

A New Perspective on a Moldy Issue: How Can Mold in Rental Units Be Addressed?

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Environmental Public Health Leadership Institute Fellow:

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EXECUTIVE SUMMARY:

According to reports by the Institute of Medicine and the World Health Organization, there is sufficient evidence to link exposure to mold (or damp indoor environments) and upper respiratory symptoms, coughing, wheezing, asthma symptoms among sensitized individuals, asthma development, shortness of breath, current asthma, and respiratory infections. However, there are currently no federal laws or regulations which determine standards for mold exposure, assessment, and removal. Each state, therefore, is left to decide the extent to which it will address these issues.

New Mexico does not currently have any mold-specific regulations. However, the New Mexico Department of Health's Environmental Health Epidemiology Bureau (EHEB) receives calls from the public; approximately 60% of these calls are related to mold, with callers typically being renters. The EHEB has no dedicated resources (staff, funding) to assist these callers. The EHEB has developed fact sheets on:

- mold and health
- how to clean up mold
- how renters and landlords can work together to solve mold problems

Despite these efforts, however, the EHEB continues to receive mold calls. In fact, the number of calls related to mold has been increasing over time. In 2000, there were 33 calls about mold; in 2009 there were 160 calls.

In order to gain a new perspective on this recurring problem, tools of systems thinking were utilized. This provided a more thoughtful analysis of interrelated issues and generated several conclusions. First, stakeholders are acting independently and in an uncoordinated manner. Second, the lack of regulations/standards/guidance to determine when mold is an issue, how mold should be mitigated, and who should take the lead role(s) on tackling these issues, in part, has fueled this lack of coordination. If these patterns are to change, a comprehensive, long-term approach to mold in rental units must be designed. Specifically, this approach must engage stakeholders and lead to the development of a program that creates a protocol for preventing mold in rental units and responding promptly to mold when it does occur. While the EHEB has already started the process of engaging stakeholders and will continue to do so, additional funding must be sought. Only then can the focus truly shift from short-term fixes to long-term fixes and the EHEB begin to reduce mold occurrence in rental homes and apartments.

INTRODUCTION/BACKGROUND:

Mold in an outdoor setting is both normal and useful; it is a necessary component of decay for dead plant and animal matter. However, when mold occurs indoors, it can potentially impact health. The extent to which mold may impact health is still being researched, but two documents summarize current knowledge. First, according to an Institute of Medicine report in 2004 which reviewed studies about damp indoor spaces and health, there is sufficient evidence of an association between exposure to mold (or

damp indoor environments) and upper respiratory symptoms, coughing, wheezing, and asthma symptoms among sensitized individuals.¹ Second, a World Health Organization (WHO) report in 2009² built on the findings of the Institute of Medicine by adding new studies to the body of epidemiological evidence for health effects associated with mold and dampness. In addition to the associations found by the Institute of Medicine, the WHO report also found sufficient evidence of an association between dampness and asthma development, shortness of breath, current asthma, and respiratory infections. Like the Institute of Medicine, the WHO did not find enough evidence to support a causal relationship with any health outcomes. However, the WHO did indicate that for asthma exacerbation “there is almost enough evidence to meet the criteria of causality for dampness-related agents.”

Although New Mexico has a dry climate, there are still moisture sources which provide opportunities for mold growth indoors, whether from leaking roofs, swamp coolers, air conditioners, plumbing or other sources. When residents have issues with mold, there is no agency dedicated to the problem since New Mexico does not currently have any mold-specific regulations and neither does any federal agency. However, the New Mexico Department of Health has a toll-free line which allows residents to call about health-related topics. Calls related to environmental health are routed to the Environmental Health Epidemiology Bureau (EHEB), where a staff member is on call from 8 am to 5 pm from Monday through Friday. Approximately 60% of these calls are related to mold, and the callers are typically renters who state that landlords are not being responsive to mold growth problems in their home.

According to the Environmental Law Institute, two factors place renters at particular risk of poor indoor environmental conditions.³ First, unsafe and poor quality housing is prevalent. Second, renters have a limited legal ability to address some of the conditions that may be impacting indoor air quality. Lower-income families may be at further risk since they have limited housing options. In 2010, the New Mexico Coalition to End Homelessness assessed housing affordability by legislative district in New Mexico.⁴ Affordable housing in this case meant that a household paid 30% or less of its income toward housing costs. None of the districts received a perfect score (the highest was 61), leading the Coalition to conclude that working families, people with disabilities and senior citizens in New Mexico cannot find housing they can afford. Since approximately 33% of housing units in New Mexico are expected to be renter-occupied⁵, a significant portion of New Mexicans may be at risk of poor indoor air quality.

