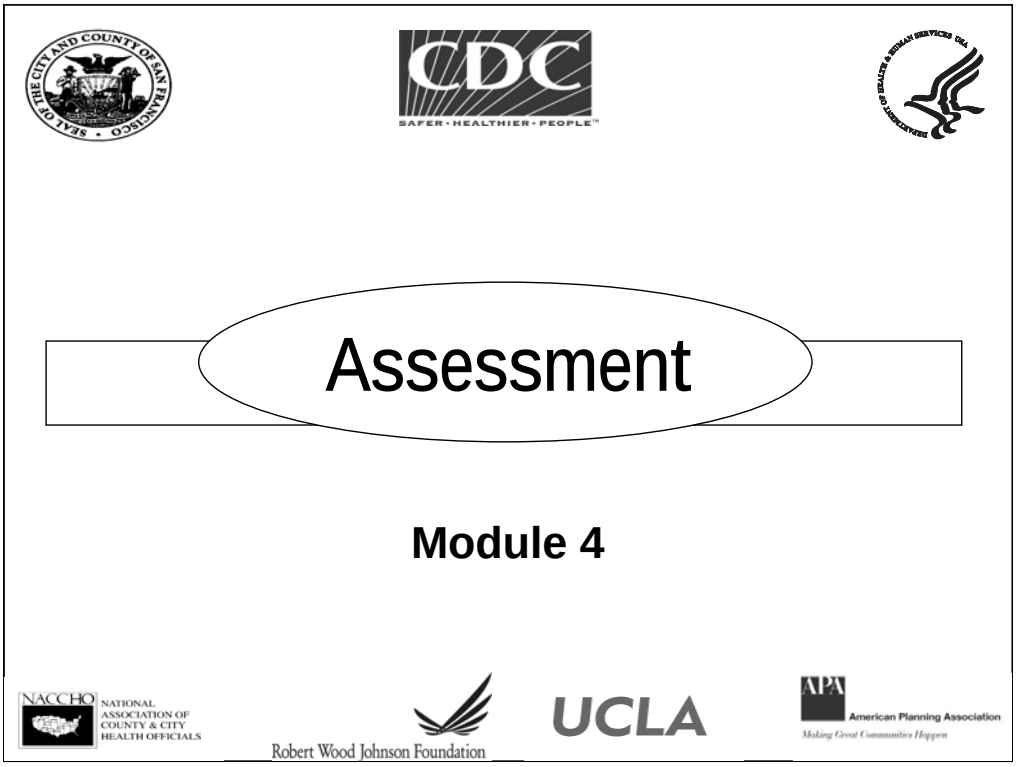


Welcome. This module focuses on the third step in the HIA process, assessment.

This is the topic that strikes fear in many of us. Take a deep breath and we'll walk you through the assessment process. There are a lot of people in the room who can help.

The **goal** of assessment is to:

•*Determine which impacts will be assessed by qualitative and quantitative analysis*

•*Use data and research to determine the direction and magnitude of potential health impacts*

•*Determine if there will be differential impacts on subgroups (health equity)*

The **objectives** for this assessment module include:

•*Describe ways to gather information.* Information gathering requires that you determine appropriate sources and combine and prioritize different levels of evidence.

•*Identify key informants or stakeholders who can provide local information that may not be available in the public domain.*

•*Describe the steps in assessment.*

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

Describe ways that the community can be involved in the HIA process.

Opportunities for community involvement include:

