



# Assessment

## Module 4



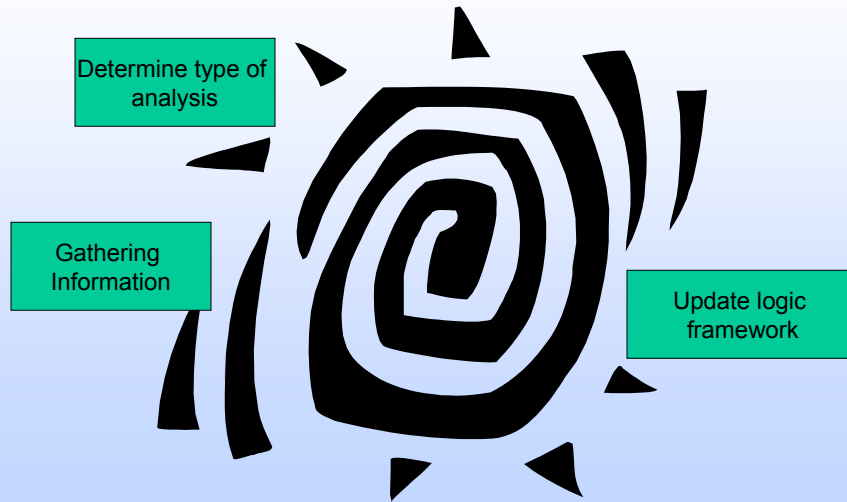
## Opportunities for Community Involvement

- Community stakeholders guide project team field visits
- Staff conducts interviews and focus groups with community members and engaged stakeholders
- Community stakeholders interpret and verify project staff research
- Staff and community conduct joint (participatory) research to answer HIA questions
- Staff includes community-led research in the appraisal



The Program on Health Equity and Sustainability at SFPDPH

## HIA is a Flexible Process



## Differences between Qualitative and Quantitative Assessment

- Qualitative – describes the direction and certainty but not magnitude of predicted results.
- Quantitative – describes the direction and magnitude of predicted results.

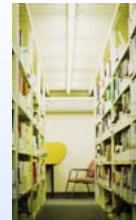


**“not everything that can be quantified is important.....and not everything that is important can be quantified”**

**-Mindell, et al. 2001  
(page 173)**

## **Steps in the Assessment Process**

- Determine what data are needed and what are available.
- Gather information using a variety of sources.
  - Previous HIAs on similar topics
  - Census data
  - BRFSS, NHANES
  - Grey literature and published literature
- Assess qualitative and quantitative evidence
- If possible, construct quantitative models and estimate potential health effects



## Qualitative Methods to Determine Health Impacts

- Assess evidence pertaining to each of the links in the causal chains leading the policy to the health outcomes
- If possible, use evidence from the literature to determine direction (positive, negative, neutral, or can't estimate effect) and certainty (speculative, probable, definite)



## Quantitative Methods to Determine Health Impacts

- Construct quantitative models and estimate potential health effects
- Perform sensitivity analysis (a.k.a. confidence intervals)
- List the assumptions and limitations

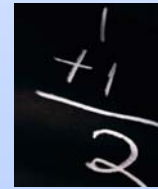


**Note:** Quantitative analysis may not be feasible due to data, time, or resource constraints



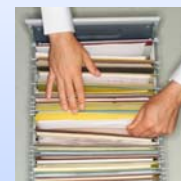
## Considerations

- When does the HIA need to be completed?
- How much staff time do you have and what are their qualifications?
- Will adding numbers have a greater impact on the decision that is made?



## More Considerations

- What is the availability and quality of the data for each health outcome?
- Will you need to make too many assumptions for quantitative analysis?
- Are baseline data available?
- Are there data linking the policy or project to the health outcomes?
- How many assumptions do you need to make for a quantitative analysis?



## Information Gathering

- Characterize the population in terms of size, density, distribution, age, sex, employment rates, SES and other demographic information
- Determine the health status of the population in terms of mortality, disability and morbidity data
- Identify health risk behaviors and locations where at-risk groups may be concentrated
- Determine the environmental conditions of the population
- Identify sources: Census, BRFSS, NHANES, local health department, hospital records, etc.