Because the EHEB has no funding specifically allocated for staff to take mold calls or to develop resources, we have been limited in our ability to assist the renters who call about mold. However, we have developed fact sheets on:

- mold and health
- how to clean up mold
- how renters and landlords can work together to solve mold problems

Despite these efforts, however, the EHEB continues to receive mold calls. For example, in 2000, there were 33 calls about mold; in 2009 there were 160 calls.

Problem Statement:

Based on the aforementioned issues, the following problem statement was developed:

Why is the Environmental Health Epidemiology Bureau not more effectively dealing with mold problems in rental units?

Behavior Over Time Graph:

In order to better understand this problem statement, several key variables were identified and plotted (Figure 1). From 2000 to 2009, there was an increase in both the number and percentage of all calls that were mold-related. Although the EHEB has never received dedicated funding to take these calls, a staff member is assigned to receive calls each business day. However, as grant-related demands on staff time increase and state funds decrease, staff members have less time to address these calls. Finally, over time there has been more media (TV and internet) coverage of mold, which has not always been accurate. Some internet sites claim that mold can cause cancer, lupus, or fibromyalgia, among other conditions. This type of misinformation can cause residents to become very concerned about any mold that might appear in their home.

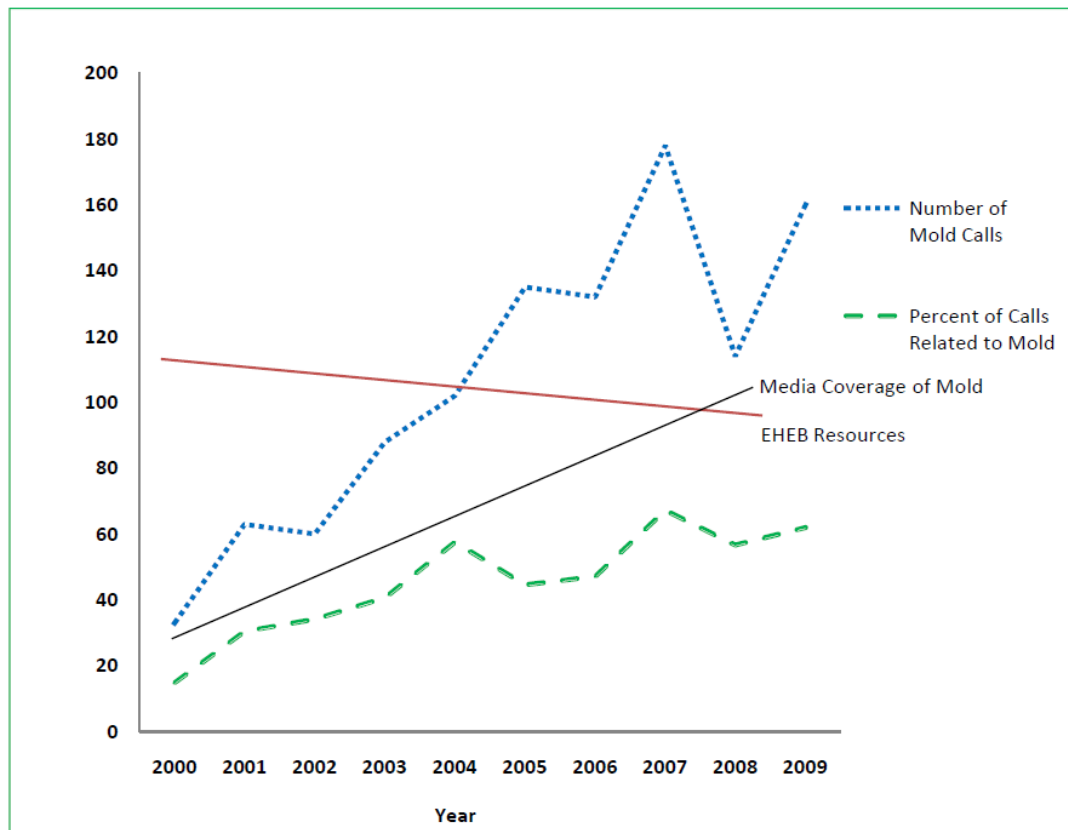


Figure 1. Mold-related Variables, 2000-2009

Causal Loop Diagrams and applicable Archetypes:

