

# Summary Results for the SD Cardiovascular and Chronic Disease Model

Model Version 8m  
November 2008



DIVISION FOR  
HEART DISEASE  
STROKE PREVENTION

IRTI  
INTERNATIONAL

Sustainability Institute

Office of Behavioral &  
Social Sciences Research

icare

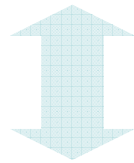
Steps to a  
Healthier AUSTIN

# Intervention Options

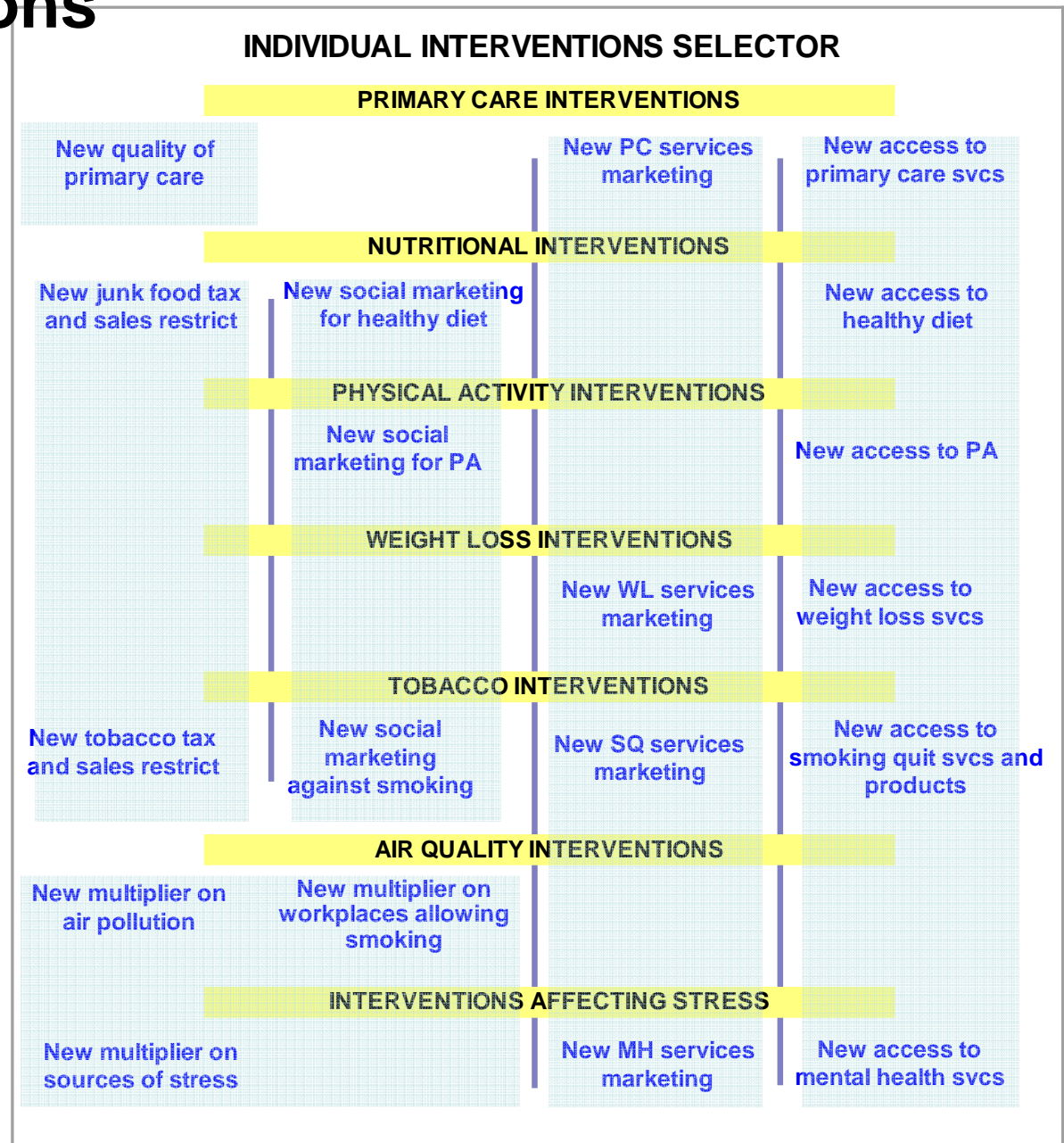
Area of *effect*



and *type* of intervention

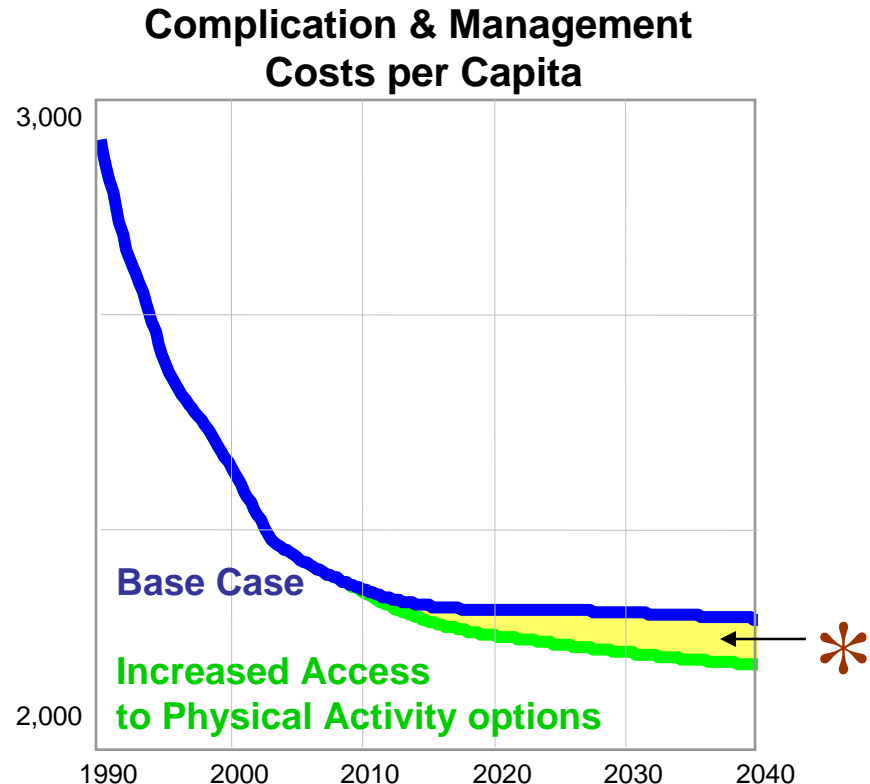


- Increasing access
- Marketing of services
- Social marketing
- Taxes and/or sales restriction
- Others