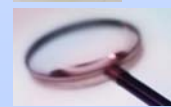


## How to Approach Assessment

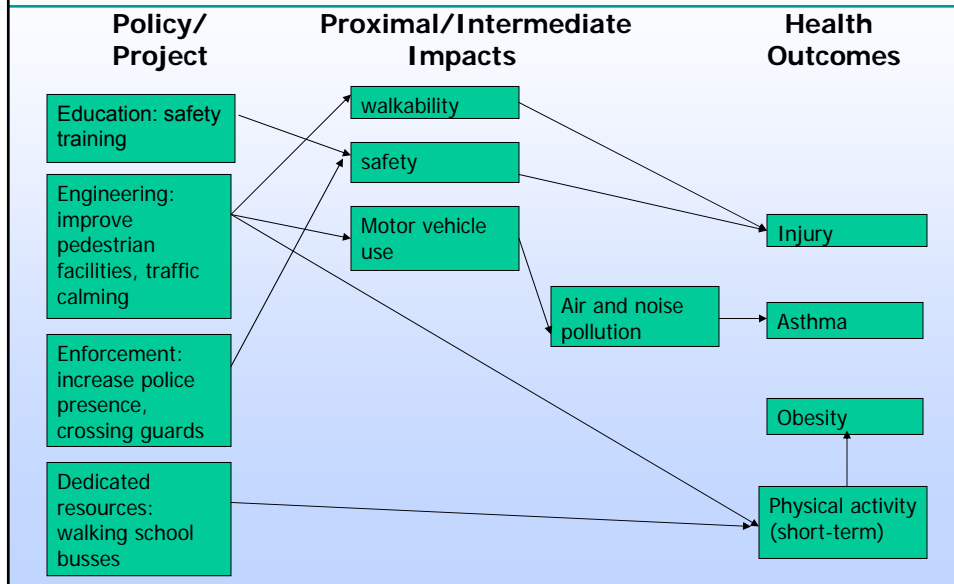
HIA may begin in different ways.

Possibilities include:

- Identify a policy or project component to focus on. From this, determine the impact of that policy and then the health related outcomes. For instance, the project component may be traffic calming; from this you determine the impact of the traffic calming and then the health-related outcomes.
- Identify the health outcomes first. For instance if there is a problem with air pollution or obesity, work back to identify policies or programs that impact air pollution or obesity.



# Walk to School Logic Framework

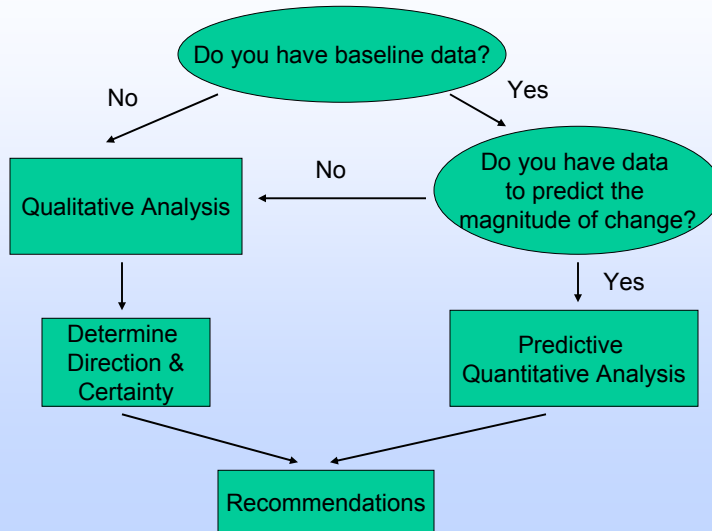


## Injury & Walking to School

- No student has been stuck by an automobile while walking or biking to school in the school district being examined
- No injuries were reported in first two years of the Marin County program
- Orange County program reported a decrease in injury rates



## What type of analysis should be conducted for injury?



## Traffic-related injury

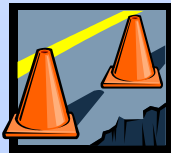
- Quantitative estimation was not feasible due to small number issues
- Direction: Decrease risk for each student
- Certainty: Probable





## Injury Recommendations

- Ensure continued police enforcement of speeding laws around schools
- Continue education and promotion for current and future students
- Have alternate parent available for walking school buses
- Monitor and identify any future barriers on walk to school routes (construction, etc.)