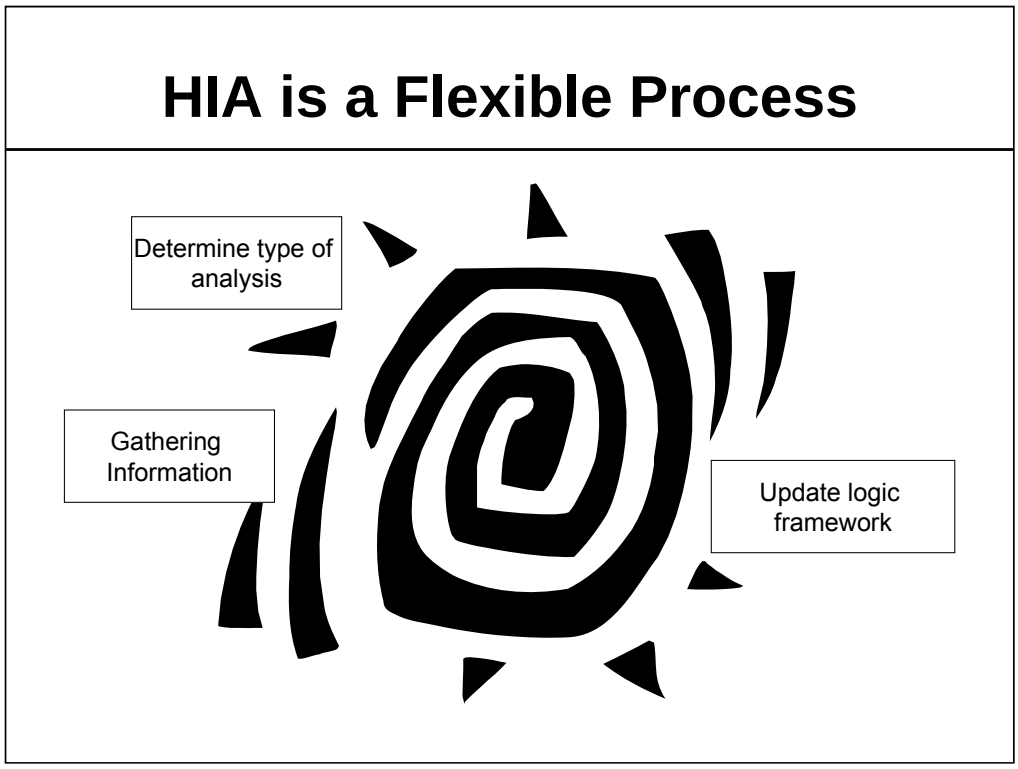
•*Community stakeholders guide project team field visits*

•*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*



Review the concept of HIA as a flexible or fluid process.

As we look at the steps involved in assessment, it's good to remember that HIA is a flexible process. We started gathering information during scoping, now we will also gather information during assessment. As you fine tune your HIA it becomes clear what questions you need to answer. You may even have to gather additional information or revise your logic framework so that it reflects your more finely honed quest.

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.



Differentiate between qualitative and quantitative assessment.

As you begin your assessment, one of the first questions is what kind of analysis will you conduct?

Qualitative assessment *predicts the direction and certainty but not the magnitude of predicted results.*

Quantitative assessment *describes the direction and magnitude of predicted results.*

Example:

For example in a qualitative assessment you will be able to say is. “If you build a sidewalk, people will walk more”. And in a quantitative analysis you would be able to say, “Build a sidewalk and 300 people who live within 200 yards of the location will walk an average of 15 extra minutes per day”.

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

-Mindell, et al. 2001 (page 173)

Share quote with participants.

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

This is an important point to keep in mind when choosing which type of analysis to conduct for your HIA. Quantitative and qualitative assessment are neither superior nor inferior to each other.

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

Review the steps in the assessment process.

As we review the steps in assessment, you see that many of these steps repeat themselves.

•*Determine what data are needed and what are available.*

•*Gather information using a variety of sources.* Sources may include*:*

- *Previous HIAs on similar topics*
- *Census data*
- *BRFSS, NHANES*
- *Grey literature and published literature*

•*Assess qualitative and quantitative evidence* pertaining to each of the links in the causal chains of the logic model that link the policy with health outcomes

•*If possible, construct quantitative models and estimate potential health effects*

Remember, you may have to revisit the literature as new evidence and sources come to light. Critical to this process is asking the right questions. Once you ask the questions you have to see if the data are available to answer the questions.

One question you will answer is whether the assessment is going to be qualitative or quantitative. If you choose quantitative models, use evidence from the literature to construct your models.

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)

Describe what to do when there are not enough data links.

•*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)*

In many cases the data are not sufficient to conduct quantitative assessment, thus you would use qualitative assessment. In qualitative assessment you only determine direction and certainty, not magnitude.

Level of certainty refers to how confident you are about your estimates. Depending on the data that are available your estimate of direction and certainty will come from the literature and expert opinion. Neither your direction estimate or certainty estimate will have numbers behind them.

REMEMBER, this is not inferior to quantitative assessment!

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*

Describe what to do when you do have sufficient data links.

Listed here are the methods for quantitative analysis. We will take a look at each of these steps and walk through a couple of examples as we continue through this module.

