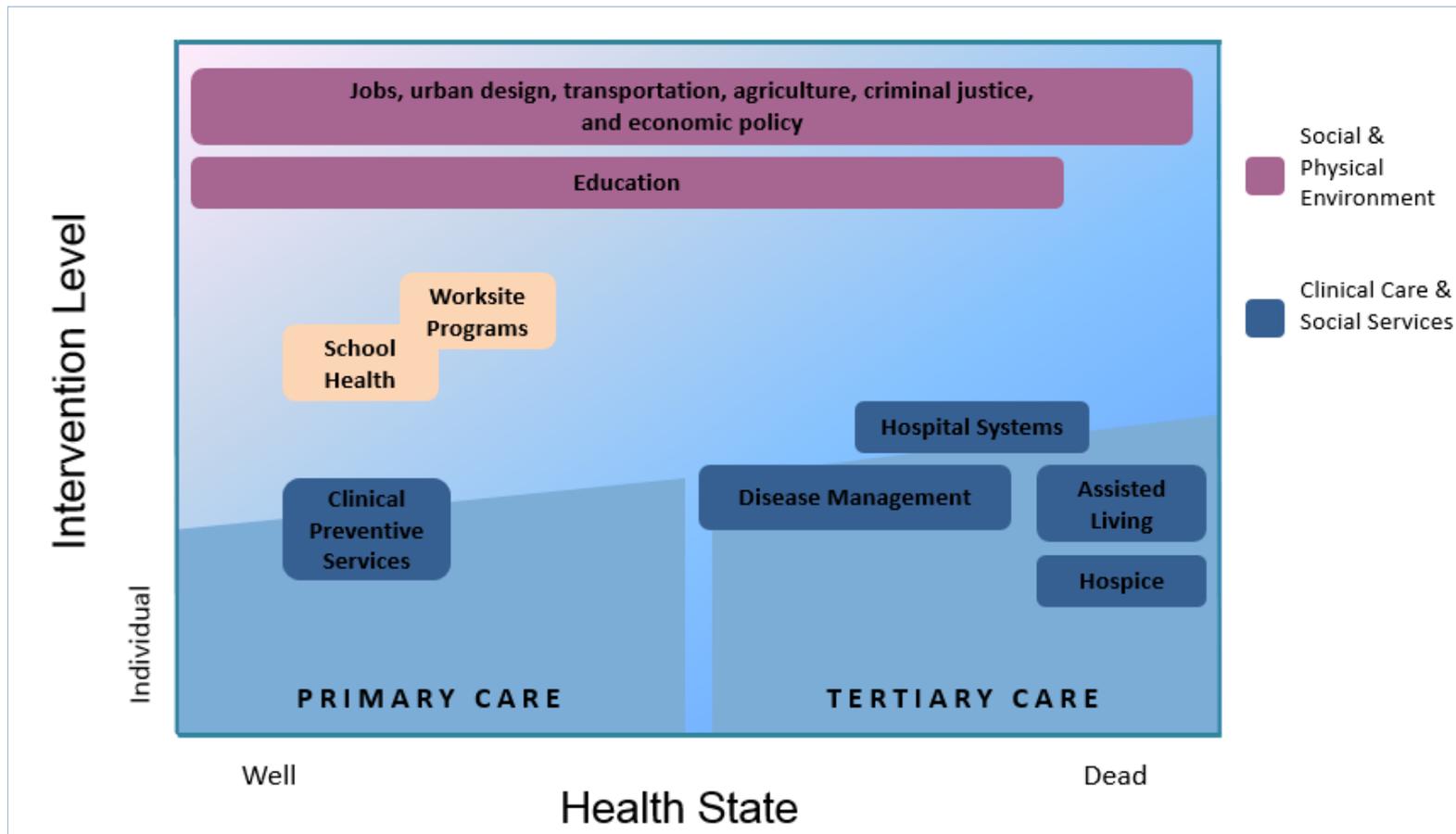
- Launched "Choose  
Less, Weigh Less"  
campaign  
- Launched Healthy  
Holiday Tips  
campaign  
- Created Nutrition  
Education Catalog

**3rd Year:**  
- Will launch  
Restaurant  
program  
- Will re-launch  
website  
- Continue to  
Grow, Develop  
and Expand





