Cultures of Exposure

Understanding Lead Exposure in Burlington’s Refugee Communities and Developing an Outreach & Communications Plan

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Abstract

Lead is a heavy metal that is used in a variety of products, from paint to imported cosmetics and food. High levels of lead exposure can damage organs and body systems and cause psychological and neurobehavioural function impairment. Despite government restrictions on the use of lead in most products in the United States, the persistence of lead in paint and soils makes it a continuing threat to human health. This is particularly true in Vermont, where the old housing stock presents a high risk of exposure to lead paint. Consequently, the Vermont Department of Health, in conjunction with other programs, has implemented measures to raise awareness about the dangers of lead exposure and remove exposure sources. Due to language and cultural barriers, however, these programs are not always effectively communicated to the entire Vermont population, especially New Americans.1 New Americans, specifically refugees, may be at a higher-than-average risk for lead exposure as a result of both pre- and post-arrival exposure pathways. In order to better communicate the dangers of lead poisoning and encourage refugees to take part in the available lead testing and mitigation programs, we developed educational materials and hosted a networking event to raise awareness within the refugee communities of Burlington, VT. Through this event, we also hoped to strengthen communication between organizations involved in mitigating the dangers of lead exposure and key organizations serving the refugee communities in Vermont.

1 “New American” is a term that refers to those who have recently immigrated to the United States. It encompasses a larger group of people than the term “refugee,” which refers to those who have been officially resettled through the government. For this project, we focused our research on refugees and refugee-associated groups, but the identified themes and concerns may extend to all New Americans.
Guide to Acronyms

AALV: Association for Africans Living in Vermont
BLL: Blood Lead Level
BLP: Burlington Lead Program
CDC: Centers for Disease Control and Prevention
CHCB: Community Health Center of Burlington
EMP: Essential Maintenance Practices
HHLP PPP: Healthy Homes Lead Poisoning Prevention Program
HIPAA: Health Insurance Portability and Accountability Act
PTTI: Provisional Total Tolerable Intake
RHC: Refugee Health Committee
RISPnet: Refugee and Immigrant Service Provider Network
VDH: Vermont Department of Health
VHCB: Vermont Housing and Conservation Board
VRRP: Vermont Refugee Resettlement Program
VSA: Vermont Statutes Annotated
USC: United States Code
WIC: Women, Infants, and Children
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PART I
The Connection between Lead and Refugees

Introduction to Lead

Lead is a naturally occurring heavy metal that can be found in all parts of the environment. It is one of the more abundant elements; however, instead of pure lead metal, it is typically found in the form of the mineral galena (lead sulfide). As a mineral, it is highly malleable, ductile, and seemingly impervious to corrosion (Gayle et al. 1992, Zahner 1995), which made it a widely used resource beginning as early as 9,000 years ago (Winder 2012).

The Romans were the first to use lead on an industrial scale, utilizing it for their famous plumbing system, among other projects. Following the Romans, people found countless uses for lead. Glassmakers added it to wine decanters to make them glisten, and painters found that lead carbonate was a cheap and durable additive (Knight 2014). In the 20th century, lead continued to be used in plumbing, paint, and bullets. The scale at which lead entered our environment grew dramatically with its adoption as an anti-knocking agent in gasoline in the early 20th century (Figure 1; Flegal and Smith 1995). Consistent with the increase in the use of lead was the increase in the number of lead-related medical issues. Today, even though laws prevent lead from being used in most products in the U.S., incidents of lead poisoning still occur. Once introduced into soils through deteriorating leaded paint and gasoline emissions, lead becomes highly immobile, making it a persistent environmental pollutant (Rolfe et al. 1977, Singer and Hanson 1969).
Modern lead exposure is largely dependent on an individual’s country of residence, cultural background, housing situation, and livelihood. Some countries, including the United States, have taken active measures to eliminate or reduce lead use in product manufacturing. Meanwhile, other countries still permit the use of lead in common products. Most prevalent among these products is leaded gasoline, which, as of 2011, remained in use by only a handful of countries globally (DePasquale 2011). In the U.S., lead can also be found in some candies, foods, canned foods, folk medicines, and cosmetics (New York Department of Health 2010) that have been imported from other countries. As a result, economic, societal, and cultural factors can also contribute to an individual’s risk of lead poisoning.

Blood lead levels (BLL) as low as 2 μg/dL have impacted the health of children (Canfield et al. 2003). In 2012, this finding prompted the Centers for Disease Control and Prevention (CDC) to decrease the BLL threshold in children from 10 μg/dL to 5 μg/dL. The exposure thresholds for adults and children are different because of body size and development (Tables 1 and 2).
Table 1. BLL exposure thresholds in adults (New York Department of Health 2009).

<table>
<thead>
<tr>
<th>Blood Lead Levels</th>
<th>Exposure Thresholds for Adults</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-25 μg/dL</td>
<td>Lead build up, minor exposure</td>
</tr>
<tr>
<td>25-40 μg/dL</td>
<td>Frequent exposure, some evidence of physiological problems</td>
</tr>
<tr>
<td>40-80 μg/dL</td>
<td>Potential for serious health damage, even when asymptomatic</td>
</tr>
<tr>
<td>&gt; 80 μg/dL</td>
<td>Permanent health damage may occur</td>
</tr>
</tbody>
</table>

Health effects include neurological, gastrointestinal, reproductive, and renal effects as well as heme synthesis. For children, BLL thresholds are much lower (Table 2), and consequences are more severe.

Table 2. BLL exposure thresholds in children (New York Department of Health 2009).

<table>
<thead>
<tr>
<th>Blood Lead Levels</th>
<th>Exposure Thresholds for Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9 μg/dL</td>
<td>Above average exposure</td>
</tr>
<tr>
<td>10-14 μg/dL</td>
<td>Action is required to address sources of lead</td>
</tr>
<tr>
<td>15-45 μg/dL</td>
<td>High BLL; sources of lead exposure must be removed immediately to prevent permanent health damage</td>
</tr>
<tr>
<td>&gt; 45 μg/dL</td>
<td>Child needs immediate medical treatment; the child should not return home until all sources of lead have been removed</td>
</tr>
</tbody>
</table>

Lead in the United States and Vermont

The U.S., like other countries, enthusiastically incorporated lead into the manufacturing of consumer goods. In fact, it was in the United States that General Motors’ engineers discovered the use of lead as an anti-knocking agent in gasoline, prompting a huge increase in the demand for and use of lead (Lewis 1985). The effects of lead exposure from gasoline became very clear early on in its use, when one of the engineers who invented tetraethyllead and workers involved in the development of the gasoline additive died. In 1925, in response to the deaths, the Surgeon General suspended the use of leaded gasoline while it conducted an investigation into its health
effects. However, due to time constraints and industry bias on the investigation committee, the Surgeon General’s office found no grounds to ban the use of tetraethyllead gasoline (Ibid.). Following this decision, the use of lead in products went unchallenged until decades later.