•*Construct quantitative models and estimate potential health effects*

•*Perform sensitivity analysis (a.k.a. confidence intervals).* These are quite similar to the certainty estimates of qualitative analysis.

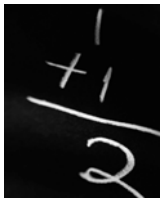
•*List the assumptions and limitations.* This is a important step of quantitative analysis. Listing ALL of your assumptions and any limitations of your analysis will help your stakeholders grasp the meaning and assess the credibility of your work.

Note: *Quantitative assessment 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?



Describe the considerations for conducting the assessment.

As you decide what type of analysis to conduct, be sure to weigh considerations such as:

•*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?

Describe additional considerations for conducting the assessment.

•*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?*

Remember:

- Shorter causal chains are better
- Often, you have to assume a causal link from cross-sectional data
- Be sure to specify all assumptions
- KISS (not the rock band) (Keep It Simple Stupid)

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.



Review types of information you can gather for an HIA.

Information gathering can:

•*Characterize the population in terms of size, density, distribution, age, sex, employment rates, socio-economic status (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.*

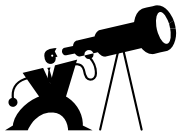
•*Identify sources such as, Census, BRFSS, NHANES, local health department, hospital records, etc.*

As we discussed earlier, in some cases the HIA may be part of an EIA. In this instance some of this data may be collected by the EIA but not all of it. EIAs typically do not collect data related to chronic disease prevention and other health outcomes such as mental health.

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.

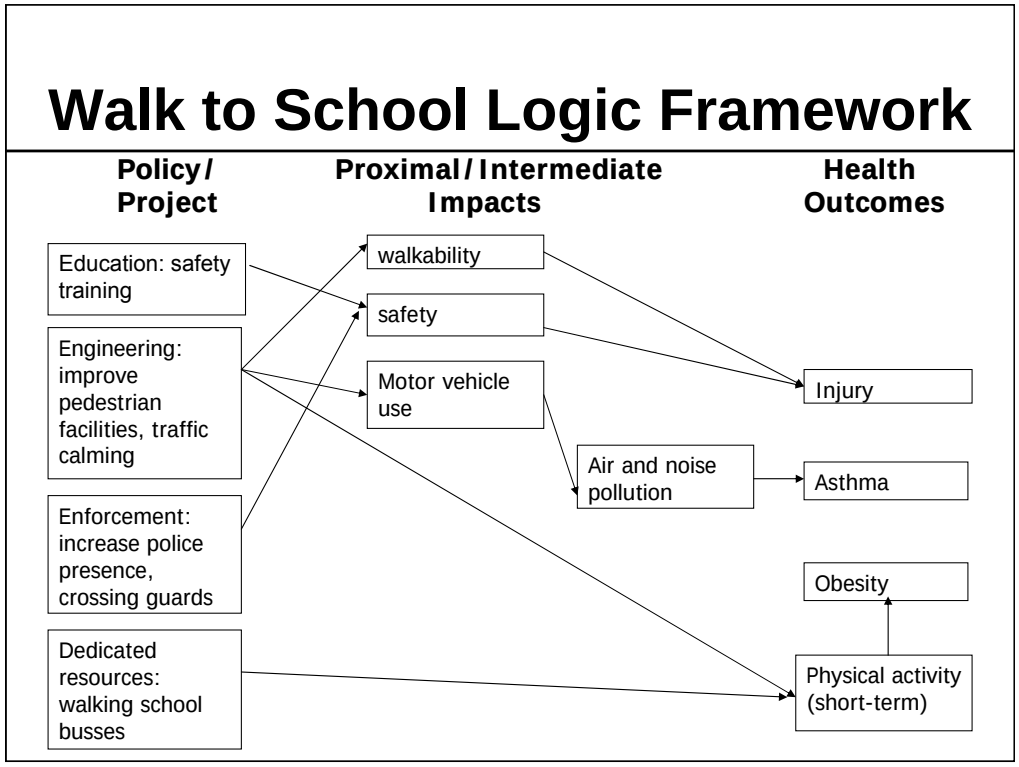



Prepare participants for the assessment by looking at impacts first and then health related outcomes OR health outcomes first and then impacts.