Figure 2 demonstrates that by utilizing short-term fixes, the EHEB has inadvertently shifted the burden back to itself when dealing with the problem of mold in rental units. The lack of efficacy of these short-term fixes is evident given the increase, rather than decrease over time in the number of mold calls per year. By continuing to focus on these short-term fixes, we reduce the resources that can be spent on long-term fixes and increase the animosity among stakeholders, which also decreases our ability to work with these stakeholders. In contrast, if the EHEB can find new funding and collaborate with stakeholders to develop a curriculum to prevent and mitigate mold in rental units, system behavior can begin to change. For example, rather than tenants continuing to see others as either the cause of their problems or the source of the solution, they become responsible for their part of the problem. This reduces the likelihood of experiencing respiratory issues. Similarly, instead of landlords deferring repairs to a later date, which may make the problem worse and result in higher costs, they follow guidelines to quickly react to any mold-related damage. Eventually, this will decrease costs and increase the amount of time between complaints about mold. The combined result is that over time, EHEB can spend less time taking calls about mold and more time teaching tenants and landlords how to prevent mold, resulting in fewer renters exposed to mold.

Ten Essential Environmental Health Services:

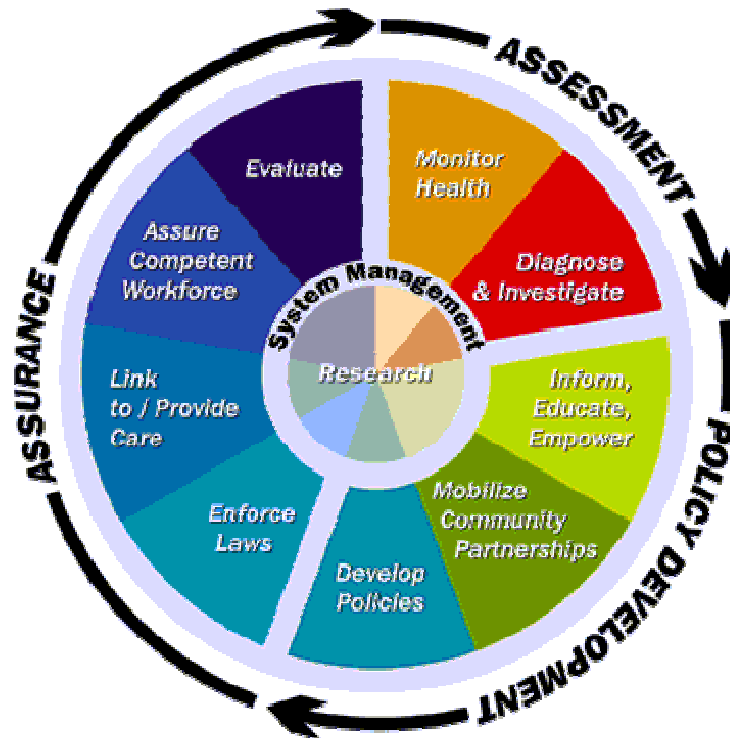


Figure 3. Ten Essential Environmental Health Services and Three Functions⁶

Figure 3 depicts the Ten Essential Environmental Health Services and how they correlate with the core environmental health functions of assessment, policy development and assurance. This project seeks to support four of the ten essential environmental health services in the following ways:

1. **Inform, educate, and empower people:** A curriculum will be developed which can provide the knowledge, skills, and tools necessary for landlords and tenants to prevent mold growth when possible and to mitigate mold when it does occur.
2. **Mobilize community partnerships:** In order to develop a mold prevention and mitigation curriculum, the EHEB must engage the relevant stakeholders. Currently, the stakeholders are not working together; each understands mold only from his or her perspective. A collaborative conversation must be initiated in order for stakeholders to create a collective vision around mold.
3. **Develop policies:** Existing housing codes in New Mexico may need to be strengthened or new housing codes added in order to provide better support for the curriculum that is developed. These codes could address mold specifically, or mold-related factors such as ventilation, adequate plumbing, weather-tightness, and/or non-absorbent surfaces.³

4. **Assure a competent workforce:** Although EHEB staff members already have experience fielding calls from the public about mold, by obtaining healthy homes funding and developing a mold prevention and mitigation curriculum, we will increase our capacity to address indoor air quality issues.

National Goals Supported:

This project aims to support the following:

1. **CDC Health Protection Goals:**

Health Promotion and Prevention of Disease, Injury and Disability: By preventing mold growth when possible and mitigating mold when it does occur, the risk of mold exposure, and consequently the risk of adverse health outcomes, is reduced.

