



Health Impact Assessment: A Step Towards Health in All Policies

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A Vision For Healthy Public Policy

- The public and decision-makers aware of the health impacts of all public decisions
- A public health community engaged in policy-making
- A public policy agenda for the needs of human health
- Health objectives and indicators incorporated into institutional missions, goals, and policies
- Health protective regulations and standards





Why judge health impacts of policies?

- Ensure policy-makers understand and are accountable for health consequences
- Improve policy design and implementation
- Improve public understanding of the production of health / disease
- Shape health and public policy agendas



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Policy decisions have historically been blind to health impacts

- Numerous public policies have promoted sprawl
- Greenfield development promised healthy communities!
- What did we miss?
 - Environmental consequences
 - Urban disinvestment and blight
 - Health impacts
 - Inequities





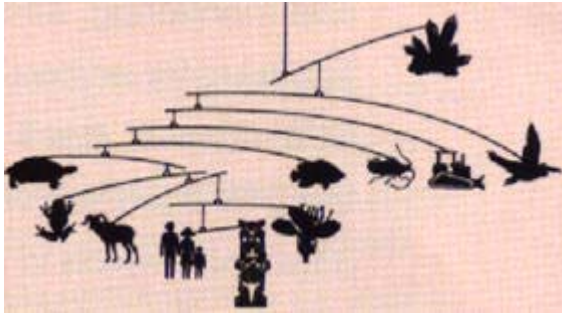
Health Impact Assessment: IAIA Definition

...a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, program or project on the health of a population and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects.

--Adapted by the International Association of Impact Assessment from World Health Organization 1999

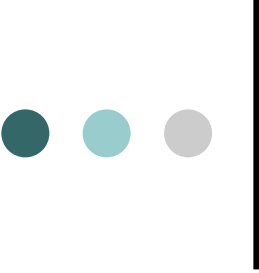


HIA Key Characteristics



- Systematic and transparent process
- Judgments on beneficial and harmful impacts
- Holistic definition of health—determinants, behaviors, diseases
- Multiple ‘exposure’ pathways
- Uses the best available evidence and theory
- Engagement with the decision-making process and with policy stakeholders



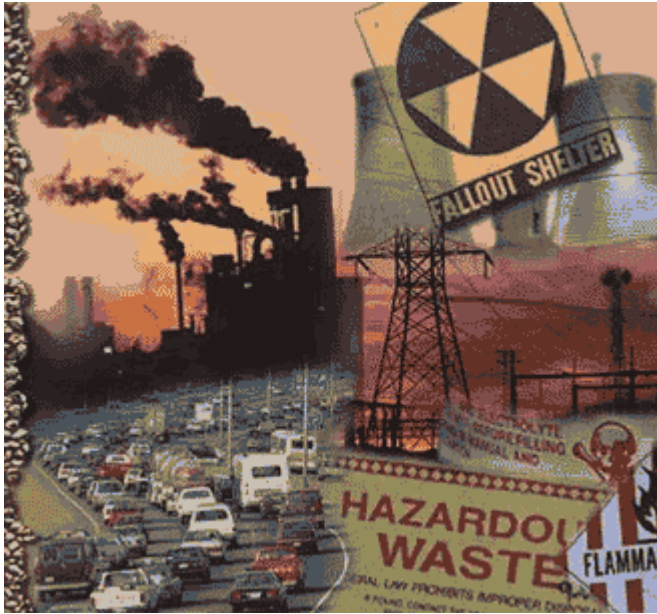


HIA is one tool in the spectrum of actions for healthy public policy:

1. Assess health status and health needs and threats
2. Design, implement, and/ or enforce health-protective laws & regulations
3. *Provide judgments on the health impacts of public policies, plans, and projects*
4. Monitor and manage the health consequences of societal actions



Existing laws and policies already *require* health effects analysis in many cases



- The National Environmental Health Policy Act (NEPA) requires analysis of significant health effects of federal agency actions
- National and State Environmental Justice Policy mandates agencies to identify and address adverse environmental and health effects on low income and minority populations
- Federal rules require cost-benefit analysis of environmental quality regulations



