

Module 5: Measuring Success: Evaluating Environment and Health Change


Estimated time: 1 – 1.5 hr

Module 5: Measuring Success: Evaluating Environment and Health Change

Agency for Toxic Substances and Disease Registry
(Created 2020)

Instructors: Laurel Berman, Leann Bing, Sue Casteel

Division of Community Health Investigations





Step Five

Measuring Success

Course Objectives

After finishing this module, you should be able to

- ❑ Describe **three general public health categories** for which there are **community-driven public health indicators** associated with **land reuse and redevelopment**.
- ❑ Describe at least **three public health indicators** that are associated with **land reuse and redevelopment** in each of **three public health categories**:
 - **Environment, Health, Economy**
- ❑ Access the **Action Model** to include **community-driven public health indicators** in **redevelopment plans**.
- ❑ Explain the **role, responsibilities, and scope of practice** of a development community **team member**.

Course Details

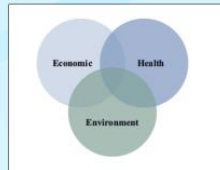
- ❑ **Pre-test**
- ❑ **Post-test: 80% or higher to receive a certificate**
 - Create a 4-digit number to put on your pre- and post-tests
 - Memorize or write the number down
 - Use the same number on both the pre- and post-test



An environmental professional frustrated over taking a pre-test. ATSDR, 2019.

Measuring Change

- ❑ **Environmental or health professionals can measure changes that occur throughout land reuse/redevelopment**
- ❑ **3 typical measurement categories**
 - Environment
 - Health
 - Economy



Why Measure Change?

- ❑ **Track the physical health of the community**
- ❑ **Track environmental health of the community**

Knowledge Check #1

Select the best answer:

The environmental or health professional can measure community changes in which three typical categories:

- a) Economy
- b) Health
- c) Gentrification
- d) Property availability
- e) Environment
- f) Community acceptance

KC #1 Answer: a), b), and e): Economy, Health, and Environment

Environmental, Health, and Economic Indicators

- Measurable
- Definable
- Have a data source



Example

Lead issues → indicator is blood lead levels in children

- Is it measurable? How?
- Is it definable? What?
- Is there a data source?

Indicators can be used to track health outcomes (the broad view of health, from physical health to environmental health to economic health). Indicators should be measurable, have a definition, and have a source of data for measurement.

Example Indicators

Issue	Indicator
River pollution	Water quality data Fish consumption advisories
Lack of parks and/or green space	Number and types of vacant lots Number and use of green parcels Number of parks Number of bike lanes/trails
Vacant and contaminated properties	Inventory of sites Inventory of contaminants and associated health effects Map of sites
Habitat concerns	Wildfire survey Environmentally friendly lighting Habitat preservation

These are indicators from an actual community development project to clean up land reuse sites along a riverfront. The development community was concerned about pollution of the river, a lack of parks/green spaces, vacant/contaminated properties (especially along the riverfront), and habitat concerns.

Knowledge Check #2

Select the best answers:

What indicators currently collected by communities can environmental or health professionals draw on to measure changes in environment ?

- a) Creation of a site inventory that incorporates a public health focus
- b) Pre- and post-redevelopment blood lead level data
- c) The number, size, and uses of green space
- d) The number of structures demolished and the number redeveloped

KC #2 Answer: a), c), and d) are environmental indicators. Blood lead level data is typically a health indicator.

Knowledge Check #3

Select the best answers:

What indicators currently collected by communities can environmental or health professionals draw on to measure changes in health (physical and mental health/well being)?

- a) Pre- and post-redevelopment blood lead level data
- b) The number, size, and uses of green space or recreational areas
- c) Crime statistics
- d) The number of structures demolished and the number redeveloped

KC #3 Answer: a) and c): a) (blood lead levels are related to physical health) and **c)** (crime can affect mental health/well-being)

Knowledge Check #4

Select the best answers:

What indicators can an environmental or health professional draw on that are currently collected by communities to measure changes in economy?

- a) The number, size, and uses of green space or recreational areas
- b) Crime statistics
- c) Property value of housing
- d) Demographic data on income, poverty, employment, and occupation
- e) Pre- and post-redevelopment blood lead level data

KC#4 Answer: c) and d) are correct. These can show upward or downward economic change.

