

# Pre-/Post-test Module 5: Measuring Success: Evaluating Environment and Health Change

Instructor Copy, with Answer Key

## Pre/Post-test

**NOTE: Post-test contains Self-assessment questionnaire**

**Self-assessment: Answer this only during the post-test.**

In reference to the Measuring Success module, please choose all that apply:

- a. Specifically useful for my work. If so, you can describe how here (optional):  
\_\_\_\_\_
  - b. Quick refresher
  - c. Offers me knowledge about a topic I am less familiar with
  - d. Gives me confidence to increase my skills in and understanding of communicating risk related to land reuse sites
  - e. Motivates me to learn more about land reuse sites and ways I can be engaged
  - f. Not needed for my work
  - g. None of the above
- Other (please specify) \_\_\_\_\_
- 

**Minimum Passing Score: 80% (8 out of 10)**

**Allow multiple retakes? (Y/N) Yes**

1. **There are different types of indicators that can help communities understand their overall health status over the course of redevelopment.**
  - a. **True**

- b. False

**Answer: a.**

**Rationale:** There are many types of indicators that can describe overall health status of a community, from environmental to health to economic indicators. Indicators or measurements can help your community get where it wants to go. They provide a way to establish baseline conditions, which can be re-measured over time to establish if positive health outcomes (or negative) occur over the course of redevelopment.

- 2. **As an Environmental or Health Professional, it's important for you to measure the positive (or negative) community changes that occur throughout the lifecycle of the project.**
  - a. **True**
  - b. False

**Answer: a.**

**Rationale:** Environmental or Health Professionals may be engaged in measuring positive or negative community changes over the course of a redevelopment project. There are three overarching categories you can measure: Environment, Health, and Economy.

- 3. **What data measurement (indicator) themes can be measured over the course of redevelopment?**  
**Select the most correct answer:**
  - a. Environment, Redevelopment, and Arts
  - b. **Environment, Health, and Economy**
  - c. Environment, Redevelopment, and Education
  - d. Environment, Health, and Sustainability

**Answer: b.**

**Rationale:** While indicators can be grouped under many themes, including Sustainability, Education, Arts, or other themes, in terms of land reuse and redevelopment, this module focuses on indicators grouped under themes of Environment (impacted media, built environment, vacant properties, housing, other); Health (physical and mental health, well-being, other); and Economy (financial health, education, employment, other) (b.).

- 4. **You are an Environmental Health Specialist working with a community group that is engaged in the cleanup and redevelopment of vacant and contaminated properties along a riverfront. You are using a community assessment and engagement resource, the Action Model, to help the Development Community (citizens, community planners, stakeholders, etc.) identify ways to establish indicators to measure progress in resolving environmental and other issues that can be addressed through revitalization. The issues include river contamination, lack of parks/green**

space, vacant and contaminated properties, habitat concerns, and high lead exposure in the population. Which environmental indicators would you consider? Select all that apply:

- a. **Number and types of vacant lots, number and use of green parcels, number of parks, number of bike lanes**
- b. **Water quality data and fish consumption advisories**
- c. Number of jobs in the hotel industry related to the number of newly developed hotels
- d. Health data, including chronic diseases and cancer
- e. **Inventory of sites including age of buildings, contaminants and health effects, map of sites**

**Answer: a., b., and e.**

**Rationale:** The number and types of vacant lots, green parcels, parks, and bike lanes (a.) are ways to measure how vacant or contaminated parcels are redeveloped. Changes in water quality data, including fish consumption advisories (b.), are indicators of improvements or general changes in polluted waterways. An inventory of sites including age of buildings can identify properties that may have lead. An inventory can include site contaminants and health effects as a way to characterize vacant and contaminated properties in terms of contaminants (e.g. lead) and location relative to target or sensitive populations (e.).

5. **The Development Community you are working with is interested in tracking changes in physical/mental health outcomes to determine impacts over the course of redevelopment. They have brought up some key health concerns, including lack of access to healthy food, lack of access to healthcare, lack of affordable housing, and high lead exposures in the population. You help them identify indicators that can be measured to show changes in these issues. Select from the list below the indicators you will select:**

- a. Asthma rates in the population
- b. **Number of affordable housing units**
- c. Number of schools with recreational programs
- d. **Number of healthcare clinics and their distance from residential areas**
- e. Number of people addicted to opioids
- f. **Community wide (or children's) blood lead levels**

**Answer: b., d., and f.**

**Rationale:** The number of affordable housing units are indicators that can be tracked to address a lack of affordable housing (b.). The number of healthcare clinics and their distance from residential areas (d.) are indicators that can be measured to address a lack of access to healthcare. Blood lead screening to determine blood lead levels (f.) can be tracked to address high lead exposures in the population.