Triggers for HIA in the US

- Initiated by public health practitioner, policy advocate, affected stakeholders, responsible public agency, or policy-maker
- Required by project specific legislation
- Conducted to comply with EIA regulation
- Conducted under HIA regulation or law



Examples of HIA in the US

Sector	Examples
Transportation	Highway construction; Speed Limits
Land Use	Housing redevelopment; community plans
Employment	Minimum wage laws, paid sick days laws
Food	Menu Labeling, Farm Bill
Natural Resources	Oil Lease Sales; Mining
Tax Policies	Carbon Tax



Observed Impacts of HIA in the US

- Changes public understanding of the causes of poor / good health
- Development of policy agendas
- Composition of policy coalitions
- Changes to policy design
- Integration of health in cross-sector activities
- Compliance with EIA mandates for health analysis



Steps in the HIA Process

Screening	Determine the the value and feasibility of a HIA
Scoping	Determine which health impacts to evaluate, the methods for analysis, population affected, temporal and geographic boundries
Assessment	Assess baseline conditions; judge the magnitude and direction of potential health impacts; evaluate management strategies
Reporting	Communicate HIA results to stakeholders and decision-makers
Monitoring	Track the effects of decision adoption and implementation on health determinants and health outcomes





Questions and Criteria for Screening

- ***Value of HIA*** Are there potentially significant health effects associated with the decision alternatives? Could these impacts create or exacerbate inequities? Are impacts already known? Are impacts uncertain or controversial?
- ***Feasibility and capacity to do HIA*** Are there data and methods available to assess potential impacts? Is there leadership, resources and technical capacity to conduct analyses?
- ***Receptiveness of the decision-making process*** Is the decision-making process open to new information? Does policy or legal requirements mandate the conduct of a health analysis?



Decision Scenario: Freight Movement



Decision Scenario:

City L is considering three alternatives to increase the freight movement capacity out of its port. Alternatives, which would be fully funded by container fees, include additional highway traffic lanes, a new parallel roadway exclusively for freight traffic, or a electrified rail-based container conveyance to a rural distribution center.



Decision Scenario: Fossil Fuel Tax



Decision Scenario:

State W is considering a tax on the sale of all fossil fuels (at \$50 per ton of carbon). 50% of the proceeds would subsidize new public and private sector renewable energy generation projects and 50% would be used for new investments in K-12 education.





Setting the scope of the HIA means determining:

- Which specific decision alternatives will be considered?
- What are the potential impacts on health needing analysis?
- What are the geographical and temporal boundaries for impact analysis?
- Which populations and subpopulations will be considered? Are there sensitive or socially excluded subpopulations that are vulnerable to disproportionate impacts?
- Who will conduct the analysis (if not already determined)? Under what oversight?
- What data, methods, and tools will be employed to evaluate impacts? Which experts and key informants will be engaged?
- What is the plan for public review of the HIA?
- What is the timeframe for the assessment?





HIA: A Collaborative Process



Why engage others in the HIA process?

- Broad range of people affected
- Stakeholders bring questions, knowledge, resources
- Consensus building through HIA can serve policy buy-in



Assessment: Three products

- A **profile of baseline conditions** including baseline health status and factors known or suspected to influence health.
- A **judgment on potential health impacts** including an evaluation of their certainty and significance.
- Evaluation of **management strategies** for any identified adverse health impacts – in the form of decision alternatives, policy design changes, mitigation of specific impacts, or other related policy recommendations.





Types of Evidence for HIA

- **Existing Data**
 - Empirical literature
 - Community expertise
 - Available collected social, economic, environmental and health measures
 - Regulatory standards and benchmarks
- **New data**
 - Environmental measures
 - Modeling
 - Surveys
 - Quantitative risk assessments
 - Epidemiological studies



Making predictive judgments from empirical literature requires evaluation of internal and external validity

- *Is empirical literature adequate to make valid conclusions about cause and effect?*
- *Can you generalize all or part of the empirical findings to your particular decision context?*
- *Can you apply observed relationships to predictive judgments?*
- *Will secular trends or anticipated changes affect future outcomes?*