2. **National Strategy to revitalize Environmental Public Health Services⁷:**

Goal I, Build Capacity: The EHEB will collaborate with the Environment Department and other partners to increase the capacity to address indoor air quality in at-risk communities.

3. **Environmental Health Competency Project: Recommendation for Core Competencies for Local Environmental Health Practitioners⁸:**

This project supports and fosters development of the following competencies:

A. Assessment:

- A3. Evaluation: Evaluation: The capacity to evaluate the effectiveness or performance of procedures, interventions, and programs.

B. Management:

- B1. Problem Solving: The capacity to understand and solve problems.
- B7. The capacity to form partnerships and alliances with other individuals and organizations in order to enhance performance on the job.

C. Communication:

- C1. Education: The capacity to use the environmental health practitioner's front-line role to effectively educate the public on environmental health issues.
- C2. Communication: The capacity to effectively communicate risk and exchange information with colleagues, other practitioners, clients, policy-makers, interest groups, media, and the public through public speaking, print and electronic media, and interpersonal relations.

Goal: Improve indoor air quality of rental homes and apartments through reduced occurrence of mold

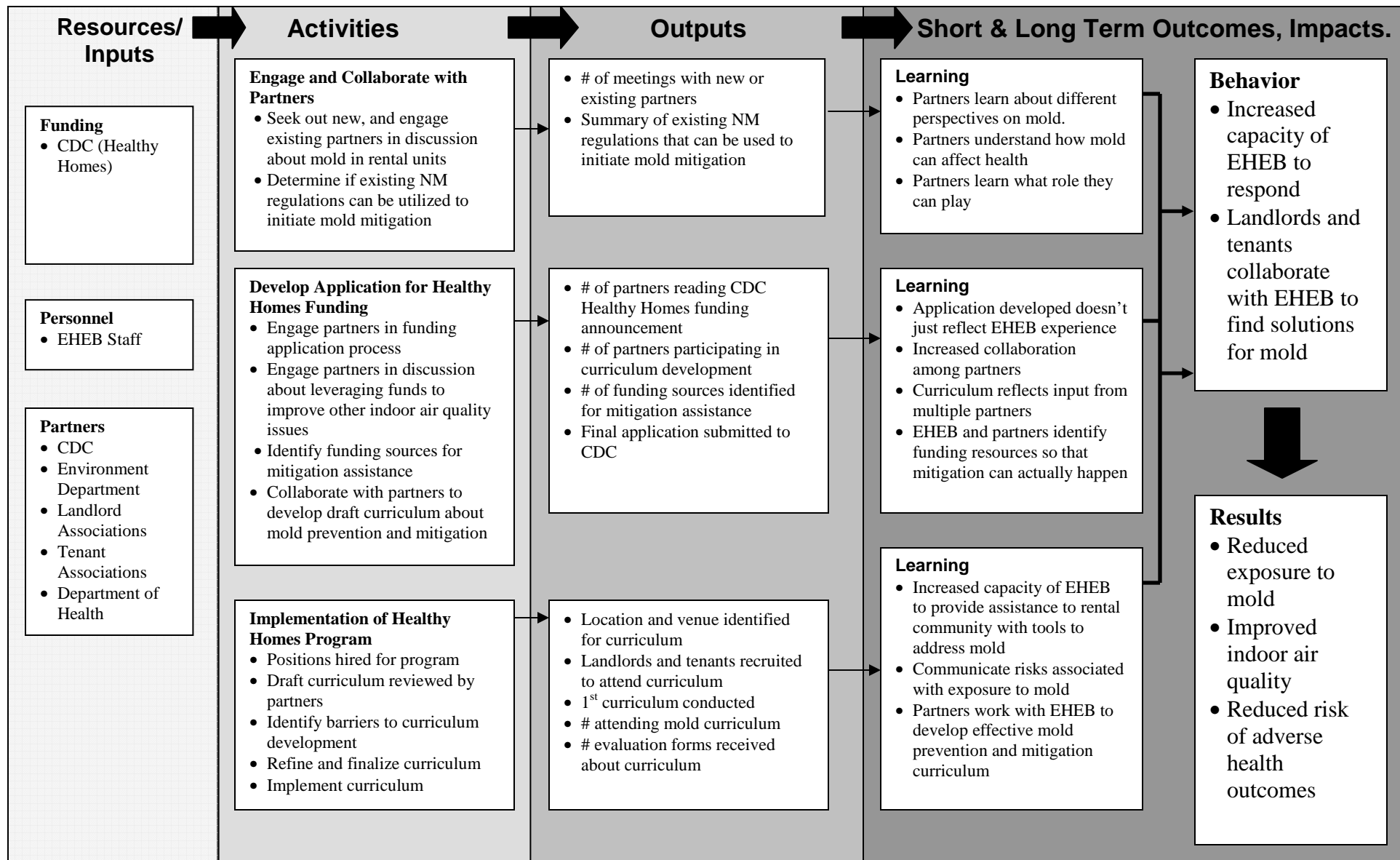


Figure 4. Project Logic Model

PROJECT OBJECTIVES/DESCRIPTION/DELIVERABLES:

Program Goal

Improve indoor air quality of rental homes and apartments through reduced occurrence of mold

Health Problem

There are too many rental homes and apartments with mold problems. This can lead to upper respiratory symptoms, coughing, wheezing, asthma symptoms among sensitized individuals, and shortness of breath

Outcome Objective

By January 2012, EHEB will have a mold prevention and mitigation curriculum in place that is offered to renters and landlords/property owners in New Mexico

Determinant

Number of tenants and landlords who attend and demonstrate competency in mold prevention and mitigation curriculum

Impact Objective

By February 2011, the EHEB will apply for Healthy Homes funding to develop a comprehensive approach to mold

Contributing Factors

1. There are neither any state or federal regulations which require remediation of mold nor any regulations about when remediation should occur
2. Lack of coordination among partners and stakeholders to effectively address the problem
3. Approach depends on obtaining federal funding as there is no dedicated funding in EHEB

Process Objectives

1. By September, 2010, engage partners in discussion about mold prevention and remediation; identify new partners

Event: Seek out new, and engage existing partners

Activities:

- Identify landlord associations in New Mexico
- Conduct initial meeting with landlord associations
- Conduct meeting with Construction Industries Division to determine its potential role with mold
- Conduct meeting with Environment Department to identify areas for collaboration and how funds could be leveraged.