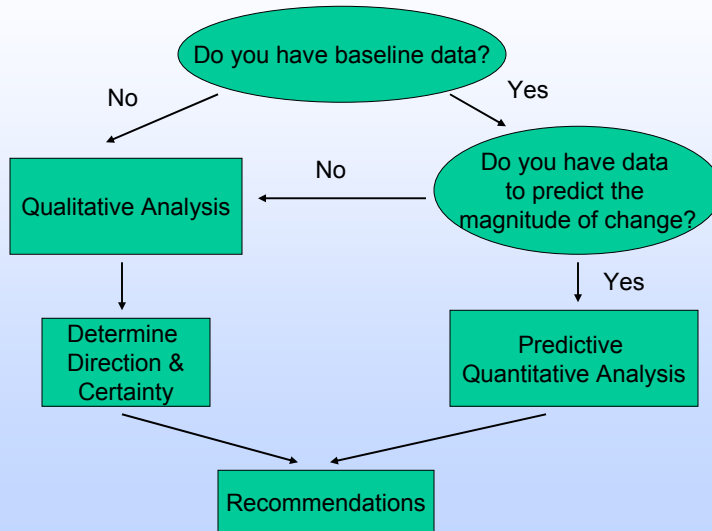


## Air Pollution & Walking to School

- The county has the 7th worst ozone pollution and the 8th worst short-term particulate pollution in the country
- Exposure to several pollutants are 50 to 400 times higher inside diesel school buses than outside



## What type of analysis should be conducted for air pollution?



## Air pollution: Expected Impacts

- Uncertainties
  - Diesel or gas buses
  - Inhalation rates
  - Duration of trip
  - Traffic density along walking routes
  - Time and season
- Direction: uncertain
- Certainty: speculative



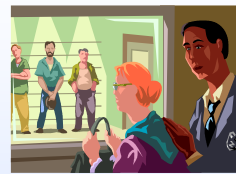
## Air Pollution Recommendations

- Have children walk on routes with less traffic
- Do not have children walk to school on high air pollution days
- Replace diesel buses
- Have children wait outside the school away from the pick up/drop off zone before school
- Do not allow cars or buses to idle

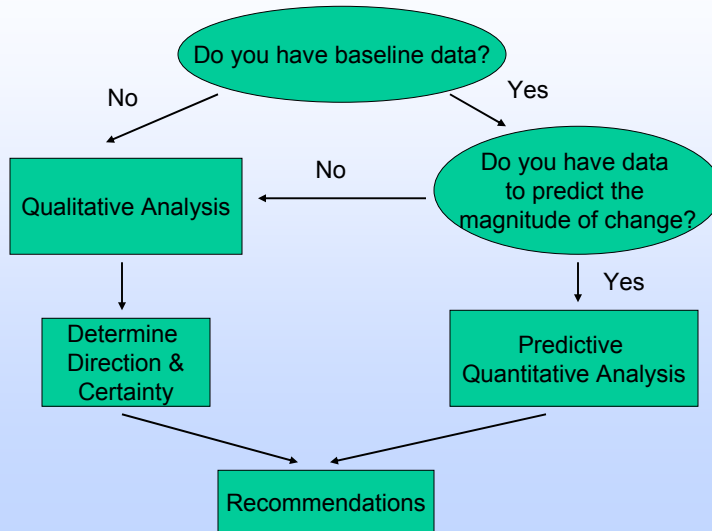


## Risk of Abduction & Walking to School

- The area is not a high crime area and no children have ever been abducted in this district
- Nationally, parents cite child safety, including “stranger abduction” as the leading reason they don’t want their children to walk to school
- Social capital is increased by having “eyes on the street”



## What type of analysis should be conducted for risk of abduction?



## Risk of Abduction & Walking to School

- Walk-to-school programs have the potential to increase neighborhood safety through increased civic participation, social capital, and parental involvement
- Direction: Decrease risk
- Certainty: Probable



## Recommendations for Risk of Abduction

- Increase presence of adults along walk to school routes (crossing guards, walking school buses)
- Educate students about how to respond to strangers
- Educate parents about the REAL risk of stranger danger and the REAL risk of childhood inactivity and unhealthy body weight