Legislation passed in the U.S. Senate in the 1970s addressed the use of lead in everyday products, striving to ultimately limit the introduction of lead in the environment. Many health-related federal laws enforce lead exposure limits to some degree (Table 3). Most of these acts deal with the presence of pollutants in the environment and thus address lead levels in this way.

**Table 3.** Federal laws that restrict the use and emission of lead.

<table>
<thead>
<tr>
<th>Year</th>
<th>Law Passed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1970</td>
<td>Clean Air Act</td>
</tr>
</tbody>
</table>
| 1972 | Clean Water Act  
Consumer Product Safety Act |
| 1974 | Safe Water Drinking Act |
| 1976 | Toxic Substances Act  
Resource Conservation and Recovery Act |
| 1980 | Comprehensive Environmental Response, Compensation, and Liability Act |
| 1990 | Lead banned from gasoline by amendment to the Clean Air Act |
| 1992 | Lead-Based Paint Hazard Act |

Many states also manage lead with state-specific legislation. In 1995, Vermont passed Act 165, which established guidelines for the state’s mitigation of lead exposure. The law mandates topics such as safe work practices, public outreach, and the universal screening procedure (18 V.S.A. § 1759 1995; Appendix). This legislation also empowers renters by holding landlords accountable for Essential Maintenance Practices (EMPs) for the mitigation of lead in their buildings; failure to comply results in fines for the landlord (18 V.S.A. § 1759-60(a) 1995).

The Vermont Consumer Protection Act prohibits the trade or sale of children’s items or jewelry containing lead (9 V.S.A. § 2470(f-g) 1967). For legal lead-containing products, especially plumbing, paint, and salvage materials, the law requires vendors to display a warning
label and to provide consumers with lead safety information (9 V.S.A. § 2470(h) 1967). The law is not constrained to these industrial sources of lead, however; a clause added to the law in 2007 gives the Attorney General jurisdiction over the distribution of labels and warning materials for the sale of other lead-containing products (9 V.S.A. § 2470h(5) 1967), with the exception of fishing and hunting equipment (9 V.S.A. § 2470(l) 1967).

Refugees in Vermont

A refugee is defined by the Immigration and Nationality Act as a person living outside his or her country of nationality who is “unable or unwilling to return to...that country because of persecution...on account of race, religion, nationality, membership in a particular social group, or political opinion” (8 U.S.C. § 1101 (a)(42) 2012). Refugees differ from asylees because individuals must be outside of the United States to apply for refugee status but can apply for asylee status from within the United States (Rhytina 2005).

Refugees have entered Vermont via the official resettlement process since 1980, when the U.S. Committee for Refugees and Immigrants (USCRI) established a branch office in the state. The Vermont Refugee Resettlement Program (VRRP) has since facilitated the establishment of over 7,000 refugees from a multitude of countries (Lamoureux, personal communication, 2014). VRRP introduces between 250 and 350 refugees to the state annually. The demographic patterns of refugees have changed over time due to global politics and social climate. Generally, incoming Vermont refugee demographics have reflected nationwide patterns (Bogre 2010). For the purposes of our project, we considered both the overall composition of refugees within the state as well as the demographics of refugees resettled here within recent years. The refugees who have come to the U.S. within the last few years are those most likely to face communication barriers. Between 1989, when demographic data were first collected, and present, the greatest percentages of refugees resettled in Vermont came from Bhutan, Bosnia, Vietnam, and Somalia (Figure 2, Table 4). More recently, between 2010 and present, the vast majority of Vermont refugees came from Bhutan, followed by Burma, Somalia, and Iraq (Figure 3).
Figure 2. Breakdown of refugees resettled in Vermont between 1989 and 2014 by country of origin. Includes asylees and in-migrants who contacted the refugee program. Does not include refugees who resettled in Vermont between 1980 and 1989. “Other” encompasses nations with <1% of total arrivals (including Azerbaijan, Sudan, Kosovo, Rwanda, Burundi, Togo, Czech Republic, Slovakia, former USSR, Romania, Poland, Bulgaria, Hungary, Iran, Albania, Cuba, Haiti, and Ethiopia). Data from State Refugee Coordinator, Agency of Human Services.

Figure 3. Breakdown of refugees resettled in Vermont between 2010 and 2014 by country of origin. Includes asylees and in-migrants who contacted the refugee program. “Other” encompasses nations with <1% of total arrivals (including Sudan, Rwanda, Burundi, and Togo). Data from State Refugee Coordinator, Agency of Human Services.
Table 4. Breakdown of refugees resettled in Vermont between 1989 and 2014 by country of origin. Data sorted in order of first known date of resettlement in Vermont. Includes asylees and in-migrants who contacted the state refugee program. Does not include refugees who resettled in Vermont between 1980 and 1989. "Other" includes Czech Republic, Slovakia, former USSR, Romania, Poland, Bulgaria, Hungary, Iran, Albania, Cuba, Haiti, and Ethiopia. Data from State Refugee Coordinator, Agency of Human Services.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total Resettled (1989-2014)</th>
<th>First Resettlement Date (known data)</th>
<th>Last Resettlement Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vietnam</td>
<td>1069</td>
<td>&lt;1989</td>
<td>2005</td>
</tr>
<tr>
<td>Bosnia</td>
<td>1705</td>
<td>1993</td>
<td>2004</td>
</tr>
<tr>
<td>Iraq</td>
<td>269</td>
<td>1994</td>
<td>2014</td>
</tr>
<tr>
<td>Sudan</td>
<td>151</td>
<td>1998</td>
<td>2014</td>
</tr>
<tr>
<td>Kosovo</td>
<td>58</td>
<td>1999</td>
<td>1999</td>
</tr>
<tr>
<td>Congo</td>
<td>258</td>
<td>2000</td>
<td>2014</td>
</tr>
<tr>
<td>Togo</td>
<td>28</td>
<td>2001</td>
<td>2011</td>
</tr>
<tr>
<td>Azerbaijan</td>
<td>34</td>
<td>2003</td>
<td>2006</td>
</tr>
<tr>
<td>Somalia</td>
<td>703</td>
<td>2003</td>
<td>2014</td>
</tr>
<tr>
<td>Burundi</td>
<td>116</td>
<td>2004</td>
<td>2011</td>
</tr>
<tr>
<td>Former USSR</td>
<td>164</td>
<td>2005</td>
<td>2008</td>
</tr>
<tr>
<td>Rwanda</td>
<td>19</td>
<td>2005</td>
<td>2013</td>
</tr>
<tr>
<td>Burma</td>
<td>300</td>
<td>2008</td>
<td>2014</td>
</tr>
<tr>
<td>Bhutan</td>
<td>1611</td>
<td>2008</td>
<td>2014</td>
</tr>
<tr>
<td>Others</td>
<td>631</td>
<td>1989</td>
<td>2014</td>
</tr>
</tbody>
</table>