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.*

Now that you understand what to look for when gathering information and where to find the information, let's look at a logic framework for the Kids Walk HIA we constructed in the previous module. The logic framework should serve as a guide for your analysis. Remember, you may have to revise the model as you find more information or ask more detailed questions.



Review the completed logic framework.

Ask: Are there any questions about how the components, impacts and outcomes relate to each other?

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

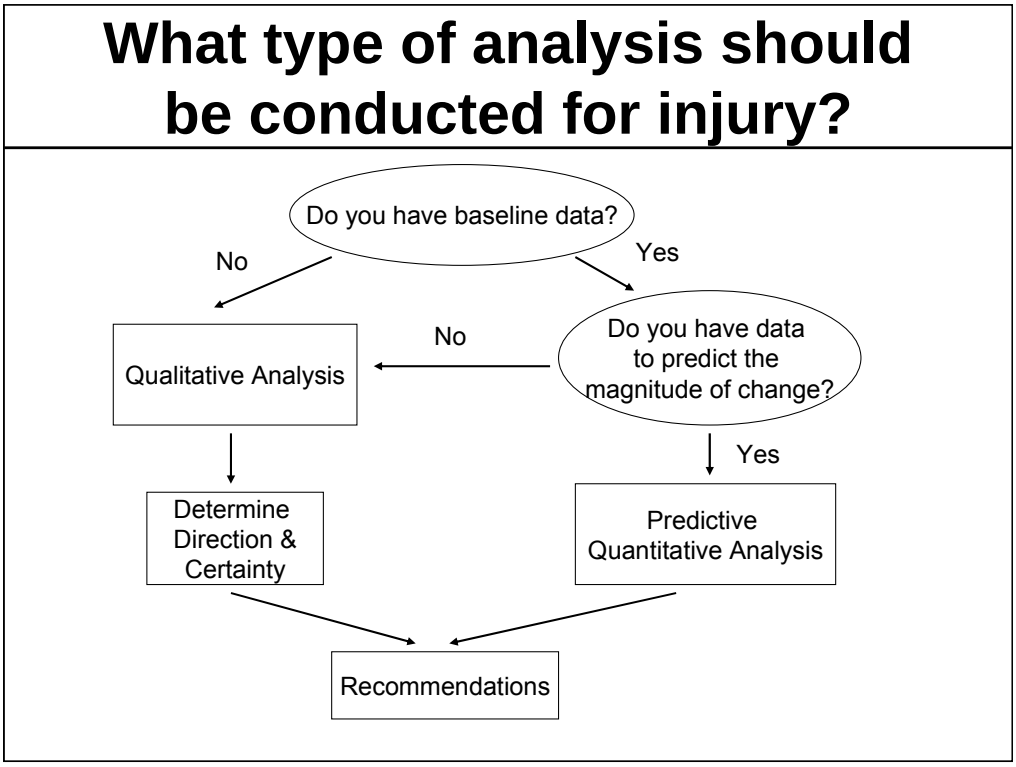
Review the background information on injury and walking to school.

Here is the background information on injury that was found during the information gathering process and includes talking to local walk to school coordinators.

•*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*



Determine whether you are going to conduct a qualitative or quantitative analysis for injury.

Ask: Are there baseline data to substantiate quantitative analysis?

Ask: Are there impact estimates that are good enough to predict changes in baseline levels?

Encourage discussion about this case study and the decision to conduct a qualitative or quantitative analysis.

Traffic-related injury

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

Review the information on traffic-related injury.

•*Quantitative estimation was not feasible due to small sample size*

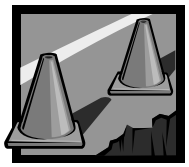
•*Direction: Decrease risk for each student*

•*Certainty: Probable*

Qualitative assessment was performed for injury. While there were baseline data (0 injuries) and there are data on injury reduction, it was not possible to perform quantitative assessment since the baseline level was zero. In other words, the event is so infrequent it makes modeling a waste of time. Having more children walking to school may increase the total number of accidents but there would be a large decrease in each child's risk of injury. The literature in this area shows that pedestrians are much safer walking in areas where there are a lot of other pedestrians.

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.)



Ask: What additional recommendations would you make to stakeholders in this situation?