# Framework for Action: General Model of Health & Improvement Strategies





# Federal and Local Initiatives



Inputs: Funding, guidance and support from DDT, DHDSP, DNPAO

STRATEGIES

SHORT-TERM  
OUTCOMES

INTERMEDIATE  
OUTCOMES

LONG-TERM  
OUTCOMES

Project Period Objectives

COMPONENT 1

Environmental strategies to promote health and support and reinforce healthful behaviors

- Implement food and beverage guidelines including sodium standards (i.e., food service guidelines for cafeterias and vending) in public institutions, worksites and other key locations such as hospitals
- Strengthen healthier food access and sales in retail venues (e.g., grocery stores, supermarkets, chain restaurants, and markets) and community venues (e.g. food banks) through increased availability (e.g. fruit and vegetables and more low/no sodium options), improved pricing, placement, and promotion
- Strengthen community promotion of physical activity through signage, worksite policies, social support, and joint-use agreements
- Develop and/or implement transportation and community plans that promote walking
- Plan and execute strategic data-driven actions through a network of partners and local organizations to build support for lifestyle change. Implement evidence-based engagement strategies (e.g. tailored communications, incentives, etc.) to build support for lifestyle change

- Increase coverage for evidence-based supports for lifestyle change by working with network partners

COMPONENT 2

Health System Interventions to Improve the Quality of Health Care Delivery to Populations with the Highest Hypertension and Prediabetes Disparities

- Increase electronic health records (EHR) adoption and the use of health information technology (HIT) to improve performance (e.g., implement advanced Meaningful Use data strategies to identify patient populations who experience CVD-related disparities)
- Increase the institutionalization and monitoring of aggregated/standardized quality measures at the provider level (e.g., use dashboard measures to monitor healthcare disparities and implement activities to eliminate healthcare disparities)
- Increase engagement of non-physician team members (i.e. nurses, pharmacists, nutritionists, physical therapists and patient navigators/community health workers) in hypertension management in community health care systems
- Increase use of self-measured blood pressure monitoring tied with clinical support
- Implement systems to facilitate identification of patients with undiagnosed hypertension and people with prediabetes

Community clinical linkage strategies to support heart disease and stroke and diabetes prevention efforts

- Increase engagement of CHWs to promote linkages between health systems and community resources for adults with high blood pressure and adults with prediabetes or at high risk for type 2 diabetes
- Increase engagement of community pharmacists in the provision of medication-/self-management for adults with high blood pressure
- Implement systems to facilitate bi-directional referral between community resources and health systems, including lifestyle change programs (e.g. EHRs, 800 numbers, 211 referral systems, etc.)

Increased community and large city environments that promote and reinforce healthful behaviors and practices related to obesity, diabetes prevention, cardiovascular health, including key settings that support physical activity and healthful foods and beverages.

Increased use and reach of strategies to build support for lifestyle change

Improved quality, effective delivery and use of clinical and other preventive services to increase management of hypertension and prevention of type 2 diabetes

Increased community clinical linkages to support self-management and control of hypertension and prevention of type 2 diabetes

Increased consumption of nutritious food and beverages and increased physical activity

Increased engagement in lifestyle change

Improved medication adherence for adults with high blood pressure

Increased self-monitoring of high blood pressure tied to clinical support

Increased referrals to and enrollments in lifestyle change programs

Reduce death and disability due to diabetes, heart disease and stroke by 3% in the implementation area

Reduce the prevalence of obesity by 3% in the implementation area



# Bringing the **VISION** of a *Healthy* Los Angeles to **REALITY**

In fall 2014, the Los Angeles County Department of Public Health was awarded the 1422: State and Local Public Health Actions to Prevent Obesity, Diabetes, and Heart Disease and Stroke cooperative agreement from the Centers for Disease Control and Prevention (CDC).

This federal funding was used to develop the 4-year *Chronic Disease Prevention Strategy in Los Angeles* (CDPS) project. The initiative intends to implement community and health systems strategies to prevent and control chronic conditions such as hypertension and prediabetes. CDPS supports a comprehensive model of systems and environmental strategies that will improve the health of the entire Los Angeles population and subgroups with disproportionate risk of chronic disease. Program strategies include: shared

use agreements between schools and communities to promote physical activity (e.g., *Joint Use Moving People to Play Task Force*); increasing healthy food options in a variety of environments; community plans to promote active transportation (e.g., the City of Los Angeles Mayor's *Great Streets* initiative and *Vision Zero*); and health system strategies to increase meaningful use of electronic health records, decision support tools, and coordination of clinical and community resources. Together, these strategies aim to reduce adult obesity and other chronic disease risk factors that can lead to death and disability from heart disease, stroke, and type 2 diabetes. Using a multidisciplinary approach, CDPS is bringing the vision of a healthy Los Angeles to reality. Key strategies and programs under CDPS are highlighted below.