Once refugees arrive in Vermont, they go through an established process of resettlement. For the first eight months, the VRRP guides newly-arrived refugees through the process of acclimating to life in the United States. This includes finding jobs, registering for schools, getting health care, and finding a home, the latter of which is very relevant to lead exposure.
Helping refugees find housing is one of VRRP’s main priorities because the process can be so difficult. Refugees are placed in housing in the Burlington-Winooski area, which is becoming increasingly scarce and unaffordable. Because of their limited resources, VRRP tries to place refugees in the most affordable neighborhoods available, such as the Old North End in Burlington or adjacent areas like Winooski (Vermont Housing Finance Agency 2010). While VRRP once utilized Section 8 public housing for refugees, the waitlist for public housing has now grown too long for this to be feasible (Lamoureux, personal communication, 2014).

Lead and Refugees

Refugees are considered a high-risk group for lead poisoning (Schmidt 2013, Caron and Tshabangu-Soko 2012) due to (1) exposure to lead-containing products prior to arrival in the United States and (2) increased exposure due to placement in substandard housing in the United States. The prevalence and relative importance of lead poisoning varies widely in different countries. In 2001, refugee children living in Massachusetts were found to be twice as likely to have elevated BLLs as American-born children (Geltman et al. 2001).

Because lead’s effects tend to be behavioral, hard to detect, and delayed, lead is not often discussed or even fully understood, both within the U.S. and across the globe. Therefore, lead continues to be used in everyday products such as gasoline, cosmetics, and medicines in many parts of the world.

1. Pre-arrival Exposure

Within the refugee communities in Vermont, the most common pre-arrival sources of lead exposure are lead dust from gasoline, cosmetics, traditional medicines, and pottery (Gunturo et al. 2011). The use of several of these products is rooted in cultural and religious traditions related to appearance, health concerns, and spiritual protection, making their regulation an especially sensitive issue (Parry and Eaton 1991).

2 Refugees can be resettled all over the state; however the Burlington-Winooski area is the primary relocation area. VRRP tries to settle the vast majority of refugees in the Burlington area because it has the best access to public transportation and infrastructure.
a. **Gasoline**

Up until the early 2000s, leaded gasoline was the only fuel option in most African and Middle Eastern countries (UNEP 2006, ACFA 2007). Algeria, Iraq, Yemen, Burma, North Korea, and Afghanistan still officially sell leaded gasoline (Taylor and Gethin-Damon 2011). Though lead has largely been phased out of gasoline around the world, the impacts of its use do not disappear instantaneously (*Toxicological Report on Lead* 2007). Lead’s persistence in the soil poses a threat for decades after physical lead-laden tailpipe emissions cease.

b. **Cosmetics**

Some specific types of eye makeup, known by different names around the world, including tiro, kohl, surma, and kajal, can contain high levels of lead (Parry and Eaton 1991). Use of these products is especially common in South Asia, the Middle East, and northern and western Africa (CDC 2012). While these products are often used on adults, they are also commonly applied to children, especially around their eyes. Their use on children presents particular problems because of kids’ tendency to touch their faces and put their fingers in their mouths, leading to ingestion of the makeup and, therefore, lead. Lead can also be absorbed through the eye duct, a common ingestion pathway for lead-contaminated eye makeup (Gaffney et al. 2010).

c. **Traditional Medicines**

Certain batches of folk medicines are known to have caused dangerously high BLLs (CDC 1983). Folk medicines are widely used, especially by those in developing countries, not only because the medicines are rooted in traditional practices but also because they are usually more affordable than other health care options (Karri et al. 2008). Specifically, these traditional medicines are known to have contained lead in the past: pay-loo-ah, a medicine used to treat fevers in Southeast Asia; a group of traditional Burmese medicines known as wonotsay (Mitchell et al. 2009); GSo-Ba Rig-Pa, a traditional Bhutanese medicine based in Buddhist philosophy (Wangchuk 2007; Muller et al. 2014); and cebagin and bint al dhab, medicines used in the Middle East to treat infants for teething and colic, respectively (Karri et al. 2008). Although these medicines represent some of the particular cases where traditional medicines have been identified as the source of lead poisoning, it does not mean that lead is limited to these alone.
d. *Pottery*

Lead-based glaze has been applied to ceramics and pottery for years because it makes vessels watertight (U.S. FDA 2010). Although most countries switched to non-leaded glazes after the documentation of lead’s health effects, some countries continue to produce pottery contaminated by lead (Tyn 2014). In Burma, traditional glazes are lead based; however, due to an increasing scarcity of lead in the country, most producers in Burma are in the process of switching to nontoxic glazes (Ibid.). Despite this, many still use lead-based glazes, and, even with lead-free glazes, old kilns can contaminate pottery with remnant lead dust (U.S. FDA 2010).

e. *Other Pathways*

Increased BLLs in children in refugee camps near the Thailand-Burma border were traced to the prevalence of car batteries used to power the camps (Mitchell et al. 2009). Amulet necklaces with lead beads have previously affected refugees from Southeast Asia (CDC 2011). Anemia and malnutrition cause lead that is already in the body to be absorbed into the bones more readily, as a substitute for missing iron. Both anemia and malnutrition are more common in refugee children, especially those coming from developing countries, so this presents a significant hazard to incoming children (Mitchell et al. 2009).