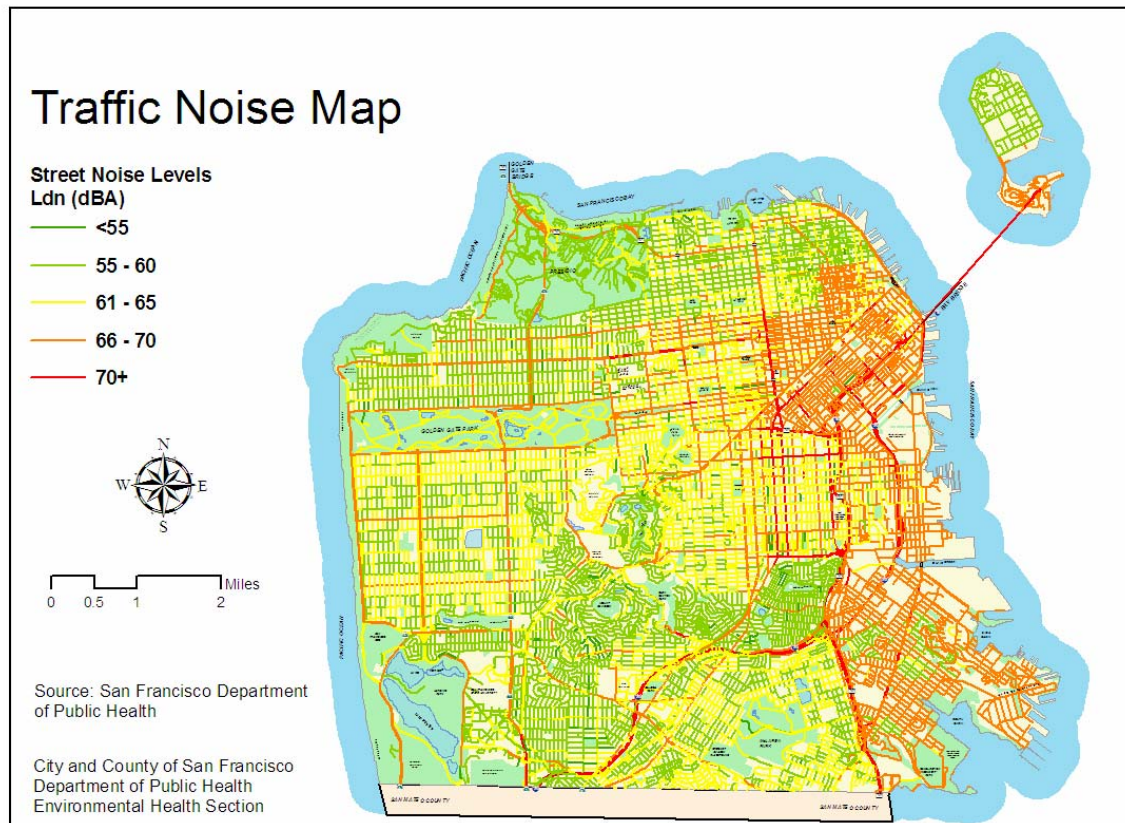
Limitations of Empirical Evidence: LA Menu Labeling HIA



- Assumed patron behavior based on single study from New York City
- Assumed information responsive patrons same as those susceptible to weight gain
- Assumed meal calorie reduction equivalent to change in daily energy balance



Spatial assessments of environmental conditions can illustrate hot spots, cumulative impacts, and inequities.