- Arrange meeting with the Department of Health's Office of General Counsel to discuss how existing codes or regulations could be used to initiate mold mitigation

2. Apply for Healthy Housing funding once announcement is made

Event: Application submitted

Activities:

- Engage partners in funding application process
- Engage partners in discussion about leveraging funds to improve other indoor air quality issues (radon, asthma triggers, lead)
- Identify potential funding sources for mitigation assistance (e.g. home equity loans, home repair programs, etc.).
- Collaborate with partners to develop draft curriculum about mold prevention and mitigation for inclusion in application. Utilize any existing curricula as blueprint.

3. After 6 months of receiving funding, EHEB has developed mold prevention and mitigation curriculum, with collaboration from partners and stakeholders

Event: Curriculum developed

Activities:

- Positions hired per grant application
- Draft curriculum reviewed by partners
- Coordinate meetings with partners and stakeholders to identify any potential barriers to a curriculum
- Refine and finalize curriculum, with input from partners and other resources

4. By July 1, 2011, EHEB conducts first curriculum

Event: Curriculum implemented

Activities:

- Identify venue and attendees for curriculum
- Work with partners to recruit landlords and tenants to attend curriculum
- Recruit other groups to attend (public health councils, e.g.)
- Conduct first curriculum
- Provide evaluation forms so that there can be feedback about curriculum

METHODOLOGY:

Events and Activities

Although the focus of this project is ultimately the development and implementation of a curriculum about mold prevention and mitigation, an essential part of the initial methodology was defining key variables and stakeholders, which was something the EHEB had never done. Without this knowledge, a curriculum might be created which wasn't relevant and therefore wouldn't adequately address the problem statement. EHEB already had quite a bit of knowledge about tenants as a stakeholder group, because we field so many calls from tenants who are concerned about mold. However, the same could not be said about landlords. In addition, we assumed that Construction Industries

Division, the building code enforcement agency, was a stakeholder; however, we had not had conversations with the Division about this. Finally, although our colleagues in the Environment Department don't address mold, they refer mold calls to us and we collaborate with them on a variety of issues. If funding opportunities are focused more broadly on indoor air quality, it would make sense to collaborate with the Environment Department's Environmental Health Division, as they have a radon program. Therefore, I began to engage these stakeholders in order to learn more about their potential role with mold.

The next component will be to apply for a funding opportunity around indoor air quality. One possibility is funding through the CDC's Healthy Homes Program. Other funding opportunities will also be researched as they become available. Once funding is secured, a curriculum will be developed, based on existing best practices.