2. *Exposure in the United States*

In addition to potential pre-arrival exposure, refugees are at a higher risk of exposure once they arrive in the United States. Pathways of post-arrival exposure include paint in old housing, lead-contaminated soil, and imported products that contain lead.

a. *Pre-1978 Housing*

Vermont has a very old housing stock—the seventh-oldest in the country (Burlington Lead Program 2014), and approximately 62% of the housing stock was built before 1978, meaning it almost certainly contains lead paint (Vermont Housing Finance Agency 2009). Most refugees rent apartments or homes when they first arrive in the United States. While rental properties provide quick housing options for refugees with very limited resources, they also frequently contain disproportionately high levels of lead compared to owner-occupied homes. A property’s age alone can lead to higher lead exposure for tenants because old houses have been treated with lead paint and are often falling into disrepair. The problems of age and upkeep of
housing are exacerbated in low-rent areas because of limited resources and some landlords’ lower incentive to keep housing safe. Thus, low-rent housing often contains higher incidents of chipping paint and associated lead dust inhalation.

b. **Gasoline**

Although leaded gasoline was phased out of use in the United States between 1970 and 1995, tailpipe emissions before this time contained lead, which contaminated soil near roads. Because lead does not break down, it remains in soil today, especially along roadsides in areas of high density car travel (Mielke and Reagan 1998). Children come across contaminated soil when they play outside, especially near the road. Lead-contaminated soil can be tracked onto the floor in houses, a popular place for children to play. When children exhibit hand-to-mouth behavior in either scenario, they ingest lead.

c. **Imported Products**

The products discussed in Section One (b-e) are not exclusively available abroad; they have been imported to the United States and are prevalent in refugee communities. These products may contain lead levels higher than what is legally allowed—information that goes unreported on many of these products’ labels (Parry and Eaton 1991). The lack of labelling makes it difficult for consumers to know what potentially harmful ingredients are in these products. Pre-market approval by the Food and Drug Administration (FDA) is not required for cosmetics; however, the Federal Food, Drug, and Cosmetic Act prohibits the importation of products containing dangerous chemicals, such as lead, or products that do not accurately label their ingredients (21 U.S.C. § 361-362 1966). Additionally, all imported products are subject to FDA examination.

Traditional medicines are frequently categorized as cosmetics or “dietary supplements.” As such, they do not need to pass FDA inspection before being placed on the market (Bent 2008). Even so, because the U.S. does not require specific certification for practitioners, there is little regulation of the products’ content. These goods are imported in relatively small amounts, which may also contribute to the infrequency of analysis and regulation of their contents.

In addition to refugees’ increased likelihood of consuming lead-containing medicines, the stigma and lack of understanding associated with their use makes them poorly understood and infrequently discussed. Some refugees may be reluctant to disclose their use of traditional
medicines to their doctors, and their doctors may be unfamiliar with the cultural applications of traditional medicines (Karri et al. 2008). Both of these factors make the identification of lead poisoning sources more challenging and exacerbate the risk associated with unregulated traditional medicines.

We did an analysis of two imported products commonly used by some refugee groups in Burlington—eyeliner and a traditional clay medicinal treatment—to understand lead exposure sources that are often considered “pre-arrival” but are imported to the United States. To perform these analyses we used two techniques commonly employed to determine heavy metal concentrations: X-Ray Fluorescence (XRF) and Graphite Furnace Atomic Absorption Spectrometry (GFAAS) (Lilligren 2002, Sasha 2010).

XRF analysis of the clay indicated a lead content of 38.4 +/- 13.1 parts per million (ppm) in a 5 gram sample.3 The Middlebury College Chemistry 311 class performed a GFAAS analysis of the same clay sample, finding the sample to have a lead content of 29 ppm. A GFAAS analysis found kohl to have a lead content of less than 1 ppm.

The provisional total tolerable intake (PTTI), a standard set by the Federal Drug Administration, sets the threshold for how much lead different groups defined by age and sex can ingest before reaching a BLL of 10 μg/dL for children and pregnant or lactating mothers or a BLL of 20 μg/dL for other adults. For children the daily lead intake threshold is 6 μg/day and for pregnant and lactating women it is 25 μg/day (Miodovnik and Landrigan 2009). However, in 2012, the FDA lowered the BLL threshold to 5 μg/dL for children, therein lowering the PTTI as well. Ultimately, if a pregnant women is ingesting 5 grams or more of this type of clay to cure nausea, a common symptom experienced during pregnancy, then she is likely exceeding the advisable daily level of lead intake, which could lead to complications with her pregnancy or with the development of her child post pregnancy. These complications include increased risk of pregnancy hypertension, spontaneous abortion, and reduced neurobehavioral development in children (Ibid).

We suggest further analysis of imported products frequently consumed or used in refugee communities as well as in broader New American communities. Most beneficial would be a variety of eye makeups, ideally imported from several different countries. Additionally, the analysis of other traditional medicines is important to determine the products most likely to

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3 A 5-gram sample includes multiple small blocks, the form in which the clay is sold.
contain high levels of lead. Within Vermont, it is most important to test the products most prevalent among the largest communities of refugees in the state, specifically Bhutanese, Burmese, Vietnamese, and Somali products. This includes pay-loo-ah, wonotsay medicines, GSo-Ba Rig-Pa, and other medicines specific to the Burlington refugee community.

3. Tenant-Landlord Relationship

Landlords’ lack of incentive to address lead issues, combined with renters’ view of rental homes as “temporary,” leads to the low prioritization of lead remediation for both landlords and renters. Often, neither stakeholder wants to invest great amounts of time or resources in resolving lead issues. Although landlords are legally required to make their properties safe from lead poisoning (Vermont Agency of Commerce and Community Development), these responsibilities are more likely to be ignored when economically disadvantaged populations that are less familiar with their rights, such as refugees, are the beneficiaries of the actions. Additionally, some landlords are unaware of or financially unable to uphold these responsibilities.

Refugees do not always stay in their original housing beyond their first year in the United States. Because of the large volume of refugees arriving in Vermont, VRRP often utilizes the same landlords when searching for housing for refugees. The landlords with whom they are connected often own and rent multiple apartments. Although this means that landlords are more likely to be aware of lead laws in the state and keep their buildings up to code, the sheer number of properties for which they are responsible may cause a lack of attention to seemingly minor issues, like lead. While most landlords likely do their best to keep up with housing concerns, maintaining dozens of apartments will inevitably result in details slipping through the cracks. Additionally, while they are the minority, there are some landlords who deliberately exploit or ignore disempowered groups who they believe will not have the knowledge or the means to defend themselves.

There is a disconnect between refugees and their landlords that has yet to be bridged. During their first year of residence, refugees are able to access help from VRRP. After that time, they can reach out to case managers at the AALV,\(^4\) who can put them in touch with other

\(^4\) The organization serves as a resource hub for all New Americans in the Burlington area. It was formerly known as the Association for Africans Living in Vermont, but now uses the acronym AALV to better reflect its goal to provide service to all New Americans, not strictly those from Africa.
organizations, such as Legal Aid, which can help them assert their rights. This is only possible, however, in the event that refugees speak out about their housing concerns.