## OFFICE OF WOMEN'S HEALTH

The Los Angeles County Office of Women's Health Appointment and Referral Hotline is a multi-lingual hotline providing a variety of health resources including heart disease, diabetes, and blood pressure risk assessments. Operators speak English, Spanish, Armenian, Korean, Mandarin, Cantonese, and Vietnamese.

Clients can call 1-800-793-8090 for personalized assistance.

# Chronic Disease Prevention Strategy in Los Angeles (1422)



## Chronic Disease Prevention Strategy (1422)

- A four year initiative to implement community and health system strategies to prevent and control chronic conditions such as hypertension and diabetes.
- Programs include:
  - Shared use agreement between schools and communities
  - Increasing health food options
  - Community plans to promote active transportation
  - Health system strategies – EHRs, meaningful use of electronic data, CHWs/Health Navigators, Pharmacist Strategies, community-clinical linkages, team-based care



# Key Strategies and Programs – Early Stages

- Office of Women's Health Appointment and Referral Hotline
- The Wellness Center
- National Diabetes Prevention Program
- Undiagnosed or undertreated hypertension
- Choose Health LA Restaurants
- Promoting Healthier Food & Beverages



# Active Transportation – local efforts through multi-sector partnerships





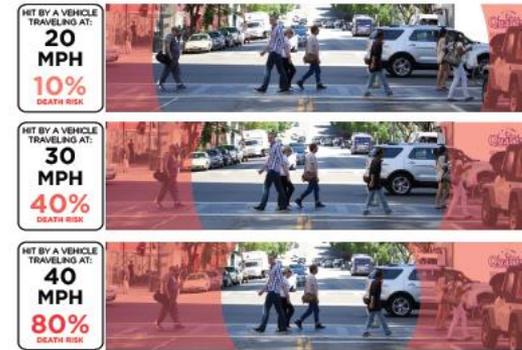
# Vision Zero Los Angeles: The Facts

## COLLISION LANDSCAPE IN LOS ANGELES

- 95** collisions occur per day on our streets. That is more than **30,000** per year.
- 950+** people sustained severe injuries in 2013 from collisions.
- 200+** people die every year from collisions.
- 44%** of all deaths and severe injuries involve people walking or bicycling.
- 30%** of all people killed or severely injured while walking or bicycling are youth and older adults.

## WHAT IS VISION ZERO

- Vision Zero is a traffic safety policy that ensures mistakes on our roadway do not result in severe injury or death.
- Strategies for achieving our Vision Zero goals center on engineering, enforcement, education, evaluation, and equity.
- The Vision Zero concept originated in Sweden, where it was adopted as a national strategy in 1997. Since then, despite increased traffic volumes, the number of traffic deaths has dropped over 30 percent.

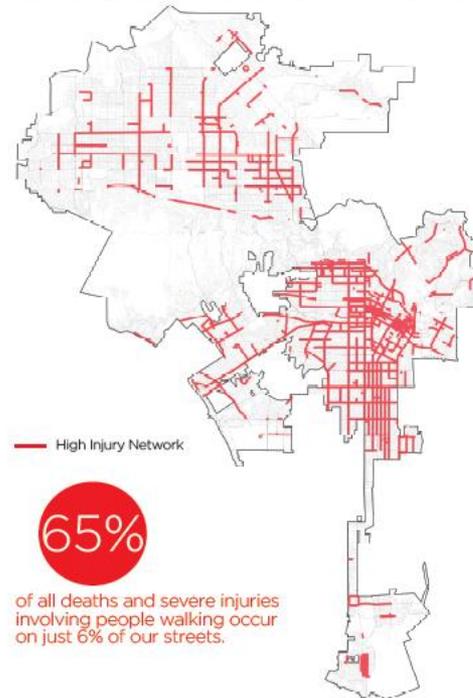


## VEHICLE SPEED

- Speed is a fundamental predictor of crash survival. Research shows that: increasing vehicle speeds from 20 mph to 40 mph increases the likelihood of a pedestrian death when hit: from 10 percent to 80 percent.<sup>2</sup>
- Slower speeds also increase a driver's field of vision and allow for more time to react to unexpected situations in the roadway.