# Interpreting Cost Results

- Complication costs are for CV and non-CV related complications, both direct and indirect
- Management costs include
  - Annual costs for services provided
  - Medication costs
- When these costs are less than baseline, the difference is the *per capita health cost savings per year* – the maximum economically justifiable spending for the intervention



**Average annual savings of  
\*\$ 49 per capita** from interventions to  
increase access to physical activity  
options from 2010 - 2040.

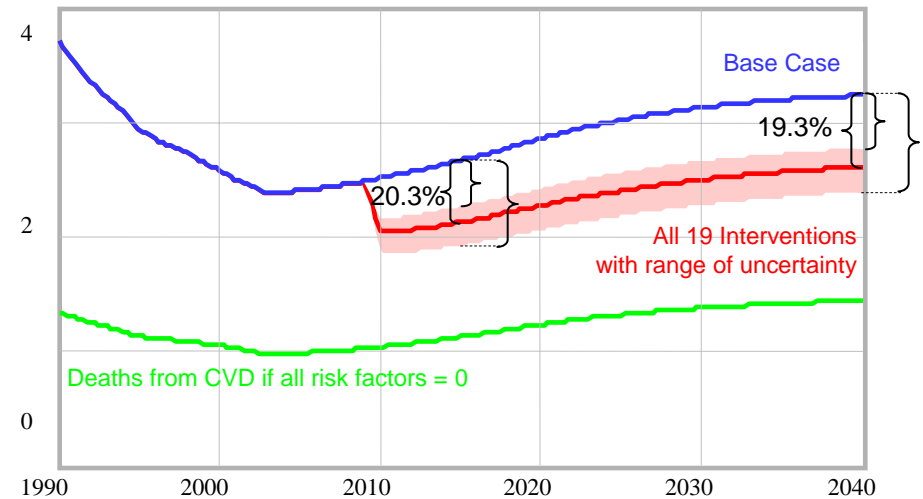
# Sensitivity range for all interventions