•*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 such as construction.*

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

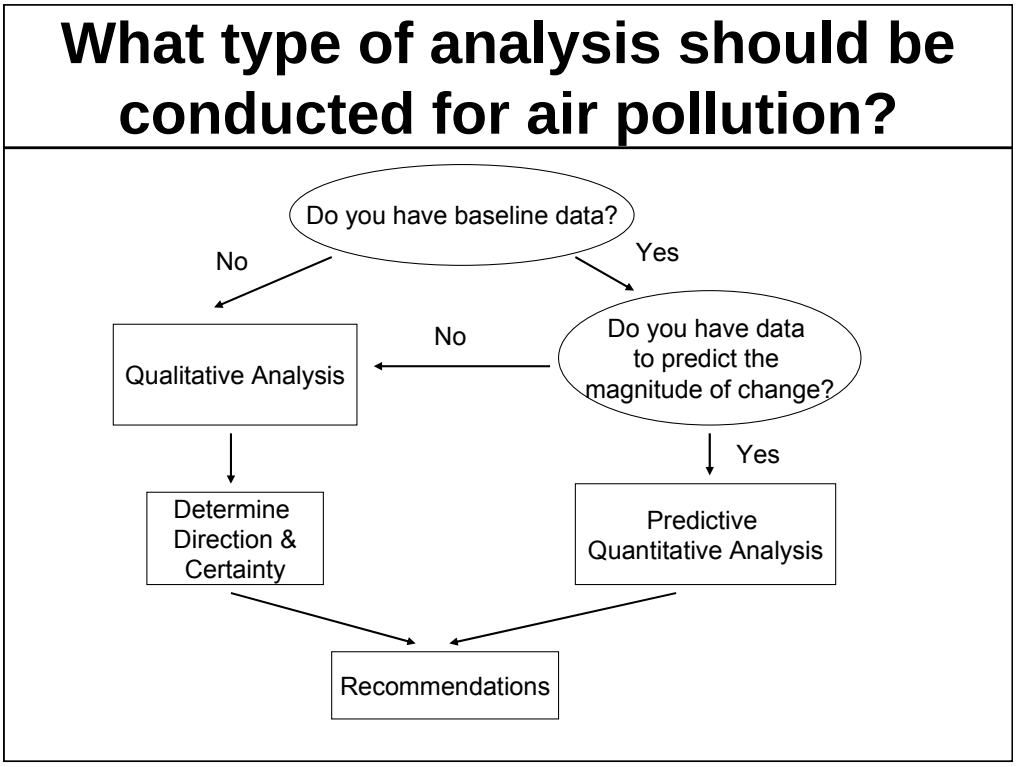


Describe the relation of air pollution and walking to school for the county.

Here are the data that was provided by local sources and peer reviewed literature.

•*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*



Determine whether to conduct a qualitative or quantitative assessment for air pollution.

Ask: Are there baseline data to substantiate quantitative assessment?

Are there impact estimates that are good enough to predict changes in baseline levels?

Encourage discussion about this case study and the decision to conduct a qualitative or quantitative assessment.

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

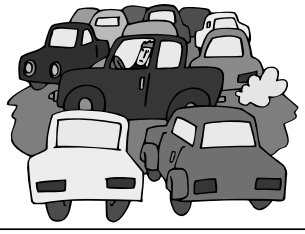
Discuss the expected impacts of air pollution.

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

While there are good baseline level data on air pollution there are too many uncertainties with respect to the effect estimate. For instance, no data were available on the number of diesel versus gasoline buses, how children's inhalation rates would affect exposure, the length of time children spend in cars or in buses, the amount of traffic along children's walking routes, and it would be difficult to control for time of day and season in the analysis. Thus, too many assumptions would need to be made so the data were examined qualitatively. Since the time children spend walking to school represents such a small part of the day and the total air they breathe the program was not expected to have a large impact (magnitude) on their exposure. Due to lack of available data it wasn't possible to determine a direction and since the team wasn't confident about the data it was given a certainty rating of 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



Ask: What additional recommendations would you make to stakeholders in this situation?

