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 SFDPH
HIA is a Flexible Process

Determine type of analysis

Gathering Information

Update logic framework

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

<table>
<thead>
<tr>
<th>Policy/Project</th>
<th>Proximal/Intermediate Impacts</th>
<th>Health Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education: safety training</td>
<td>walkability</td>
<td>Injury</td>
</tr>
<tr>
<td>Engineering: improve pedestrian facilities, traffic calming</td>
<td>safety</td>
<td>Asthma</td>
</tr>
<tr>
<td>Enforcement: increase police presence, crossing guards</td>
<td>Motor vehicle use</td>
<td>Obesity</td>
</tr>
<tr>
<td>Dedicated resources: walking school busses</td>
<td>Air and noise pollution</td>
<td>Physical activity (short-term)</td>
</tr>
</tbody>
</table>

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?

<table>
<thead>
<tr>
<th>Do you have baseline data?</th>
<th>Qualitative Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>Determine Direction &amp; Certainty</td>
</tr>
<tr>
<td>Yes</td>
<td>Predictive Quantitative Analysis</td>
</tr>
<tr>
<td></td>
<td>Recommendations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you have data to predict the magnitude of change?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

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?

- Qualitative Analysis
- Do you have baseline data?
  - No
  - Do you have data to predict the magnitude of change?
    - No
      - Determine Direction & Certainty
    - Yes
      - Predictive Quantitative Analysis
- Yes

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?

Do you have baseline data?
- No
- Yes

If No:
- Qualitative Analysis
- Determine Direction & Certainty

If Yes:
- Do you have data to predict the magnitude of change?
  - No
  - Yes

If No to Predictive Quantitative Analysis:
- Recommendations

If Yes to Predictive Quantitative Analysis:
- Predictive Quantitative Analysis

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?

- **Qualitative Analysis**: Do you have baseline data?
  - No → Determine Direction & Certainty
  - Yes → Predictive Quantitative Analysis

Do you have data to predict the magnitude of change?

- No → Recommendations
- Yes → Predictive Quantitative Analysis

**YEAH! YOU HAVE ENOUGH DATA!**

**QUANTITATIVE ANALYSIS!**
Risk Assessment — Baseline Data

Enrollment in Natomas Unified schools
% of total enrollment in elementary grades

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

<table>
<thead>
<tr>
<th>School Level</th>
<th>Male %</th>
<th>Male n</th>
<th>Female %</th>
<th>Female n</th>
<th>Total %</th>
<th>Total n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary</td>
<td>53.2%</td>
<td>2,060</td>
<td>46.8%</td>
<td>1,810</td>
<td>100.0%</td>
<td>3,870</td>
</tr>
<tr>
<td>Middle School</td>
<td>52.1%</td>
<td>1,110</td>
<td>47.9%</td>
<td>1,020</td>
<td>100.0%</td>
<td>2,130</td>
</tr>
<tr>
<td>Total</td>
<td>52.8%</td>
<td>3,170</td>
<td>47.2%</td>
<td>2,830</td>
<td>100.0%</td>
<td>6,000</td>
</tr>
</tbody>
</table>

## Risk Assessment — Estimated Impact

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

<table>
<thead>
<tr>
<th></th>
<th>Default</th>
<th>Theoretical Max.</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg walk distance to school (mi)</td>
<td>0.6</td>
<td>N/A</td>
<td>0.6</td>
</tr>
<tr>
<td>Assumed walking speed (mi/hr)</td>
<td>1.8</td>
<td>N/A</td>
<td>1.8</td>
</tr>
<tr>
<td>Avg # days walked to school among those who walk to school (days/week)</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>% of total who walk to school at baseline:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>24%</td>
<td>90%</td>
<td>24%</td>
</tr>
<tr>
<td>Middle School</td>
<td>24%</td>
<td>90%</td>
<td>24%</td>
</tr>
<tr>
<td>% increase in # walkers due to intervention:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary</td>
<td>64%</td>
<td>317%</td>
<td>64%</td>
</tr>
<tr>
<td>Middle School</td>
<td>64%</td>
<td>317%</td>
<td>64%</td>
</tr>
</tbody>
</table>

Inputs below must be >0 & ≤ max. specified at left.

---

## 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
  - \(\frac{0.6 \text{ miles}}{1.8 \text{ miles} / \text{1 hour}} = 0.33 \text{ hours}\)
  - 0.33 hours = 20 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