% Decrease from Base case

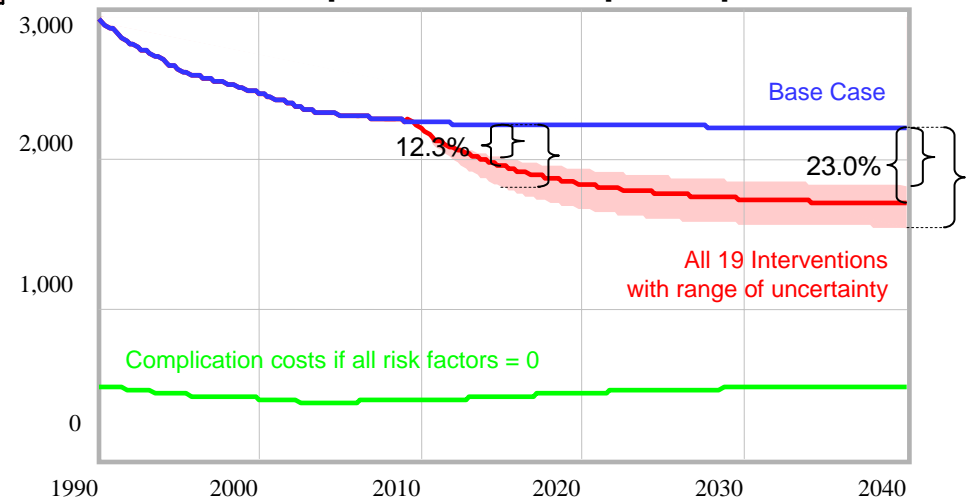
	2015		2040	
	Mort	Cost	Mort	Cost
Uncertainties at minimum impact	15.1%	9.6%	14.2%	17.2%
<b>Nominal results</b>	<b>20.3%</b>	<b>12.3%</b>	<b>19.3%</b>	<b>23.0%</b>
Uncertainties at maximum impact	28.1%	18.4%	26.2%	29.9%

**There are significant gains even at the least effective end of the uncertainty range.**

Deaths from CVD per 1000



CV & Risk Factor  
Complication Costs per Capita



# Impact of Multiple Intervention Areas on Adult Population

## % Change vs. Base Run

	2015		2040	
	Deaths	Costs	Deaths	Costs
<b>Base run</b>	--	--	--	--
<b>Primary care</b>	-11.5%	-1.9%	-9.2%	-0.3%
<b>Primary care + Tobacco</b>	-14.3%	-10.0%	-12.6%	-16.3%
<b>Primary care + Tobacco + Air quality</b>	-18.8%	-12.5%	-15.4%	-18.2%
<b>15 interventions</b>	-20.2%	-15.7%	-18.9%	-25.7%

► Three areas of interventions together provide

- 80-90% of benefit of all beneficial interventions in short-term,
- 70-80% in long term.

### Primary Care interventions:

- Increase the quality of primary care from 54% to 75%
- Increase primary care services marketing from 0 to 100%
- Increase access to primary care from 84% to 100%

### + Tobacco interventions

- Tobacco tax and sales restriction from 50% to 100%
- Social marketing against smoking from 0 to 100%
- Smoke quit services marketing from 0 to 100%
- Access to smoke quit services from 50% to 100%

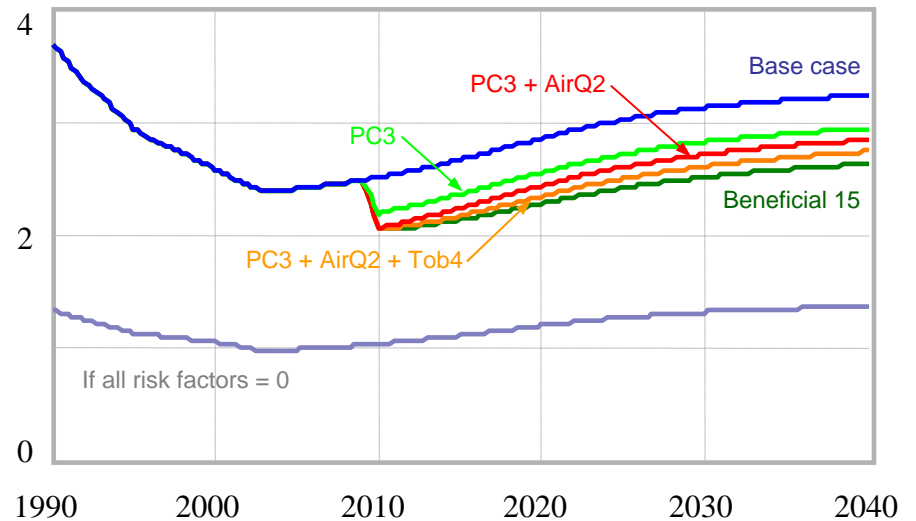
### + Air Quality interventions

- Air pollution cut to half of existing
- Workplaces allowing smoking cut to zero