Stories of rent rates doubling or landlords evicting tenants without warning further discourage refugees from reporting lead-related housing issues, such as chipping paint or lead dust. Refugees may be afraid to speak out about any housing issue because they do not want to risk losing their homes or inciting retribution from their landlords (Lamoureux, personal communication, 2014). Even though tenants can report EMP violations anonymously and any retribution for doing so is illegal, many tenants may not be aware of these regulations, thus perpetuating the fear surrounding the issue. Even if the landlords have done nothing to prompt this fear, the negative accounts of speaking out are often the stories that spread the farthest and can deter refugees from seeking assistance. Overall, many refugees do not have the resources and empowerment necessary to assert themselves about housing injustices (Lamoureux, personal communication, 2014). As it stands, it is unclear whom refugees should contact should they find themselves in such a situation. This confusion is not limited to refugee groups; the organizations that assist refugees with these matters seem equally unsure about who should bridge the gap between refugees and their landlords.

Disconnect in Communication

Because refugees are considered to be at a higher-than-average risk to lead exposure, blood lead levels (BLLs) of children age 6 months to 16 years are tested upon arrival in the United States (U.S. Department of Health and Human Services 2012). In addition, during a medical orientation, refugees are instructed to test their young children for lead in the future. Despite best intentions, this process has not proved to be an effective way to communicate the dangers of lead and prevent exposure. In addition to the obvious language barriers that many refugees face when they first arrive in the United States, the mass influx of new information, rules, and regulations likely overshadows some of the seemingly less-pressing matters, including lead.

Several health agencies and organizations have tried to reach out to refugee communities after their arrival but have encountered language and cultural communication barriers (Haugen, personal communication, 2014; Pyatt, personal communication, 2014). In the past, they have
struggled with creating culturally appropriate outreach materials that convey their message about lead. Finding translators and determining the most beneficial languages are challenging aspects of outreach efforts. The changing demographics of incoming refugees further complicate these processes, as organizations have limited budgets allocated for translation efforts.

Even when organizations present materials in multiple languages, direct translation is not always enough. Further, while Vermont’s Healthy Homes Lead Poisoning Prevention Program is attempting to translate their materials into multiple languages, the nuances of translation make this process very draining on time and resources, therein limiting the organization’s ability to translate a great number of their outreach materials (Haugen, personal communication, 2014). Health organizations outside of the VDH have expressed interest in connecting with refugees, but, like the VDH, have had limited success. Even when health organizations have succeeded in translating their outreach materials into different languages, they have struggled with connecting refugees to these resources and conveying the significance of lead exposure.

Roles and Protocols of Local Lead Remediation and Health Organizations

The main resources for lead remediation in Vermont are the Burlington Lead Program (BLP) and the Vermont Housing and Conservation Board (VHCB). The Burlington Lead Program, a part of the City of Burlington Community and Economic Development Office, works on the remediation of lead paint in Burlington and Winooski homes. Funded by the U.S. Department of Housing and Urban Development, BLP works to identify lead-based paint issues within homes and to remediate these hazards. The BLP focuses on both large-scale construction projects, such as window and door replacement, as well as education and empowerment of homeowners to fix smaller issues. When the VDH identifies individuals with elevated BLLs, they connect them to these resources.

When a child’s BLL tests between 5 and 10 μg/dL, the VDH sends the test results and the BLP’s contact information to the family. Because of Health Insurance Portability and Accountability Act (HIPAA) restrictions, however, the VDH cannot provide the BLP with the contact or medical information of any children with elevated BLLs. Once the family receives this card, which is in English, the onus lies on the family to reach out to the BLP for help. This presents a problem for refugee families, as the majority of immigrant families do not speak fluent
English and may not understand the significance or content of the VDH letter (Pyatt, personal communication, 2014).

The BLP’s programs target low-income homeowners as well as landlords who rent to low-income tenants, therein specifically engaging those at the highest risk for lead poisoning. The BLP has created pamphlets containing general lead information, pathways of exposure, and methods of lead poisoning prevention and has translated them into Nepali and Somali. Despite these efforts, language barriers remain the organization’s most challenging obstacle to engaging refugees. While refugees may qualify for the BLP’s services, participation remains limited because of communication barriers. Since it is the goal of these organizations to provide services to all Vermonters who qualify, the BLP expressed interest in creating video outreach tools and translating additional outreach materials, including more extensive instructions for home lead remediation, into multiple languages (Pyatt, personal communication, 2014).

Like the BLP, the Vermont Housing and Conservation Board (VHCB) functions as a resource for lead remediation in homes in Vermont; however, the VHCB is responsible for the entire state of Vermont, except Burlington and Winooski, and is not focused exclusively on lead related issues.

Several different health care establishments provide testing and lead information to refugees. Health care for refugees has improved drastically in the past decade (Lamoureux, personal communication, 2014). After the initial screening process and appointments at the Fletcher Allen Health Clinic, all refugee adults are referred to the Community Health Center of Burlington (CHCB) for regular appointments (Lamoureux, personal communication, 2014). Once there, they go through a fairly extensive medical orientation process (four 2-hour sessions) that introduces them to medical practices in the United States (Daoust, personal communication, 2014). This orientation addresses lead briefly in its first section but is more broadly focused on acclimating refugees to the health care system and good medical and nutritional practices (Daoust, personal communication, 2014). Despite this orientation, non-English speakers struggle with the complicated healthcare system (Lamoureux, personal communication, 2014).

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) has also made efforts to connect with refugees in Vermont. WIC focuses on providing care to low-income families who qualify for the program (households of four making less than $849 per week). WIC performs free lead tests for pregnant and postpartum women as well as children up
to age five. They offer free nutritious food to offset the potential effects of lead exposure (Charnley, personal communication, 2014). To make themselves more accessible to refugees, WIC has made efforts to translate their outreach materials into many different languages. On their website’s home page, they provide an overview of the program in nine different languages, including Nepali, Burmese, Arabic, and Somali.
PART II
Our Project: Goals, Methodology, and Results

Goals

The Department of Health’s Healthy Homes Lead Poisoning Prevention Program (HHLPPP) was one of our main community partners for this project. The HHLPPP expressed interest in having us expand their communications with the refugee community in the greater Burlington area to communicate the dangers of lead poisoning and the services in place to assist them. We also wanted to help strengthen the network of service providers so that, when future issues arise, there are already connections between these groups that will facilitate resolutions to these problems more efficiently. Thus, our objectives for this project were twofold: (1) develop a communications and outreach plan to help the HHLPPP and other relevant organizations effectively reach the Burlington refugee community and (2) use this opportunity to build a stronger network between local organizations focused on working with the refugee community and public health.