INITIAL RESULTS AND NEXT STEPS:

1. The Apartment Association of New Mexico was identified as a landlord association. Although a meeting was sought, the Apartment Association suggested instead that a presentation be made to members of the Board about the EHEB's role with mold. After the presentation, a link was provided to survey monkey (www.surveymonkey.com) so that Board members could answer five questions which would help EHEB understand property owners' perspective on mold. The survey will close on January 31, 2011 and the responses will then be summarized and themes generated. A follow-up meeting will be scheduled with the Association to discuss the results.
2. The New Mexico Environment Department's Environmental Health Division was contacted to let them know about the interest in pursuing opportunities about mold and to ask if they would be interested in collaborating.
3. A conversation with Construction Industries Division about what role, if any, they might play in mold mitigation was surprising. Staff explained that the only time they get involved with code enforcement is when a building is initially constructed. They ensure that the building is constructed per relevant building codes. They do not get involved if a 5-year-old apartment building has a roof which is leaking, for example.
4. I approached the Department of Health's Office of General Counsel to begin a discussion about potential housing codes that could be used for the prevention and mitigation of mold. An attorney with this expertise will be selected and a meeting scheduled.
5. In January, the Environmental Protection Agency (EPA) issued a funding announcement to build capacity to reduce children's environmental exposures in child-occupied settings. The EHEB will review this opportunity to determine if it is suitable to address the program goal. We will continue to look for other funding opportunities that can support the development of the curriculum as well as best practices for prevention of mold (and other indoor air quality problems).

EXPECTED OUTCOMES:

In order to gain a new perspective on the recurring problem of mold in rental units, tools of systems thinking were utilized. This provided a more thoughtful analysis of interrelated issues and generated several conclusions. First, stakeholders are acting independently and in an uncoordinated manner. Second, the lack of regulations/standards/guidance to determine when mold is an issue, how mold should be mitigated, and who should take the lead role(s) on tackling these issues, in part, has fueled this lack of coordination. If these patterns are to change, a comprehensive, long-term approach to mold in rental units must be designed. Specifically, this approach must engage stakeholders and lead to the development of a program that creates a protocol for preventing mold in rental units and responding promptly to mold when it does occur. While the EHEB has already started the process of engaging stakeholders and will continue to do so, additional funding must be sought. Only then can the focus truly shift from short-term fixes to long-term fixes and the EHEB begin to reduce mold occurrence in rental homes and apartments.

LEADERSHIP DEVELOPMENT OPPORTUNITIES:

Heidi R. Krapfl

Going into this process, I was excited but wasn't sure what to expect. I was a bit afraid that there might be 'trust' exercises involved where people practiced catching one another. To my relief, there were no such exercises. Instead, my expectations were greatly exceeded. The combination of lectures, hands-on exercises, and written assignments provided a great opportunity to learn new material. The exploration of the causal loop diagrams and system archetypes has really shifted my thinking and provided new insight into how to pick apart a problem so that a new path toward a solution can be revealed. I also really valued the Skillscope 360 instrument results. While there were not any surprises, per se, one result validated what I already knew and gave me the impetus to address it. Finally, the people I have met through the Institute have been fantastic, especially my team members and mentor. While I didn't get to know everyone, my list of contacts has increased and I would not hesitate to call any of the fellows. The end result was that I have had a very rewarding year as a fellow with the Environmental Public Health Leadership Institute.

ABOUT THE EPHLI FELLOW(s)

Heidi Krapfl is currently the Chief of the Environmental Health Epidemiology Bureau (EHEB) for the New Mexico Department of Health. Heidi began working for the New Mexico Department of Health in 2000, as an epidemiologist for the Diabetes Prevention and Control Program. After working for the program for 6 years, she took a position as

an epidemiologist in the EHEB. In 2008, she was then promoted to her current position as Chief where she provides leadership and management oversight of all EHEB programs including the Asthma Program, Environmental Public Health Tracking Program, Lead Program, and Occupational Health Surveillance Program.

Heidi received her MS in Environmental Health, with a concentration in epidemiology, from Colorado State University (CSU) in 1999. While at CSU, she worked in the Environmental Health Advanced Systems Laboratory as an epidemiologic research associate on health outcomes associated with water disinfection byproducts. Her undergraduate work was conducted at the University of Michigan, where she completed a BS in Natural Resources and Environment and a BA in French in 1993.

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