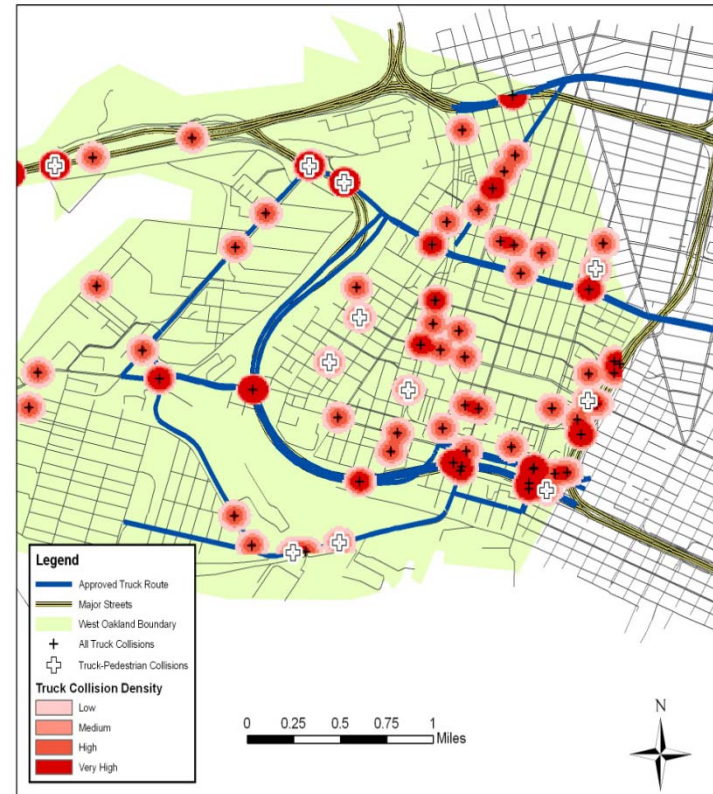
Measuring Spatial Variation in Air Pollution Exposure Using Short Term Sampling

Eastern Waterfront
San Francisco

Blue Greenway Bike Tour Air Samples



Freight Routes and Truck-related Collisions in West Oakland





Focus Groups can provide local evidence of impacts: Displacement & Trinity Plaza Residents

- [I] don't feel as I'm disturbing my neighbors when I ask for help when my sick husband has fallen and I cannot pick him up.... I know there is help around...*
- I feel I had finally got the opportunity to settle down and be able to enjoy life at the age of 64, but now I have to worry, as I wonder where I'm going to move to when there is a lack of comparable rent in San Francisco.*
- We are fearful, feelings are hurt, and [we're having] difficulty speaking about displacement, stressed, sleeplessness, anxiety, and the issue has been constantly going on.*




Locally-derived benchmarks can simplify analysis: SF Healthy Development Measurement Tool (HDMT)

- 1) Framework of Community health objectives
- 2) Community-level Health Indicators
- 3) Policy and Design Strategies
- 4) Development Targets
- 5) Public Health Evidence

Healthy Development Measurement Tool

A comprehensive evaluation metric to consider health needs in urban development

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The Tool
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About ...




Recent News

2008-05-27 HDMT Website and Data Revision Complete
 We recently completed an extensive update to HDMT website content, including to indicators and data, development targets and checklist, and neighborhood profiles. In addition, we added a "Tool Instructions" section to the website to better explain how the HDMT can be applied. Thank you for your patience as we completed this update.

2008-05-27 Draft Evaluation of Eastern Neighborhoods Area Plans Released
 The public draft of our evaluation of the Eastern Neighborhood Area Plans using the HDMT is now available. [Click here](#) to download the report "[Impacts on Community Health of Area Plans for the Mission, East SoMa, and Potrero Hill / Showplace Square: An Application of the Healthy Development Measurement Tool](#)".

For additional HDMT updates and changes, please visit [News Archives/Corrections and Errors](#).



Get Started...	The Tool	Who We Are
<ul style="list-style-type: none"> Begin with an introduction or download a helpful presentation (PDF). Use the Tool. Look at community indicators. Check out SF neighborhood data. Access Tool resources. 	<p>The Healthy Development Measurement Tool is a comprehensive evaluation metric to consider health needs in urban development plans and projects.</p> <p>The HDMT explicitly connects public health to urban development planning in efforts to achieve a higher quality social and physical environment that advances health.</p>	<p>We're committed to assessing urban environmental conditions and responding to health inequities and environmental policy gaps using health impact assessment methods. We're the San Francisco Department of Public Health, Program on Health, Equity and Sustainability.</p> <p>Be sure to contact us with any questions or comments.</p>





Quantitative forecasting is possible but should be carefully considered

- Is there a clear causal relationship?
- Does dose-response data allow for quantitative predictions?
- Is there available time and resources?
- Would quantification support the needs of the decision-making process?