Objective 1: Communicating Our Message to Refugees

The first part of developing our communication plan involved identifying our target audience. We decided to create materials that would be distributed to individuals or households. By addressing these audiences, we wanted our message about lead poisoning to enable refugees to independently seek out the services in place to assist them with lead-related issues.

Since we addressed a group of people composed of many different cultures, it was difficult to recognize and address all of their cultural differences in our outreach materials. Instead, we identified and relied on the shared experience of relocation. Commonalities for most refugees include a language barrier, a cultural background different from the U.S., a reason for leaving their country as refugees, being a part of the Vermont Refugee Resettlement Program, and common places of congregation like the AALV. Given these cross-connections, we developed a universal approach that appeals to many individuals and is not specific to a particular ethnic, racial, or cultural group, which is a method endorsed by Kreuter et al. (2003).
We believed information presented with these core similarities in mind would resonate with all members of the community and increase the efficacy of our communication.

In addition to varying cultural norms, linguistic differences challenged our work; we had to customize our outreach materials in different languages to avoid communication issues like those commonly experienced by cross-cultural health educators (Finau 2000). We were also cognizant of the potential fear of involving the government or regulatory organizations. We wanted to inspire trust and empowerment in refugees with regard to lead resources. Lastly, we had to carefully consider the information saturation that occurs when refugees go through the resettlement process or visit the AALV. We worried that our materials would be ignored in light of all the pamphlets and information presented to refugees at places that provide them with supportive services.

Our message to refugees can be summarized with the following statement: There are resources available to help you deal with lead exposure, and you can safely ask for assistance. This message is intentionally broad because we hoped to have a more meaningful impact by framing our approach to lead poisoning in this way. Through effective communication of this message, our message aims to empower refugees to tackle the issue of lead exposure not only for their children, but for additional family, friends, and community members.

We took a two-pronged approach to our outreach materials to convey this message. We created (1) an informational video available both as a DVD and on a YouTube channel and (2) an accompanying “Lead Resource Guide” that will be the sleeve for the DVD and will also be available online with the videos on YouTube. The video and resource guide are translated into several languages based on the prevalence of different languages in greater Burlington’s refugee community.

**Objective 1.1: Informational Video**

When we began our project, both the VDH and the BLP suggested that we create an informational video for refugees. Our first task was determining if a video was indeed the best way to communicate the lead issue to this segment of the population. We spoke to refugees from different cultural backgrounds about what they thought the best way to share information with their communities was. The majority of our interviewees said that video was the best medium. We agreed that video would serve as a clear, unique, and highly engaging medium to share information, whereas it would be harder with written pamphlets to gain and keep viewers’
attention, especially given the deluge of pamphlets and informational sheets that refugees receive through the VRRP, AALV, and other organizations.

To address the communication challenges outlined earlier, we utilized peripheral, linguistic, evidential, and sociocultural strategies. By using animation as a peripheral strategy, we are able to effectively attract children to our video visually. Through their children, adult caretakers, as those who can affect direct action, are drawn to the video. Next, we addressed the linguistic barrier. To avoid any mistranslations and ensure linguistic accuracy, we consulted and worked with translators whose native language matched that of the target audience. Through our research, we also used an evidential strategy where we gathered information about our target audience, such as popular foods and products in community shops and homes. By establishing connections with our audience, we gained a better understanding of what their lives entail and used this to shape various aspects of our video, such as our narrative structure and the setting of our story. Lastly, as a sociocultural communication strategy, we used video to make our information stand out from other media that may be presented passively to refugees. As mentioned earlier, pamphlets are the primary form of outreach materials available at the AALV, and we used a different format to make our material more appealing and exciting. Through these techniques, we hope our video and its message will make a lasting impact on our target audience.

Throughout the course of the semester, we created multiple versions of this video based on feedback we received from our community partners and our peers and mentors at Middlebury College. On October 23, we had a feedback session with faculty from the College’s Environmental Studies Program who had backgrounds in a variety of different foci, including film, conservation biology, history, psychology, and policy. They gave us feedback on the initial draft of the video we had created, which we were able to incorporate before our next planned feedback session. Their feedback included urbanizing the setting to mimic the environment in which most refugees in Burlington live, continuing to evaluate the role of race and diversity of the characters, and considering the creation of additional videos.

On November 11, our team held a workshop session at the AALV office in Burlington, during which we presented our video and collected feedback from several of our community partners. AALV case managers and support staff, staff from the Burlington Lead Program, and staff from the Vermont Department of Health all contributed to the workshop. Their responses helped us ensure that our final product consisted of outreach materials that were accurate,
effective, and valuable to our partner organizations. We asked our viewers to write down their thoughts as they watched the video, and we facilitated a discussion after showing the video. They suggested we widen our scope of focus beyond peeling and chipping paint to include lead in soil and invisible lead dust, stress the need for proper nutrition when living in contact with lead, and alter the visuals and language to better communicate the video’s objectives. We incorporated changes into our script and visuals as they suggested. Changes included adding word bubbles when mentioning some organizations and removing the “@” symbol from the mail scene. As discussed earlier, we considered creating more videos but decided against it to keep our message clear.

Additional feedback came from the Refugee Health Committee (RHC), which viewed our video at its November 10th meeting. Although we were unable to attend, we received the Committee’s feedback through Heather Danis, the interim Refugee Health Coordinator. We also discussed the video and RHC’s feedback with the Vermont State Refugee Coordinator, Denise Lamoureux, via phone. Their comments focused mostly on visuals but also echoed the need to widen the video’s focus beyond chipping paint to include other major pathways of exposure, such as lead in soil, which was a significant change to our final draft. Our video also reached other members of our community partner organizations through this meeting, providing a greater depth to the organizations’ feedback. Because they saw the actual product, meeting attendees were able to conceptualize how our video, once translated, could be useful to their ongoing health education efforts. Our video and video script are available in 5 languages—English, Swahili, French, Arabic, and Nepali (Appendices C&D).