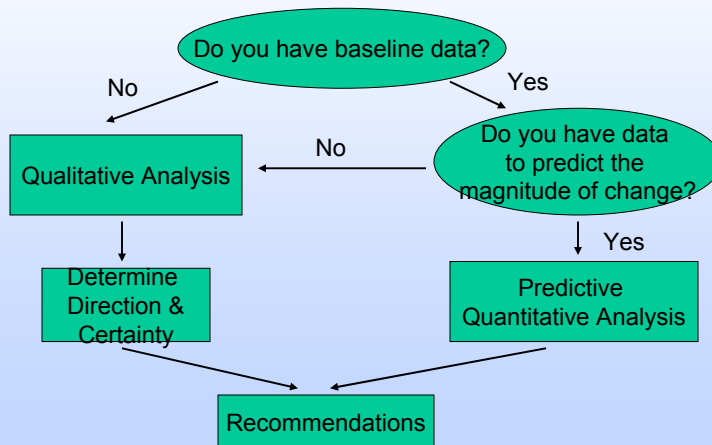


## Physical Activity and Obesity

- High rates of overweight and at risk for overweight (24 – 45% of students)
- Currently 24% of students walk to school
- Program includes 6,000 elementary and middle school students
- The average distance children walk to school is 0.6 miles
- A program in a nearby county resulted in a 64% increase in the percentage of kids walking to school

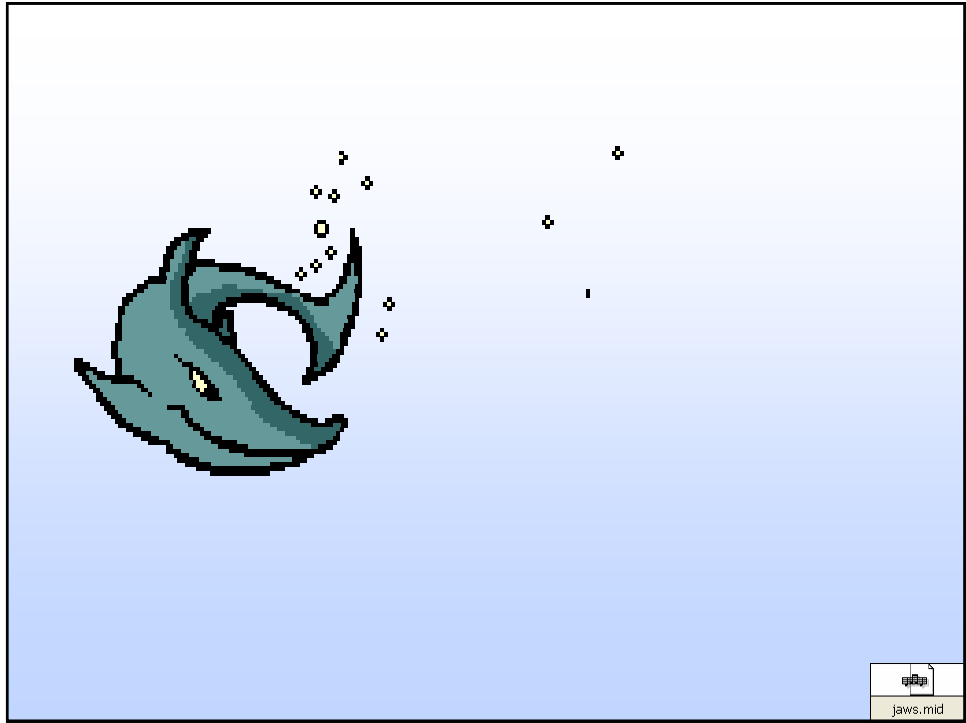


## What type of analysis should be conducted for physical activity and obesity?



**YOU HAVE ENOUGH DATA!**

**QUANTITATIVE ANALYSIS!**



## Risk Assessment — Baseline Data

**Enrollment in Natomas Unified schools** 6,000 *California Department of Education enrollment statistics for Natomas Unified School District 2003, k-8th grade*  
**% of total enrollment in elementary grades** 64.5% *(<http://data1.cde.ca.gov/dataquest/>)*