Quantitative Impact Analysis of the Living Wage: Data Requirements

- The baseline income of the population targeted by the living wage
- The estimated income gains of workers benefiting from the new wage
- A dose response function between income and health outcomes



Estimated Health Effects of the Living Wage For Workers with \$20,000 Family Incomes

Study/Outcome	Model	Effect Measure	Full Time Workers	Part Time Workers
Backlund, 1996				
Mortality-Male	Proportional Hazards	Hazard Ratio	0.94 (0.92-0.97)	0.97 (0.96-0.98)
Mortality-Female	Proportional Hazards	Hazard Ratio	0.96 (0.95-0.98)	0.98 (0.97-0.99)
Ettner, 1996				
Health Status	Ordered Probit	Relative Risk	0.94 (0.93-0.96)	0.97 (0.96-0.98)
ADL Limitations	Probit	Relative Risk	0.96 (0.95-0.98)	0.98 (0.97-0.99)
Work Limitations	Probit	Relative Risk	0.94 (0.92-0.96)	0.97 (0.95-0.98)
CES—Depression Scale	Two Part	Elasticity	1.9%	1.1%
Number of Sick Days	Two Part	Elasticity	5.8%	3.2%
Alcohol Consumption	Two Part	Elasticity	+2.4%	+1.3%
Duncan, 1998				
Completed Schooling	OLS Regression	Years of Schooling	0.25 (0.20-0.30)	0.15 (0.12-0.17)
H.S. Completion	Logistic Regression	Odds Ratio	1.34 (1.20-1.49)	1.18 (1.11-1.26)
Non-Marital Birth	Proportional Hazards	Hazard Ratio	0.78 (0.69-0.86)	0.86 (0.81-0.92)



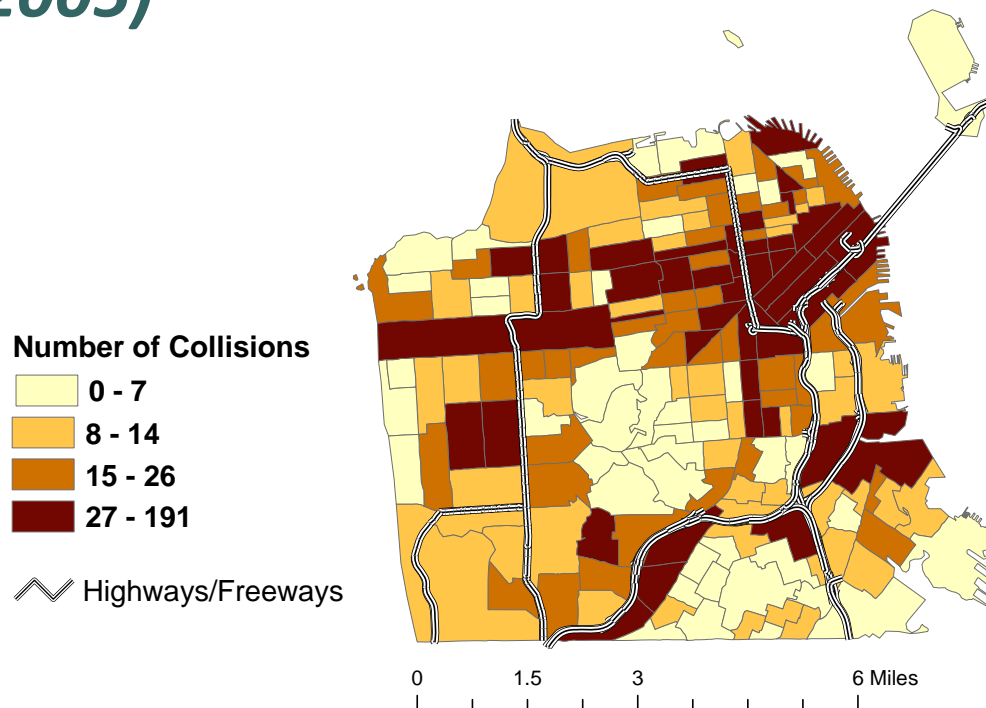


Original Epidemiological Investigations and HIA

- Time consuming and resource prohibitive
- Most feasible with existing data sets or environmental data
- Sometimes the only way to gather needed information
- Can be suggested as HIA monitoring activities