Objective 1.2: Lead Resource Guide

In addition to the visual tool, we created supplementary outreach material that relays information about specific organizations and resources available to refugees. Including this additional information in our video would have been overwhelming and would have reduced the clarity and thus the efficacy of our message (Smith, personal communication, 2014). To avoid that, we created a “lead resource guide”—also translated—to accompany our video. For those who receive a DVD copy of the video, the guide will be on the sleeve of the DVD, creating a complete lead resource package. Those watching the videos online will be able to access the same guide in the video’s information section.
The front of the guide provides the names and phone numbers of key organizations that can help with different aspects of lead poisoning, prevention, and remediation (Figure 4). Because they provide a 24-hour interpreter service, we also included a number for the Northern New England Poison Center in case of emergency or questions about exposure. All the listed organizations have confirmed their interest in being on the guide and acting as the first point of contact for any refugee looking for help or information. Another goal of the lead resource guide was to create a clean design that would not clutter or distract from the information presented, while remaining aesthetically pleasing. Our design illustrates a path of questions that a reader may have, with the listed organizations as the answers. We used a clean sans serif font to ensure that the guide is as legible as possible, especially as many refugees have limited English proficiency. We also used only a few subtle, complementary colors in the guide to further streamline the design.
Figure 4. The front side of our “Lead Resource Guide,” which lists key organizations that can help with different aspects of lead exposure.
The back of the guide (Figure 5) is a map of the greater Burlington area that pinpoints the locations of the listed resources within Burlington, as well as Fletcher Allen Hospital because it serves as a landmark as well as a general health services facility. The points on the map are color coordinated with the boxes on the front to make it easier for our audience to connect the dots with the information presented. For example, the health care providers are in blue boxes on the list and have blue dots in the map. The guide is available in the same languages as the video.

Figure 5. The back side of our “Lead Resource Guide,” which is a map that pinpoints the locations of the listed organizations that are in the greater Burlington area.
We did not have a finished draft of the guide available at our October 23rd feedback session with the ES faculty or for the November 10 RHC meeting. At our session with the ES faculty, we instead described our goals, thought process, and potential design ideas for the lead resource guide and received positive feedback. We showed the guide to participants of our November 11 AALV workshop session and again received positive feedback on it, with respect to both the design and the content of the guide.

**Objective 1.3: Distribution of Materials**

We have identified several channels to use to ensure that our outreach materials and our message reach our target audience. Because we have several connections with community partners who have strong ties to our audience, we hope to use them as the connecting thread to effectively communicate with the refugee community in Burlington.

Our strongest tie is with the AALV, who has expressed interest in making our videos and lead resource guide available to their members. We have two methods of distribution within the AALV. First, we plan to make use of their waiting room. Currently, people waiting to meet with case managers at the AALV sit in this room, which has an abundance of pamphlets, a few computers, and a television that often broadcasts random channels. People in the waiting room are a “captive audience” in this space. We want to create a “lead station”; we will have our videos playing on the television and will also provide our lead resource guides in small card format to be displayed prominently next to the television so that people can pick one up before or after watching the video. We hope that creating a “station” specific to this issue will differentiate our information from the dozens of other pamphlets and informational materials that are available but often overlooked in the space. We also hope that the video will attract people’s attention by virtue of it being the only video there.

Our second channel is to give DVD copies of our videos and lead resource guide sleeves to AALV’s case managers. Because case managers work directly with our target audience on a regular basis, they can easily pass along the lead resource guide. This is a much more effective method because the information is being passed on in a personal setting by someone who is trusted.

In addition to our outreach through the AALV, we are reaching refugees through medical orientation processes. We are in communication with the medical case manager at VRRP, Bidur Dahal, who has expressed interest in using our video as part of the medical orientation process.
for refugees. As VRRP is the first point of contact for refugees when they arrive in Vermont, we are very excited about this prospect and the increase in exposure it gives to our outreach materials.

We are also in touch with Guylaine Daoust, the Limited English Specialist for the Community Health Centers of Burlington (CHCB). The medical orientation process at CHCB addresses lead poisoning, but only briefly. We are making our videos available to Guylaine for use in their orientation process. CHCB is listed on our lead resource guide and we know that televisions are available in their waiting rooms, so it would be another relevant place to air the videos and make our resource guides available.

Finally, we are working with the Refugee and Immigrant Service Providers Network (RISPnet), which is a group made up of many major players from the network of resources available to refugees. We presented our outreach materials at their December 11 meeting, with the goal of connecting with other relevant organizations as well as finding even more places to share our outreach materials. The group gave positive feedback and expressed interest in using our materials in their work. Some members had already seen an earlier draft of the video at the RHC meeting on November 11 and commented that they were pleased with the progression of the video since they had last seen it. RISPnet is a very important connection for us because they have the power to ensure that our work continues to be used long after this course and remains a significant and long-lasting campaign, which is a major goal of our project.

We formulated a budget for producing these outreach materials for distribution (Table 5). The video can be in DVD format and is also available on YouTube (Appendix C). The scale to which any given organization will choose to produce physical versions of these materials will depend on its goals. Some groups may see no need to produce materials, and some organizations may want physical copies to distribute via case managers or to play on DVD players in offices. If in physical format, the materials may be used independently of one another or in conjunction as a full lead resource guide package.
**Table 5.** Budget proposal for producing outreach materials.

<table>
<thead>
<tr>
<th>Material</th>
<th>Bulk Cost</th>
<th>Cost per unit</th>
<th>Quote source</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVD</td>
<td>$15.24 per 25 units</td>
<td>$0.61</td>
<td>Amazon</td>
</tr>
<tr>
<td>DVD Case</td>
<td>$8.71 per 25 units</td>
<td>$0.35</td>
<td>Amazon</td>
</tr>
<tr>
<td>“Lead Resource Guide” (loose or as DVD cover)</td>
<td>$40.23 per 150 units (double-sided color printing on matte finish)</td>
<td>$0.27</td>
<td>UPrinting</td>
</tr>
</tbody>
</table>

Using the quoted prices, each physical “Lead Resource Guide” package (DVD in case and paper guide) would cost $1.23. Based on this estimate, we think it will be possible for most of our partners to have physical copies of our outreach materials made available at their organization. If this budget is not attainable, prioritization of specific materials may be necessary. DVDs and cases are the bulk of the cost and can be eliminated through the use of digital versions of the video. The “Lead Resource Guide” does not require large amounts of funding to produce and would be beneficial to have in physical form as a handout. For the purpose of versatility, it is designed to be printed in a 12 cm x 12 cm format and can thus be either used in loose form or inserted as the front cover of the DVD case.

**Objective 2: Strengthening the Communication Network**

After researching the existing framework designed to address the issue of lead in Vermont, particularly with regard to refugees, we realized that there are a multitude of resources available. What we saw lacking and what our community partners identified as a future goal was solidifying a communication network. There are two major groups of organizations involved in this issue: those structured to help refugees with the resettlement process and those working to keep all Vermont residents safe from lead. While our project largely focused on examining the intersection of these groups’ goals, it also aimed to identify and facilitate future connections between these groups.