## HIGH INJURY NETWORK

- The City of Los Angeles Department of Transportation (LADOT) has identified a network of streets called the High Injury Network (HIN), with a higher incidence of severe and fatal collisions. Strategic investments along the HIN will have the biggest impact: in reducing severe injury and death.
- Many of the areas burdened with the poorest health outcomes also have a disproportionate amount of severe and fatal injuries from collisions. Nearly half of the HIN falls within our most vulnerable communities.



## WHO WILL BE INVOLVED

- A Vision Zero Executive Steering Committee, comprised of the Mayor's Office, LADOT, the Los Angeles Departments of Police, Public Works and Fire, and the County Department of Public Health will oversee the Vision Zero Initiative.
- As we continue to identify areas in the City with the most need, we will partner with our communities to make safety improvements at the neighborhood level.

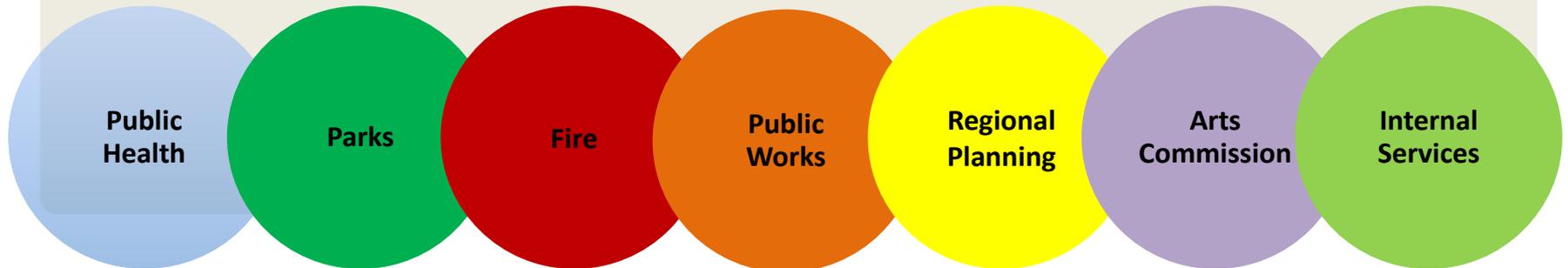


[visionzero.lacity.org](http://visionzero.lacity.org)

*And the Great Streets initiative*

2012 – BOS mandated interdepartmental task force to increase physical activity and improve health through planning, designing and building healthier environments

*Develop and structure cross-sector relationships*





# Scale and Spread of Evidence-Based Programming (e.g., the National Diabetes Prevention Program)





# The National Diabetes Prevention Program: Landscape in Los Angeles

- Group-based medical model
- Community-based model
- Employer-based model
- Internet-based model



# Los Angeles County Department of Public Health

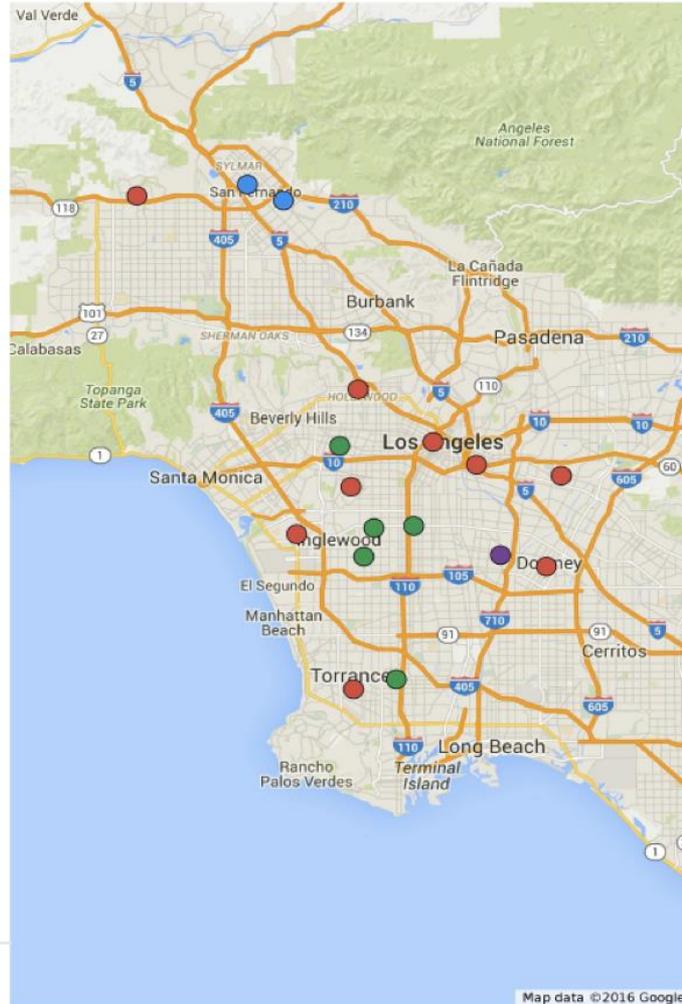
## *Partners working to scale the National Diabetes Prevention Program in Los Angeles*