•*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”

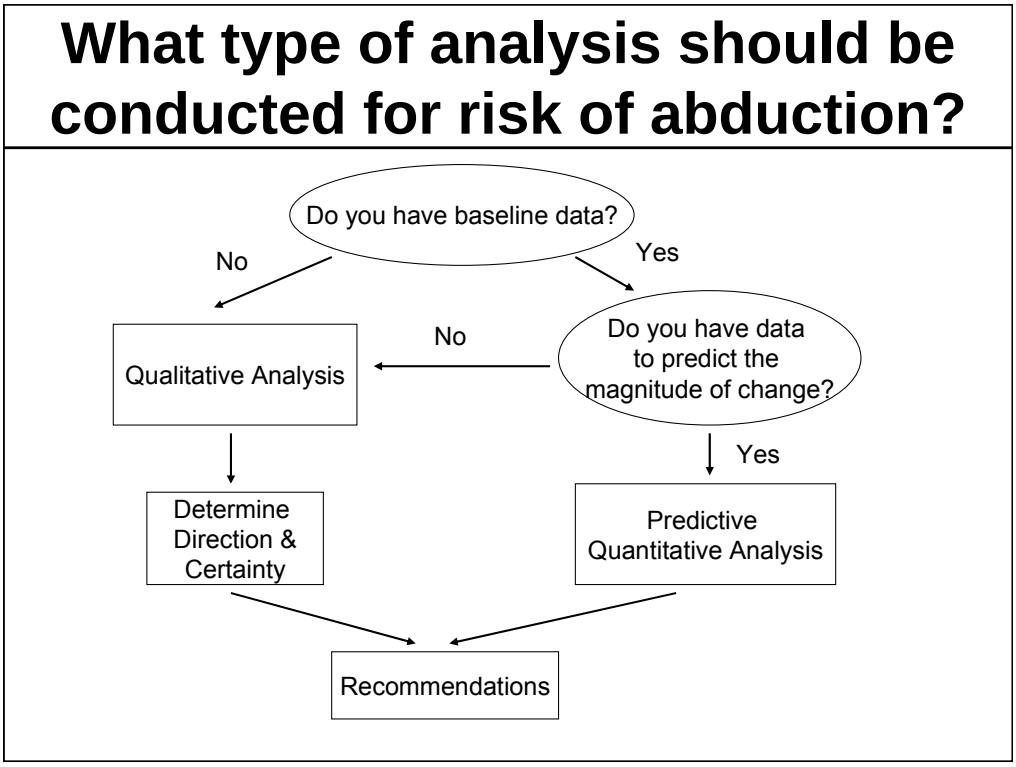
Determine whether to conduct a qualitative or quantitative assessment for the risk of abduction.

Here is the information that was gathered while talking with local officials.

•*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”*



Determine whether to conduct a qualitative or quantitative assessment for risk of abduction.

Ask: Are there baseline data to substantiate quantitative assessment?

Are there impact estimates that are good enough to predict changes in baseline levels?

Encourage discussion about this case study and the decision to conduct a qualitative or quantitative assessment.

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



Describe why a qualitative analysis is more appropriate in this situation.

- *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*

It was not possible to perform a quantitative analysis since the baseline level was zero, which was the same issue that was found with the injury analysis. However, having more adults and children walking to school is likely to decrease fear of stranger danger and actual risk of abduction. This result is 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

Ask: What additional recommendations would you make to stakeholders in this situation?

•*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

Review the data regarding physical activity and obesity.

Here is the information that was found during information gathering and talking with the local safe routes to school coordinator.

•*High rates of overweight and at risk for overweight (24 – 45% of students)*

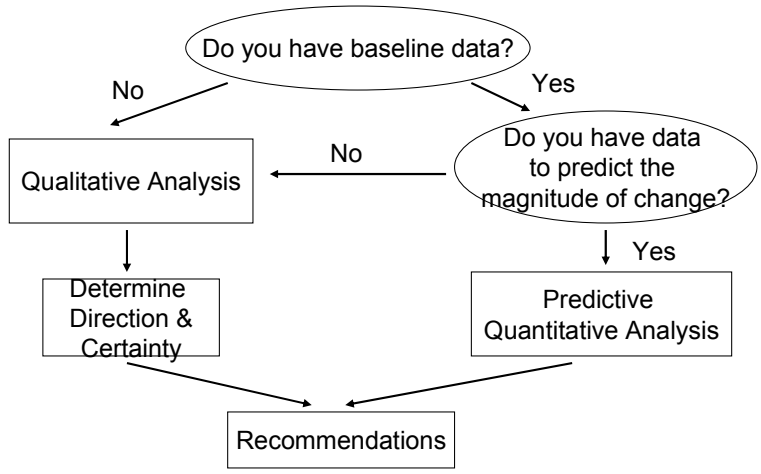
•*Currently 24% of students walk to school*

•*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?