6. **Community assessment and engagement frameworks can be used in land reuse communities to establish a baseline of overall community health status. The Development Community can select from a number of different indicators, but you want to help your community maximize the efficient collection of data. Ultimately, the community selects 50 different indicators. You point**

**out that these might be too many for meaningful data collection. What other factors can you point out to help the community narrow down the number of indicators? Select the best answer:**

- a. It is OK that not all of the indicators have data sets available. These can always be in the “parking lot” to wait for available data.
- b. **It is important to prioritize those indicators that have available data or for which the community can collect the data through community efforts, such as surveys**
- c. It is possible to phase the project into three separate projects over five years to allow time for data collection
- d. The community can apply for a grant or ask the city government to pay for a consultant to collect data on all 50 indicators

**Answer: b.**

**Rationale:** It is important to create positive health impacts in your community. The success of the project depends on tracking and evaluating the community’s overall health. So, you may need to identify the most important health impacts and outcomes your community wants to achieve. It may be your job to help the community narrow down their indicators to a number that they can reasonably quantify and for which data are available or can be easily collected, such as through surveys or visual surveillance (e.g., counting the number of people using a recreational trail). If the community has too many indicators, adding too many to a wait for later analysis e.g., the parking lot (a.) or three-phased project (c.) may lead to a project that is too long and loses people over time due to “burn out”. In addition, relying on the city to provide a consultant to track indicators and collect data may not be economically feasible and with a large number of indicators may take a long time to develop a baseline (d.).

**7. You are an environmental health professional working for a state health department. Your agency learns that people have been skiing, hiking, and snow-shoeing on former asbestos tailing piles at a former asbestos mining area now touted as a recreational area. Previous sampling by a state environmental agency indicated asbestos contamination of the pilings and a waterway, posing a potential for friable asbestos. Your team goes to the site and notes that a creek runs through the site that is milky-white, which you suspect is from asbestos in the waterway. You take some samples of the creek. You also note that a family of four is recreating on the mine tailings. Your state environmental agency partners estimate that 160 people a year access the site. Your agency immediately takes action on the site. Which of the following activities will lead to the best health outcomes? Select the best answer:**

- a. Call the local ski club and let them know that you think people may be exposed to friable asbestos. Suggest that the ski club decide if they want to restrict access to the site and prevent 160 people per year from being exposed to asbestos from the site.
- b. Plan to take more asbestos samples at the site in three months. Call the local ski club and local and state partners (e.g. regulatory agencies) and let them know you will take more samples in the near future and that it is currently most likely not safe to continue skiing on and using the site. Prevent 160 people per year from being exposed to asbestos from the site.

- c. **Call the state environmental agency and restrict access to the site. Call the local ski club and local and state partners (e.g. regulatory agencies) and let them know that it is likely not safe to continue skiing on and using the site. Take more asbestos samples at the site. Once you have your sampling results, share them with partners. Prevent 160 people per year from being exposed to asbestos from the site.**
- d. Do nothing. People have been recreating on the site for over 10 years and nobody has had any adverse outcomes.

**Answer: c.**

**Rationale:** The correct answer is c. Asbestos contamination and the potential for friable asbestos has been confirmed. By contacting the state environmental agency and (immediately) restricting access to the site, you can prevent people from being exposed or further exposed to asbestos. Then, you can call additional partners, such as the local ski club and other local agencies and let them know you will be taking additional samples to characterize how extensive and dangerous the asbestos may be. You can then share the results with them. Ultimately, the *outcome* is preventing 160 people per year from being exposed to asbestos.

- 8. Outcomes (sometimes also called impacts) are the end product of the redevelopment project and are the qualitative or quantitative result of activities related to redevelopment. What are some examples of outcomes? Select all that apply**
- a. Recognized that childcare facilities needed to be more aware of environmental hazards.
  - b. **Monitored those who were exposed by testing 189 urine samples from 72 children and nine adults. Ultimately, the mercury levels in those exposed decreased.**
  - c. **Raised awareness about childcare licensing. Passed legislation requiring an environmental consultant to conduct an Indoor Environmental Health Assessment for childcare centers located on or in specific prior-use sites.**
  - d. Identified a need to find sample legislation and best practices that could be used as a model for safe siting of childcare centers and schools.

**Answer: b. and c.**

**Rationale:** Answer a. and d. present issues that could lead to outcomes if action is taken to address the issue. Answer b. prevents ongoing exposures (outcome) and tested 189 urine samples from 72 children and adults (outcome). Urine mercury levels decreased (outcome). Answer c. raised awareness (outcome) and passed legislation (outcome) which can be quantified in terms of the number of new childcare centers are assessed (outcome).

- 9. Examples of long-term positive outcomes include (select all that apply):**
- a. **Reduced blood lead levels in a target population of 50 children**
  - b. **Remediation or demolition and cleanup of 4 of 10 contaminated properties, reducing exposure potential by at least 40% for 500 people**
  - c. Participating in a school health fair attended by 200 parents
  - d. Taking a training about environmental health

**Answer: a. and b.**

**Rationale:** Answers a. and b. demonstrate a quantitative result as an impact of a specific activity, such as blood lead screening (outcome) that results in reduced blood lead levels in 50 children (outcome) (a.); or demolition and cleanup of 4 of 10 properties (outcome), resulting in 40% reduced exposures for 500 people (outcome) (b.). While c. and d. are activities, they may not be related to land reuse issues and redevelopment.

**10. It is important to select indicators that can be tracked over time, for which there are available data, and that can lead to redevelopment health outcomes and quantitative impacts over the course of redevelopment.**

- a. True
- b. False

**Answer: a.**

**Rationale:** A reasonable number of indicators can be selected that can be measured by data (or by the community, e.g. through surveys). In addition, indicators can be quantified or lead to activities, such as blood lead screening or environmental health education that can lead to positive health outcomes and quantitative impacts (e.g. lowered blood lead levels or exposures in X number of people).