- YMCA
- Black Women for Wellness (BWW)
- AltaMed Health Services Corporation
- Northeast Valley Health Corporation
- Los Angeles Department of Health Services (DHS)
- The LAC+USC Wellness Center at the Historic General Hospital in Boyle Heights

## DPPs February 2016

Untitled layer

- AVOH-Southgate Recreation Center
- Crenshaw Family YMCA - YMCA of Metro Los Angeles
- YMCA-Downey
- YMCA-Torrance/South Bay
- YMCA-North Valley
- YMCA-East LA
- YMCA-Montebello-Commerce
- YMCA- Hollywood Wilshire
- YMCA - Downtown-Ketchum
- YMCA-Westchester
- Northeast Valley Health Corporation-San Fernando
- Northeast Valley Health Corporation-Pacoima
- BWW-LA Care Family Resource Center
- BWW-74th St Elementary-Parent Center
- BWW-Tom Bradley Youth and Family Center
- BWW-Moya Body Care
- BWW-Ascot Branch Library





# Community Advisory Board

- Coalition formed in 2014 to help scale the National Diabetes Prevention Program in Los Angeles
- **Coalition Mission**
  - To scale the NDPP in Los Angeles
  - To build the case for coverage of NDPP in Los Angeles and nationally
  - To convene local stakeholders to educate community and providers about NDPP
- **Member Groups**
  - Health Systems
  - Community-based organizations
  - Academic Partners
  - Health sector practitioners (i.e. health educators, social workers)



## What Health Systems and the Provider Community Can Do to Aid Diabetes Prevention Efforts

- Champion or integrate practice protocols or reminder systems in the clinical setting to help refer patients to quality NDPP in the community
- Establish peer workgroups/expert panels in the parent health system to tailor best or expected practices for managing prediabetes in particular or across the system's hospitals, ED, clinics/health centers, etc.
- Make framework for diabetes prevention as part of the continuum in diabetes care (prevention **to** management, not siloed programming)
- Develop team care approaches that can be used for diabetes prevention
- QA/QI for referral or bi-directional referral processes



# CTSI Healthy Aging Initiative





# Healthy Aging Initiative (HAI)

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## “Big Audacious Goal” for improving health in Los Angeles County

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- County-Wide Program to Promote Healthy Aging in Los Angeles
- UCLA Clinical and Translational Science Institute (CTSI) Community Engagement and Research Program (CERP) convened meetings with leadership of Los Angeles County Department of Health Services (Mitchell Katz) and Department of Public Health (Jonathan Fielding)
- LAC DPH and DHS leadership proposed the goal of **Healthy Aging in Los Angeles** related to physical, emotional, and social health
- Domains to be addressed include social isolation, poor nutrition and lack of health food options, physical activity, mental health, substance abuse, prescription medication misuse, chronic disease management, built and social environment, etc.
- Invited USC Investigators, the USC CTSI, and the LAC DMH to participate