**TABLE 1-1: SEX DISTRIBUTION FOR EACH SCHOOL LEVEL (%)**

	Male		Female		total	
	%	n	%	n	%	n
Elementary	53.2%	2,060	46.8%	1,810	100.0%	3,870
Middle School	52.1%	1,110	47.9%	1,020	100.0%	2,130
Total	52.8%	3,170	47.2%	2,830		6,000

*California Department of Education enrollment statistics for Natomas Unified School District 2003, k-5th grade used for Elementary; 6-8th grade for Middle School (<http://data1.cde.ca.gov/dataquest/>)*

## Risk Assessment — Estimated Impact

**TABLE 1-3: WALK-TO-SCHOOL PROGRAM CHARACTERISTICS**

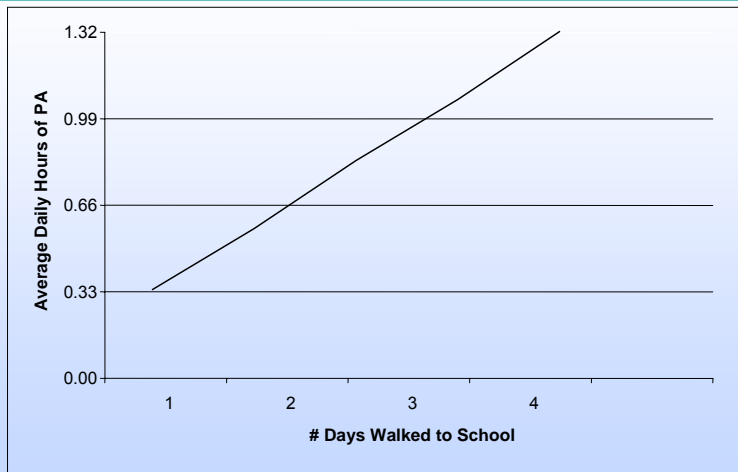
	Default	Theoretical Max.	Input
Avg walk distance to school (mi)	0.6	N/A	0.6
Assumed walking speed (mi/hr)	1.8	N/A	1.8
Avg # days walked to school among those who walk to school (days/week)	3	5	3
% of total who walk to school at baseline:			inputs below must be >0 & ≤ max. specified at left
Elementary	24%	90%	24%
Middle School	24%	90%	24%
% increase in # walkers due to intervention:			inputs below must be >0 & ≤ max. specified at left
Elementary	64%	317%	64%
Middle School	64%	317%	64%

## Risk Assessment — Expected Outcomes on Physical Activity

- 24% of students walk at baseline and with an expected 64% increase 39% of students are expected to walk after the intervention
  - $(.24) + (.24) (.64)$
  - $(.24) + (.15)$
  - .39
- With an average walking speed of 1.8 miles an hour and an average distance walked of 0.6 miles students are expected to walk for about 20 minutes
  - $0.6 \text{ miles} / (1.8 \text{ miles} / 1 \text{ hour}) = 0.33 \text{ hours}$
  - $0.33 \text{ hours} = 20 \text{ minutes}$



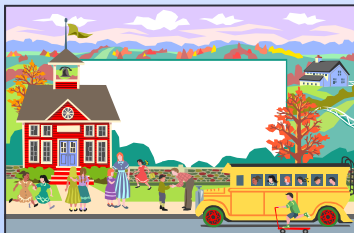
## Increase in Daily Hours of PA by Number of Days Walked to School



Number of days walked to school vs. average daily hours of physical activity among participants; Assuming 24% baseline walking, 0.6 miles one-way & 64% increase in walking due to intervention

## Assumptions for Kids Walk

- Walk to school programs in one school district will have same effect in another school district
- 1 year time horizon for effects
- Average distance walked to school is 0.6 miles (NHTS, 2001)
- Average walking speed is 1.8 miles/hour



## Recommendations for Physical Activity

- Walk to school programs only provide a part of the daily recommended physical activity for children (1 hour per day) so encourage children to be active after school, have enhanced PE classes daily at school and daily recess
- Children who are bused or driven need drop off zones so they at least get some physical activity



## Challenges to assessment

- Finding baseline data and an effect estimate
- Finding information for subpopulations
- Having personnel with the time and ability to conduct the analysis
- Dealing with uncertainties (data, models, policy)
- Working within a specific time frame
- Ensuring relevance to stakeholders and decision makers

TABLE ACTIVITY:  
**Assessment for Sunnyvale  
Highway**