Vehicle-pedestrian injury collisions: San Francisco, California census tracts (2001–2005)



Source: California Highway Patrol, Statewide Integrated Traffic Records System

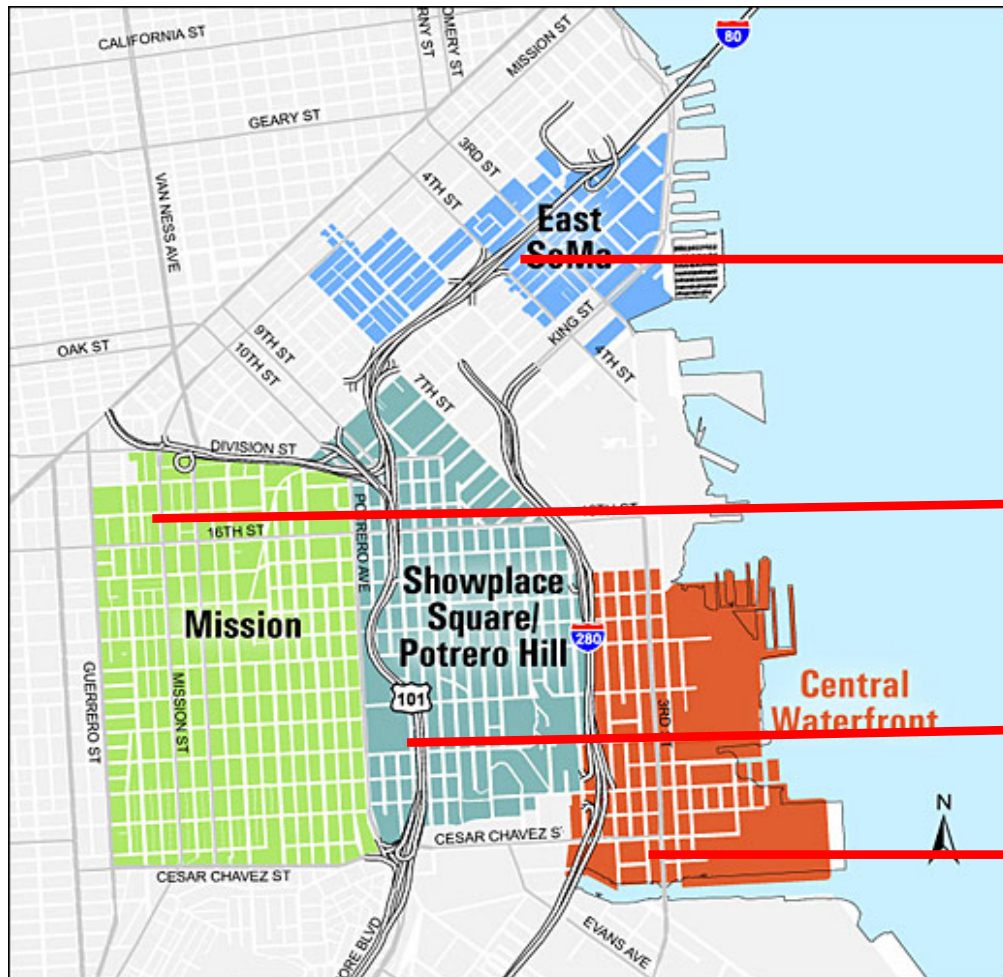
Evident area-level patterns – correlate with the freeway network, concentrations of streets with heavy arterial traffic, pedestrian activity centers (e.g., downtown, Golden Gate Park).