# Healthy Aging in Los Angeles County

## Long Term Goals

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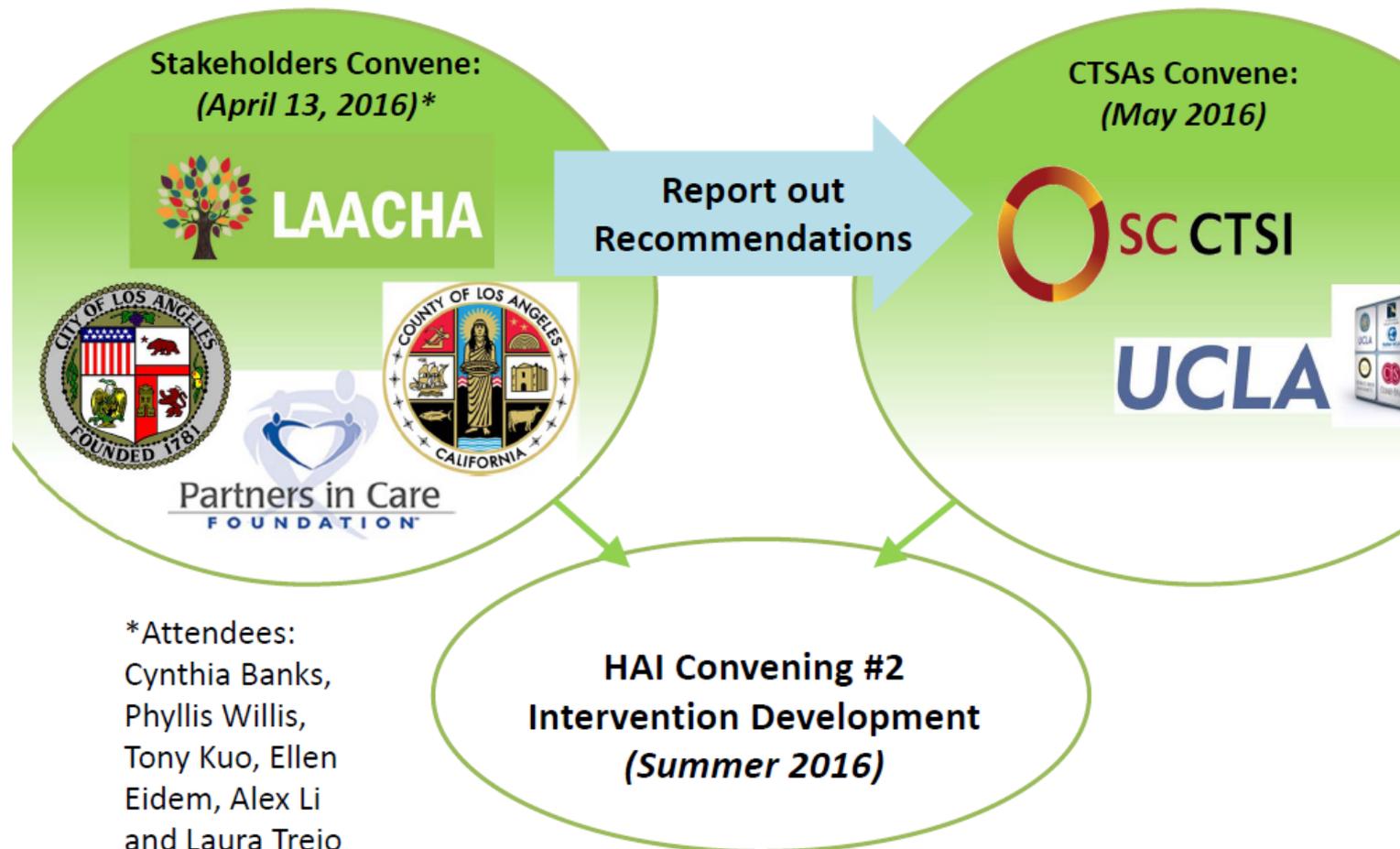
- Develop and support a **network of resources** that provide expertise on the implementation and impact of evidence-based interventions to improve the health of adults ages 50 years and older in Los Angeles County
- Support existing **implementation and evaluation** of the interventions, with **measurement of synergistic impact** at multiple levels (individual, family, community, city, and county)
- Develop **common set of meaningful, measurable metrics** across interventions