Identifying Health Outcomes

□ The success of a project may depend on tracking and evaluating the community's overall health:

- Physical health
- Mental health/community involvement
- Environmental improvement
- Built Environment
- Economy
- Education
- Safety/Security
- Environmental resources
- Housing

These categories are those selected by communities to develop indicators to measure changes in overall health status over the course of redevelopment.

Example of Identifying Health Outcomes

Community wants more access to healthy foods

- **Issue:** We need more community gardens and grocery stores
- **Outcome:** Increased access to healthy foods (with associated indicators to track, such as # of full service grocery stores, # of community gardens)



Issues are related to community needs and **concerns**, e.g. a need for increased access to healthy foods.


Outcomes are a result of or **change** from addressing an issue, e.g. creating community gardens, or having new grocery stores in the community.

Outcomes: A Change or a Result

- ❑ Lowered blood lead levels in children
- ❑ Increased property values
- ❑ New hospital with 10 new primary care providers
- ❑ New grocery store with a full range of healthy food
- ❑ 10 sites demolished or redeveloped, lowering exposure risk to lead, asbestos, volatile compounds, and petroleum
- ❑ A new business opened and created 20 jobs for youth

Action Model Toolkit

- ❑ Four steps of health-focused redevelopment
- ❑ Step 4 creates community-driven public health indicators that can be tracked to measure changes in health outcomes
- ❑ ATSDR has consolidated the indicators from 40 Action Models