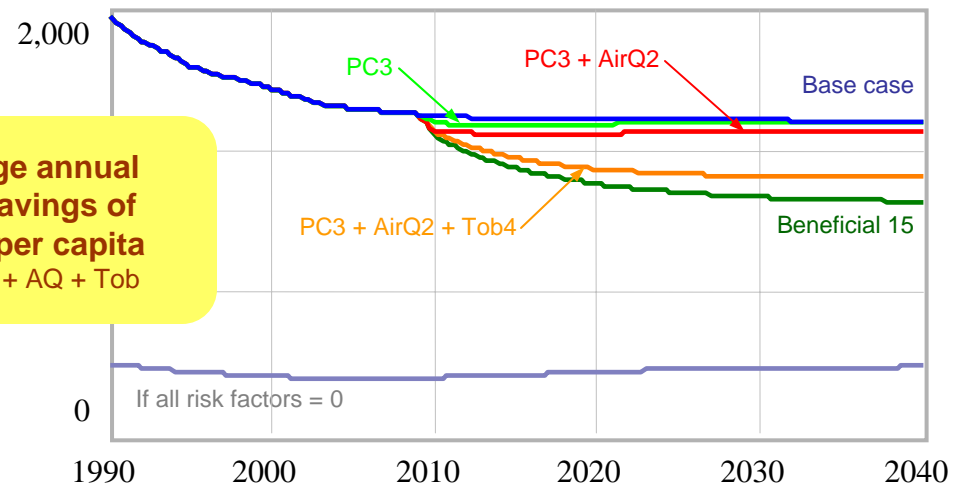
# Intervention Results for All Adults

- Intervention areas are:
  - Primary care
  - Primary care + Air quality
  - Primary care + Air quality + Tobacco
  - All 15 beneficial interventions
- Note *increasing cost gains over time*, for *Tobacco* and remaining six interventions:
  - *Physical activity*
  - *Nutrition*
  - *Stress*

Deaths from CVD per 1000



Complication & Management Costs per Capita



**Average annual cost savings of \$ 351 per capita**  
For PC + AQ + Tob

# Effects of Interventions on Preventable Deaths (2010-2040 cumulative)

Cumulative deaths 2010-2040 (in non-CVD population)  
from CV and other risk factor complications, in millions

	<b>From CV</b>		<b>From Other Complications</b>		<b>Combined</b>	
<b>Base</b>	19.59	} 1.85 m	18.72	} 3.44 m	<b>48.18</b>	} <b>6.92 million lives saved due to primary care, air quality &amp; tobacco interventions</b>
<b>PC3</b>	17.74		18.34		45.94	
<b>PC3AirQ2</b>	17.11	} 0.63 m	18.22		45.19	
<b>PC3AirQ2Tob4</b>	16.62	} 0.49 m	14.78		<b>41.26</b>	
<b>All19</b>	16.06		14.42		40.34	

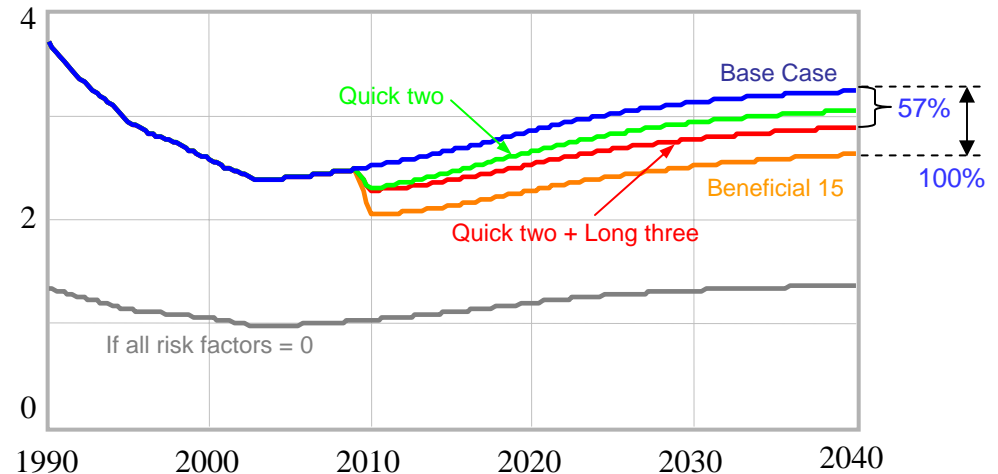
Over 30 years, the “Tob4” intervention cluster reduces CV deaths by 0.5m, and reduces other deaths (cancers & respiratory) by 3.4m, for a total reduction of 3.9m. Primary care reduces CV deaths by 1.8 m.

Note that the CV deaths are based on the Framingham methodology, whereas the smoking-related deaths from other complications are based on the SAMMEC methodology.

# Interventions for immediate and longer term effects

- Quick two interventions:
  - Increase Primary Care Quality from 54% to 75%
  - Cut Air Pollution by half
- Long three interventions:
  - Increase Social Marketing Against Tobacco from 0 to 100% of maximum.
  - Increase Tobacco Tax and Sales Restrictions from 50% to 100%
  - Increase Access to Physical Activity from 70% to 100%
- These five interventions provide:
  - ~ 77% of cost reduction achieved by 15 interventions, and
  - ~ 57% of mortality reduction

Deaths from CVD per 1000



Complication & Management Costs per Capita