# UCLA-USC Healthy Aging Projects

Investigators	Project Title
<b>Maria P. Aranda (PI),</b> Fuentes, Mack, Kuo, Villa, Childs-Seagle	Bringing Evidence-based Programs to Historically Underrepresented Older Minorities
<b>Steven P. Wallace (PI),</b> Kietzman, Duru, Vaccaro	Healthy Aging Partnerships in Prevention Initiative (HAPPI)
<b>William Vega (PI),</b> Lloyd, Kuo, Wu, Shapiro	The Los Angeles Healthy Aging Indicator Project
<b>Catherine Sarkisian (PI),</b> Trejo, Simmons, Kuo	Measuring Feasibility of a Community-based “Wellness Pathway” Model
<b>Arleen Brown (PI),</b> Seeman, Ward, Kuo, Simmons	Evidence-based Healthy Aging Programs in High-Risk Communities in LA County

# Next Steps



As “Baby Boomers” begin utilizing the health care and social services system more strategically in the ACA era

- Promote age-appropriate screenings (e.g. colonoscopies, osteoporosis, depression and isolation) and services (e.g. **evidence-based health promotion programs**)
- Improve **consumer health literacy** and **consumer protection**
- Bolster **cultural competencies** of providers and allied health professionals
- Ensure adequate professional capacity to meet demand





# Challenges and Opportunities



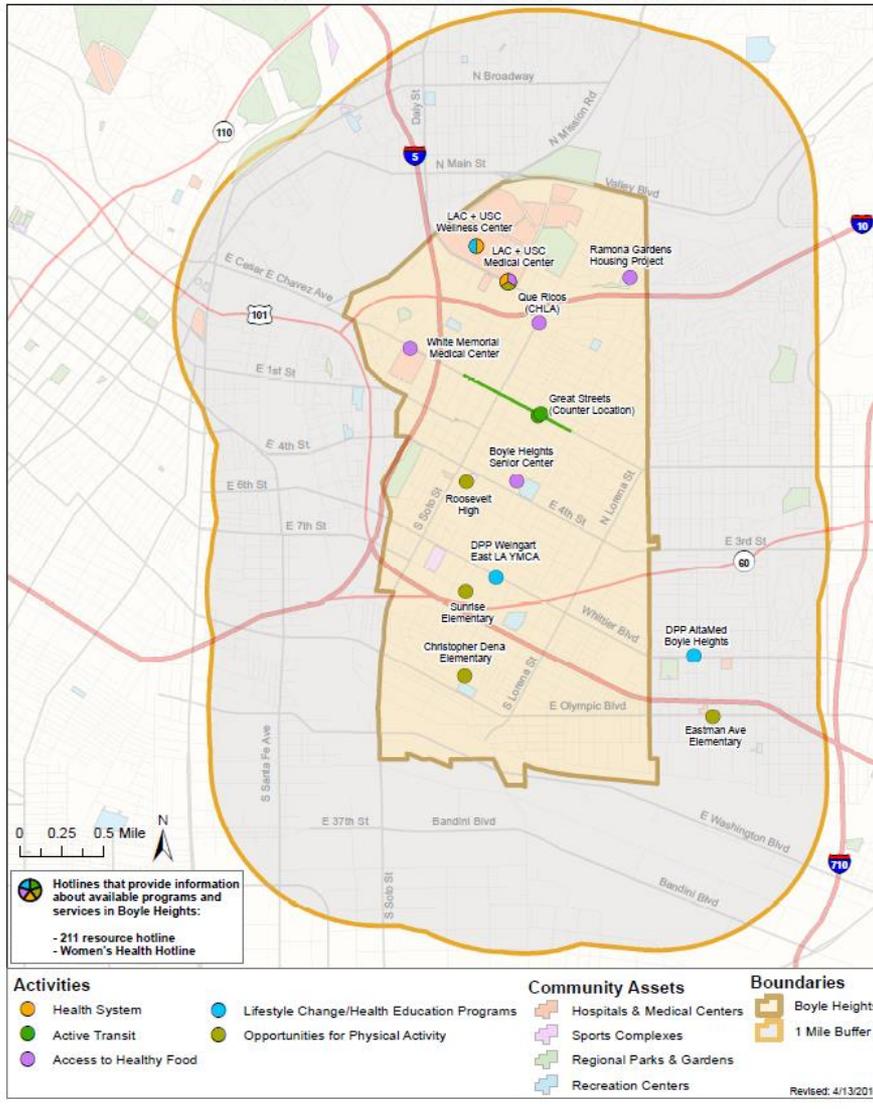
To impact health outcomes in the right direction...