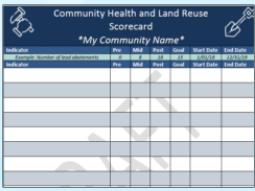


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graph TD; S1[STEP 1:  
What are the issues in the community?] --> S2[STEP 2:  
How can development address these issues?]; S2 --> S3[STEP 3:  
What are the corresponding community health benefits?]; S3 --> S4[STEP 4:  
What data are needed to measure change?];
```

Let's revisit our Action Model again. Step 4 generates community-selected indicators that can be tracked over time to measure changes in health outcomes. **See the hand-outs of Indicators and Scorecards at your tables.**

ATSDR Community Health and Land Reuse Scorecard

- You can fill in the Action Model Step 4 with indicators consolidated from 40 communities
- Scorecard
 - collect or create indicators
 - paste in to Action Model Step 4



As part of the classroom exercise, these materials (Action Model Template and Indicator Scorecard) are available at your tables.

Community Health and Land Reuse Indicators

- Classroom Exercise
 - Small groups
 - Review and use Action Model Template
 - Use Indicator Scorecard and Indicator Summaries

Let's divide up into groups (at your tables). Use the Action Model Template on your table from Module 4: Redesign with Health in Mind. You completed Steps 1-3 already. Or, you can start over and 1.) Come up with 3 or 4 issues you can name in your own communities (e.g. old buildings with suspected lead based paint and asbestos; or the need to reuse or demolish vacant structure, etc.). 2.) Decide on a redevelopment approach to address the issue (e.g., create an inventory of land reuse sites and include contamination concerns and condition of buildings that could be either demolished or reused depending on condition). 3.) Identify a health benefit of your action (e.g., prevent people from accessing dangerous buildings that might have dangerous contaminants and exposures). **4.) Select an indicator from the Indicator Summaries for each issue.** You can write the indicators in both Step 4 of the Action Model Template and in the Indicator Scorecard.

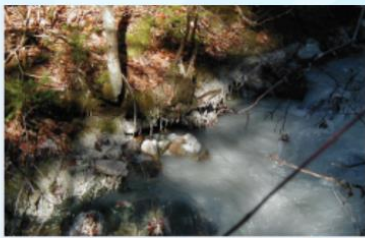
Knowledge Check #5

Environmental or health professionals can use the **Land Reuse Action Model Toolkit** and indicator materials to help their communities select **environment, health, economic, and other** categories and indicators to incorporate in redevelopment plans.

- a) True
- b) False

KC#5 Answer: a)True

Let's Revisit: Asbestos Mine



A river white with asbestos fibers. Source: ATSDR, 2006.

This case study is at your tables.

Case Study: Asbestos Mine

- **The ABC site in Keweenaw Peninsula (mock)**
 - Active asbestos mine from early 1900s to 1993
 - Chrysotile mined
 - Tons of waste rock and mine tailings
- **Contaminated runoff from the mine tailings**
 - Surface water, stream and sediment contamination
 - Downstream wetland areas contaminated
 - Source of airborne asbestos
 - Recreational area for such as hiking on tailings piles.

Case Study: Recommendations and Messages for Regulatory and Health Agencies

- Restrict access to the ABC mine property**
 - Prohibit and discourage recreational use of site to minimize exposure
- Prevent the reuse of tailings and all other material beyond the ABC property**
- Don't use wetlands located downstream for camping or other recreational activities.**

Case Study: Asbestos Mine - Outcomes

- Education and awareness campaign developed**
 - Federal, state, environmental and health agencies
- Campaign informed residents about asbestos exposures and encouraged residents to minimize exposure by staying off the mine property**
- Site identified as a hazardous place where recreation can be dangerous to people's health**
- Prevented 160 people per year from being exposed to asbestos**

Let's discuss each outcome. Do you think these outcomes are positive? Do you think people will be protected from exposure to asbestos?

Knowledge Check #6

Select all of the messaging actions that apply

- a) Communicated findings and concerns to state and federal agency partners
- b) With partners, encouraged residents to minimize exposure to asbestos by staying off the mine property
- c) Allowed people to continue skiing or hiking on the sites as long as the snow was at least 3 inches deep
- d) Prevented 160 people per year from being exposed to asbestos
- e) Went hiking on the site with visitors to demonstrate that there was no risk of recreating on the site

KC #6 Answers: a), b), and d) are correct. Answers c) and e), allowing people to continue using the site or hiking on the site with visitors are incorrect as these activities could expose people to asbestos.

Issues vs. Indicators vs. Outcomes

- ❑ **Issues are community concerns related to redevelopment**
 - e.g., contamination, contaminated site location, exposure concerns
- ❑ **Indicators can be derived to track progress towards achieving an improvement in health (the outcome) related to the issue**
 - E.g., list and location of contaminated sites, blood screening results
- ❑ **Outcomes are changes in health, environment, economy and many other public health categories**
 - Increased access to healthy foods, lowered obesity rates, reduction in chemical exposures, increased property values

Read each definition and example. Can you come up with additional examples?

Tabletop Exercise: Issues, Indicators, and Outcomes

- ❑ **Play the “Name that Issue/Indicator/Outcome” game**
- ❑ **Stay in your groups**
- ❑ **On each table, there are decks of cards**
- ❑ **Sort the cards into three piles: issues, indicators, or outcomes**
- ❑ **Work together!**

This is a table-top game that has cards with Issues, Indicators, and Outcomes. We have mock and de-identified information.

Additional Resources DRAFT only and not for distribution

- ❑ Book Chapter 18, Measuring Systemic Change (Meter, K.) in *Land Reuse and Redevelopment: Creating Healthy Communities* (Berman, L. 2020, In Preparation)
- ❑ Book Chapter 19, Challenges in Measuring Changes in Health and Exposure (Talbot, T) in *Land Reuse and Redevelopment: Creating Healthy Communities* (Berman, L. 2020, In Preparation)
- ❑ Book Chapter 20, Redevelopment: What Happens Over the Long Term (DeSousa, C. and DeSousa, L.) in *Land Reuse and Redevelopment: Creating Healthy Communities* (Berman, L. 2020 In Preparation)
- ❑ Book Chapter 21, Long-term Results: The “Highway to Healthcare” Model Works as a Brownfields Redevelopment Project (Johnson, E.) in *Land Reuse and Redevelopment: Creating Healthy Communities* (Berman, L. 2020, In Preparation)

Post-test

- ❑ Place your 4-digit number on the top of your test
- ❑ You can retake the test multiple times
- ❑ Test is open book
- ❑ Passing score of 80% is required
- ❑ Bring your test in tomorrow for grading

Thank you!

Laurel Berman, laberman@cdc.gov

Leann Bing, kbing@cdc.gov

Sue Casteel, scasteel@cdc.gov

Division of Community Health Investigations