San Francisco Vehicle-Pedestrian Injury Collision Model: Full Model Variables

- Traffic volume (+)
- Arterial streets (+)
 - w/o surface transit
- Neighborhood commercial zoning (+)
- Employees (+)
- Residents (+)
- Land area (-)
- Below poverty level (+)
- Age 65 and over (-)



Vehicle-Pedestrian Injury Collision Model: Eastern Neighborhoods Plans EIR Analysis



Predicted
**% change in
pedestrian injury
collisions** based
on estimated
**changes in
resident
population and
traffic volume.**



Ensuring valid judgments of health impacts



- The gold standard for predictive validity (whether facts confirm predictions) is inappropriate and unattainable for the purpose of HIA
- HIA does not try to establish causal certainty
- HIA predictions rely on good judgment and the best available evidence
- Uncertainty is always present and should not preclude judgments
- A reasonable test is plausibility among peers



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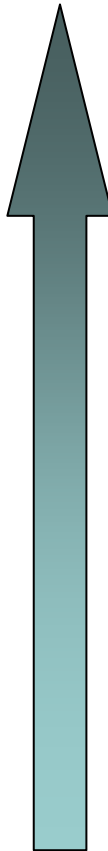
Analogy: Medical practitioners make reasoned judgments on individual health impacts and management strategies based on available information



Medical judgments are based on

- Questions and accurate history
- Textbooks, training, and peers
- Diagnostic tests
- Experience
- Experimentation (e.g., diagnostic interventions)
- Follow-up

Degrees of Certainty



Description	Examples
'Beyond all reasonable doubt'	Criminal law; Swedish chemical law, 1973 (for evidence of 'safety' from manufacturers)
'Balance of evidence'	Intergovernmental Panel on Climate Change, 1995 and 2001
'Reasonable grounds for concern'	European Commission communication on the precautionary principle
'Scientific suspicion of risk'	Swedish chemical law, 1973, for evidence required for regulators to take precautionary action on potential harm from substances

Source: European Environmental Agency 2001





Discussion example: *Paid Sick Days and Influenza Pandemics*



- A HIA on the Federal Healthy Families Act established the following facts:
 - Interventions to limit social contacts reduce pandemic flu cases 15-34% in modeling studies
 - Paid sick days is clearly associated with taking about one extra day of leave from work for illness per year
 - Wage loss is a deterrent to taking leave from work for illness
 - Paid sick days benefits are disproportionately held by those with higher income
- *How certain is the judgment that paid sick days would significantly reduce the population health impact of an influenza pandemic? Can one reasonably quantify the impact?*





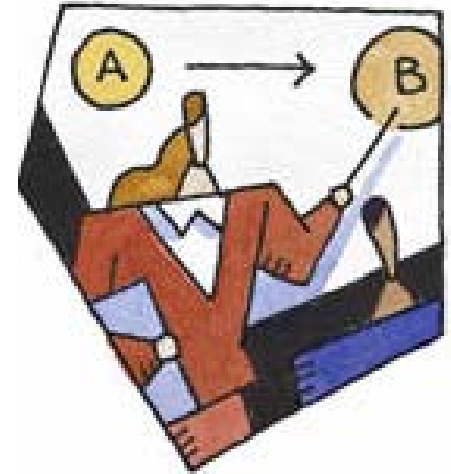
Tips for Valid Judgments

- Carefully scope impacts based on theoretical considerations, baseline conditions, and populations concerns
- Use the best available evidence
 - Consider all evidence
 - Assess both internal and external validity
 - Justify the selection or exclusion of particular methodologies and data sources.
 - Identify data gaps, uncertainties and limitations.
- Allow stakeholders to critique the validity of findings.
- Apply lessons from monitoring where available



Management strategies for health impacts

- *Policy or project design changes to lessen or manage adverse impacts or create or enhance health benefits*
- *Implementation agreements to monitor and adapt to policy outcomes*
- *Procedural agreements to enhance communication with stakeholders*



Identification and analysis of management strategies requires...

- A clear understanding of proposed project, plan, or policy
- Communication with policy-makers/developers and stakeholders
- Knowledge and research of existing policy implementation, design practices, and mitigation
- Consultation with experts
- Analysis of the sensitivity of outcomes to a design change



Criteria for Good Policy / Design Recommendations



- Responsive to predicted impacts
- Specific and actionable
- Experience-based and effective
- Enforceable / can monitor
- Feasibility (good to think about but not always appropriate criteria)
 - *technically*
 - *fiscally*
 - *politically*
- Prioritized
- Multi-objective
- No negative consequences





Management Strategy Example: *Roadway Air Pollution Hotspots*



San Francisco's statutory mitigation:

- Require building relocation, engineering, or ventilation system filtration if near-source roadway-attributable particulate matter levels exceed 0.2 ug /m^3



Alternative recommendations:

- Don't build sensitive uses within 500 ft of busy roadways
- Reduce freeway traffic volume

What are some of the differences between the above recommendations for the management of roadway-land use conflicts?