- Strengthen programs, services and policies that prevent chronic disease, to go beyond just co-location but community investments and development (*by design*);
- Prioritize vulnerable populations – contribute to the evidence base;
- Strive for safe and healthy communities;
- Encourage social cohesion and engagement;
- Advocate for improvements to public education, public housing, job training and job creation – social services needs are relevant across all groups (*economic insecurity, food insecurity, housing, etc.*)

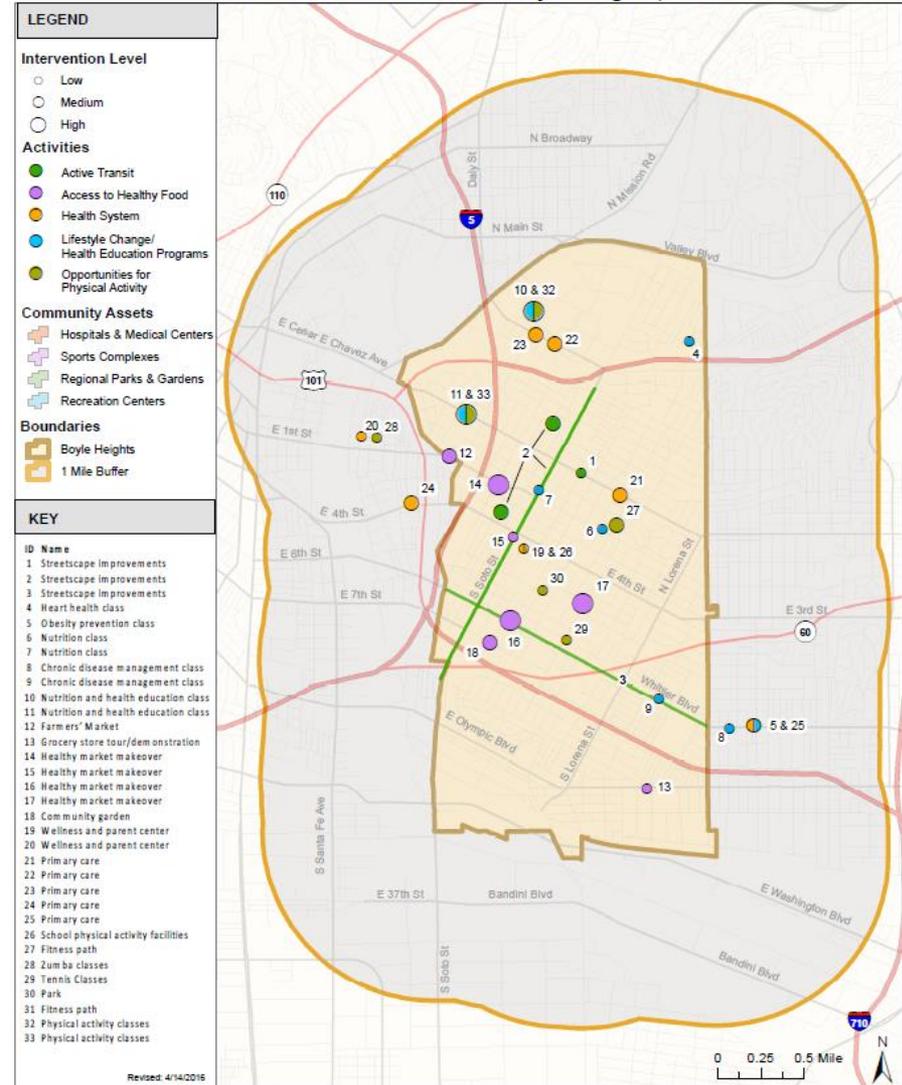
# Boyle Heights Workgroup



Map 1. 1422 Activities and Community Assets in Boyle Heights, 2016



Map 2. Chronic Disease Prevention and Management Initiatives and Resources in Boyle Heights, 2016





## Q&A and Resources

**CHOOSE  
HEALTHLA!** FROM



Los Angeles Geo Hub, including Vision Zero and other initiatives

<http://geohub.lacity.gov>

Public education resources

[www.choosehealthla.com](http://www.choosehealthla.com)

Division of Chronic Disease and Injury Prevention

<http://publichealth.lacounty.gov/chronic/>