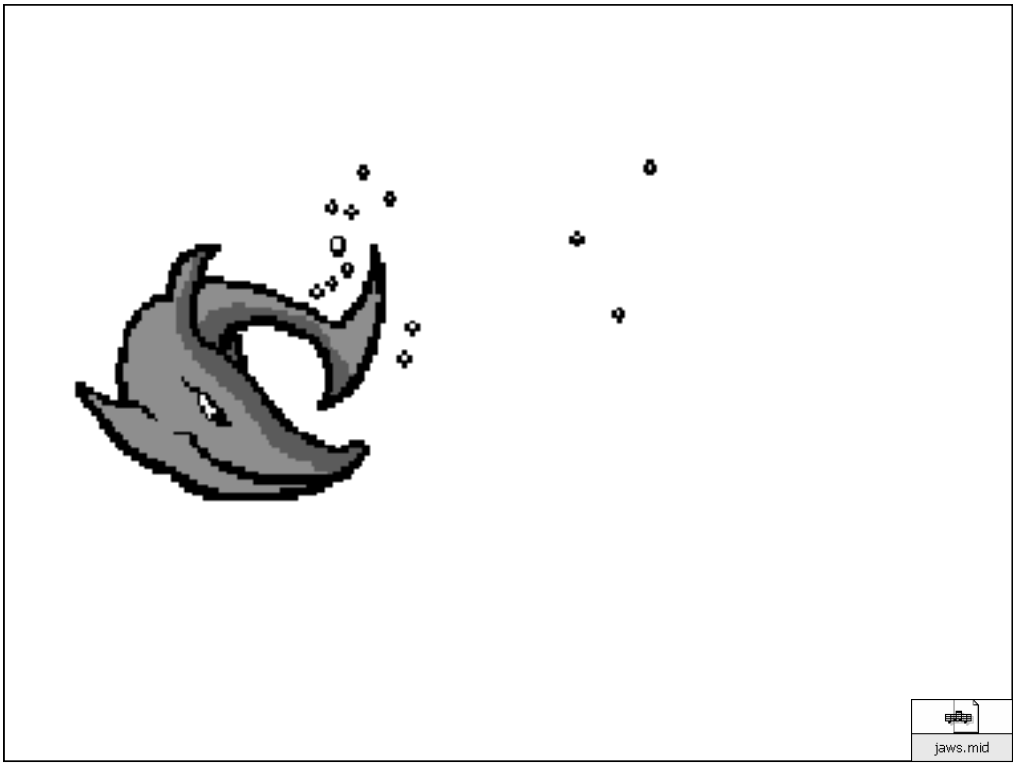
Determine whether to conduct a qualitative or quantitative analysis for physical activity and obesity.

Ask: Are there baseline data to substantiate quantitative assessment?

Are there impact estimates that are good enough to predict changes in baseline levels?

Encourage discussion about this case study and the decision to conduct a qualitative or quantitative assessment.

You CAN conduct a quantitative analysis! You have enough data.



Start sound (click on file in the bottom right hand corner)

Don't worry, this really should be rather painless. All of the analysis were originally done in Excel, however, we're going to take a more "back of the envelope" approach and just use our brains. The original excel files are available by request to Brian Cole at UCLA. The Excel files are flexible and can be used by other people since they can enter their local information and then get the outputs without having to do any assessment at all! In the next couple of slides we're going to walk you through the process of quantitative assessment. For those of you who are strong at heart, you can try to do the analysis yourself with the information presented in your manual. It includes all of the baseline and effect estimates that you'll need. Anyone who isn't in the mood to think about numbers yet can just write down a number on a piece of paper that you think represents the average number of minutes children spend walking to school.

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 (http://data1.cde.ca.gov/dataquest/)*			
% of total enrollment in elementary grades		64.5%				
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/)

Review the baseline data.

The table provides information on the number of children enrolled in the district (6,000), the number of children who are in elementary school (64.5%), and the percentage of males versus females. The blue boxes represent fields where people can enter local data.

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%

Review the estimated impact.