Management Strategy Example:

Commercial Zoning and Truck Related Impacts

- An analysis of port expansion in West Oakland documented significant truck impacts on noise, pedestrian collisions, and neighborhood quality rezoning. Causes include numerous permitted truck-dependent industrial uses, port-serving industrial uses, and limited truck-route enforcement.



- *What strategies exist to manage these health impacts in the context of port growth?*



Reporting and Communication in HIA

- Document the HIA process and findings in writing
- Create a process for public review and response
- Provide information in the context of decision making procedures (e.g. public hearings, EIA comment)
- *Prioritize findings and recommendations?*
- *Develop messages for specific audiences?*
- *Identify stakeholders and decision-makers as communicators?*
- *Share findings with the media?*



Why Include Monitoring in HIA?

- Tracking the results of a policy, program, or plan
- Supporting compliance with implementation agreements, rules and standards
- Providing early warning of unexpected environmental consequences
- Testing the validity and precision of impact predictions





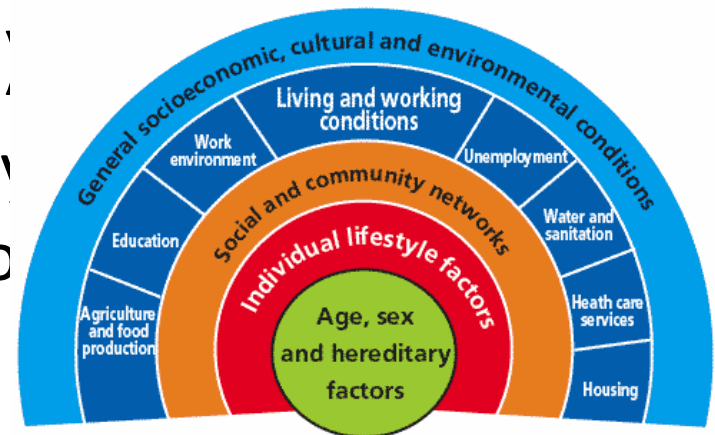
The range of monitoring in regulatory practice

- National Ambient Air Quality Standards monitoring and planning under the Clean Air Act
- Mitigation monitoring under the California Environmental Quality Act
- Inspection procedures for compliance of building standards
- Notification requirements for compliance of labor laws



Choices in Monitoring Impacts and Indicators

- Health outcomes
 - Consider latency (e.g. cancer)
 - Consider specificity (e.g. body weight, asthma hospitalization)
- Behaviors (e.g. commute mode)
- Health determinants (e.g. environmental quality)
- Compliance process measures





Elements of a Monitoring Plan

- Identification of the impacts and indicators to be used in monitoring activities
- Participants and roles
- Process for collection of meaningful and relevant information
 - Baseline
 - Implementation
 - Long-term
- Process for disclosure of monitoring results
- Criteria or triggers for action
- Process for learning, adaptation, and response



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Discussion Example: Federal Vehicle Miles Traveled Fee



- Impacts and indicators for Monitoring?
- Criteria for action?
- Possible adaptations?



Some Ethical Challenges for HIA

- Omitting, overstating, or understating important benefits or harms
 - Inadequate scope
 - Stakeholder influence
 - Practitioner bias
- Missing the distribution of benefits or harms
- Facilitating bad decisions via mitigations
- Obscuring or obstructing ethical solutions while encouraging reliance on science and technical solutions





QUESTIONS?





California HIA Resources

Healthy Development Measurement Tool

- www.TheHDMT.org

Human Impact Partners

- www.humanimpact.org

SF Department of Public Health

- www.sfdph.org/phes/

UC Berkeley HIA Group

- <http://sites.google.com/site/ucbhia/>

UC Los Angeles – HIA Clearinghouse

- www.ph.ucla.edu/hs/hiaclic