According to the National Household Transportation Survey, children walk on average 0.6 miles to school. The HIA team assumed that this was the best estimate to use for this analysis since local data were not available and the team didn't have the resources to collect local data. The walking speed came from the peer reviewed literature. The team assumed that most children would walk to school on average 3 days a week, this assumption was later examined using sensitivity analysis. The percent of children who walked to school at baseline was provided by the local walk to school coordinator. Finally, the effect estimate, a 64% increase in the percentage of children walking to school, came from the peer reviewed literature.

Risk Assessment — Expected Outcomes on Physical Activity

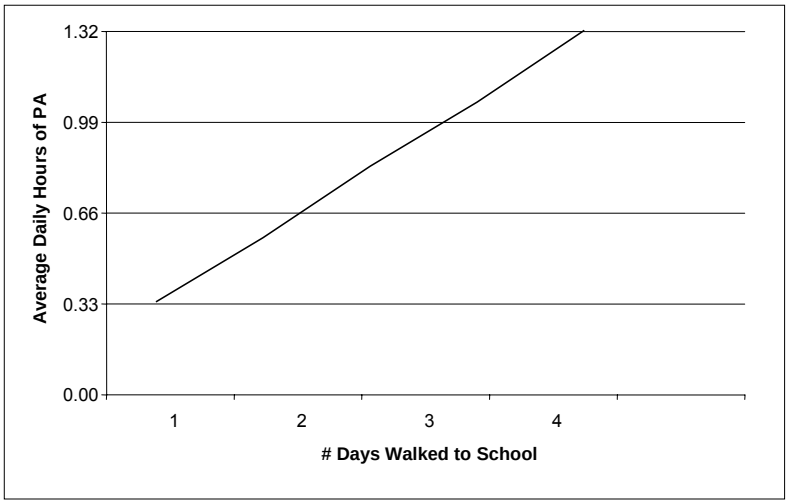
- 24% of students walk at baseline and with an expected 64% increase 39% of students are expected to walk after the intervention
  - (.24) + (.24) (.64)
  - (.24) + (.15)
  - .39
- With an average walking speed of 1.8 miles an hour and an average distance walked of 0.6 miles students are expected to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

Review the expected outcomes on physical activity.

To determine the increase in the percentage of children walking to school the team took the baseline levels of walking, 24%, and multiplied it by the expected increase of 64% (this equals 15%). This increase is then added to the baseline levels of walking (24%) to determine the number of children expected to walk to school after the intervention (39%).

To determine the additional time children spend walking to school the team took the average distance children walk to school (.6 miles) and divided it by 1.8 miles to calculate the time they spent walking .6 miles. The time was 0.33 hours. This was then turned into minutes by multiplying 60 minutes (1hour) by 0.33 hours (1/3 of an hour) to determine that children were walking an additional 20 minutes one way to school.

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

Review this example of a sensitivity analysis.

This is an example of a sensitivity analysis. The purpose of doing this type of analysis is to test the assumptions you made in the quantitative modeling. In this example the HIA team tested the assumption about the number of days the children walked to school and the increase in total physical activity the children were getting per day. As you can see there is a direct linear relationship between the number of days walked to school and the amount of physical activity that they get.

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

Define the assumptions for the Kids Walk.

Whenever you perform quantitative analysis it's important to list all of your assumptions so that other people can judge the quality of your work. Here are some of the assumptions that were made for quantifying physical activity for this HIA.

- *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

Ask: Are there additional recommendations would you make to stakeholders in this situation?

•*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

Wrap up the module with the challenges that participants may encounter when conduct assessment.

There are challenges to conducting an analysis, including:

•*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 such as data, models, and policy.*
•*Working within a specific time frame*
•*Ensuring relevance to stakeholders and decision makers*

TABLE ACTIVITY:
Assessment for Sunnyvale Highway

Introduce activity

Materials:

'Case Study' tab of manual

State the purpose:

We're going to return to the case study you've been working on.

We've reviewed how to conduct a assessment. Now we'd like you to conduct one for Sunnyvale Highway.

INSTRUCT: Working with your assessment, complete the exercises for the assessment your case study. You can either work on the qualitative or quantitative section of the case study.

Allow 30 minutes for teams to complete analysis.

Direct participants:

Go around the table and have each team share the results of their assessment.

Back in the large group ask each table:

How were your assessment different and how are they similar?

NOTE responses on flip chart. Post results