The main organizations we have been working with are the AALV and VRRP in relation to refugee support, as well as the VDH, BLP, and VHCB for public health education, support, and remediation. While all of these organizations were broadly aware of the function of the other groups involved in this project, they did not always know their shared goals. While addressing
lead poisoning in the refugee community was not specifically prioritized by AALV case managers before this project, the organization expressed interest in the opportunity to become more involved with other community organizations and act as a pathway by which those groups could reach New Americans. In the past, BLP has used AALV case managers to translate educational materials; however, none of these organizations has utilized the AALV building or AALV case managers’ relationships with New American communities to advance their outreach goals. By fostering this network and linking all of these organizations with their interconnected common goals, we hoped to strengthen a framework from which future outreach endeavors can grow.

In addition to the connections made via email and indirect communication through our group members, we encouraged this network by organizing a face-to-face meeting of the partner organizations through our November 11 workshop session at AALV. In addition to reviewing our materials, attendees engaged in a discussion on the challenges surrounding refugee health and potential avenues for addressing those challenges. We hope that through this discussion and the cohesion of all these organizations’ goals, the existing network has been reinforced and will be utilized in future projects.
Future Work

Based on our research, we identified three major needs in connecting refugees to lead testing and remediation resources: (1) improving educational outreach concerning the dangers of lead, (2) improving lead abatement service provision outreach, and (3) increasing access to legal rights resources and other advocacy services. The first two needs can be addressed partially by increased outreach materials and translation efforts; we hope our translated materials will contribute to bridging these gaps. The third deficiency can be fixed only by continued efforts to inform and encourage refugees to act on their rights as tenants. Part of this process is connecting refugees and their landlords.

As discussed at our community partner meeting at the AALV, landlords’ participation in lead poisoning prevention is a major missing link. With most refugees moving into rental properties, many of which are homes built before 1978, there is an increased risk of lead exposure. Furthermore, refugees are often unaware of their rights within the home and, as a result, unaware of landlords’ legal responsibilities.

To avoid landlords neglecting or taking advantage of tenants, we suggest that the legal unit in the Vermont Department of Health assumes a more active role in communicating, monitoring, and enforcing landlord EMP compliance. We also suggest more in-depth training of AALV case managers with regards to EMP, tenant rights, and the availability of lead resources in Burlington. With better equipped case managers, the AALV could provide refugees with information on whom to contact for help regarding lead exposure. This could be accomplished by a tenant rights workshop at the AALV, which could include lead education and along with other housing concerns. Finally, we suggest that tenant rights and lead education become a more integral part of refugee medical orientation.

Video is an excellent medium through which an organization can clearly communicate ideas. With regards to this project, the next logical videos to make are those that explain (1) healthy home practices that would limit lead exposure, (2) the treatment process for elevated blood levels, and (3) tenant rights. These videos, along with those we have made, could ensure that every aspect of lead-related issues is addressed.
Concluding Remarks

Human health is an issue that all people can rally around and sympathize with; throughout the process of our project we were struck by the dedication and passion of the individuals and organizations working to help the refugee population and the well-being of the American public overall. Over the course of the last 40 years, mankind has slowly begun realizing the full scope of the effects of commercial and industrial development. Those that understand these environmental effects and the impact they have on human health are often the individuals taking action to remove themselves from the danger; however, we must recognize that not everyone has the privilege of this understanding or the resources to protect against health dangers. Thus, active efforts like this project and the work done by the the VDH, AALV, BLP and VHCB need to continue to engage portions of the population that are at the greatest risk and require special consideration.

We hope that our project deliverables can effectively communicate the issue of lead to Burlington’s refugee communities and empower them to take actions to mitigate lead exposure in their lives. Additionally, we anticipate that the increased strength of the organization network that this project helped strengthen will more effectively facilitate future communication between refugees and community organizations providing health, and specifically lead, services. Consequently, these community resources will be better equipped to connect with refugees and communicate with individuals about lead exposure.

This problem is one that is likely occurring in many places around the United States. Thus, our work can be used as a model for the development of communication with refugees about lead and other health issues. Our videos can be used by other states’ health departments. That being said, each state has a unique refugee population and any communication materials that are used should reflect the uniqueness of these communities. For this reason, we suggest that each health department creates a unique series of videos and translations. Additionally, we recommend that health departments throughout the country consider broader New American communities, instead of limiting themselves to refugees. Currently, our videos do not address every demographic in Vermont; there are still some languages into which they should be translated, specifically Burmese, Mai Mai, Kirundi, Spanish, Vietnamese, and Bosnian. Overall, this project is an example of how greater efforts must be taken to disseminate important
information to those who need it. Thus, we hope that our work encourages critical thinking about environmental issues and the groups on which future projects should be specifically focused.
Acknowledgements

We’d like to thank the following people for the invaluable expertise they offered over the course of this project: Andrea Haugen, Alisha Laramee, Jeetan Khadka, Denise Lamoureux, and Lauren Pyatt. Thank you to everyone who offered feedback on our project goals and materials, namely the Refugee Health Committee, the Refugee and Immigrant Service Providers Network, everyone at the AALV (including Rita Neopaney, Pacifique Nsengiyumva, Ali Omar Adam, and Jacob Borge), our fellow classmates in ENVS 401B, and the Middlebury College Environmental Studies Faculty and Staff. Much thanks to James Ngeiyamu, Divesh Rizal, Naunau Baker-Médard, and Professor Robert Greeley for donating their time to translations. Finally, we want to extend a huge thank you to Diane Munroe and Professor Mez Baker-Médard for all of their guidance throughout the semester.
Appendices

Appendix A: 18 V.S.A. § 1759. Essential maintenance practices
(a) Essential maintenance practices (EMP) in rental target housing and child care facilities shall be performed only by a person who has successfully completed an EMP training program approved by the commissioner or a person who works under the direct, on-site supervision of a person who has successfully completed such training. That person shall comply with section 1760 of this title and shall take all reasonable precautions to avoid creating lead hazards during any renovations, remodeling, maintenance, or repair project that disturbs more than one square foot of lead-based paint, pursuant to guidelines issued by the department. The following essential maintenance practices shall be performed in all rental target housing and child care facilities, unless a lead inspector or a lead risk assessor has certified that the property is lead-free:

1. Install window well inserts in all windows or protect window wells by another method approved by the department.
2. At least once a year, with the consent of the tenant, and at each change of tenant, perform visual on-site inspection of all interior and exterior painted surfaces and components at the property to identify deteriorated paint.
3. Promptly and safely remove or stabilize lead-based paint if more than one square foot of deteriorated lead-based paint is found on any interior or exterior surface located within any area of the dwelling to which access by tenants is not restricted. An owner shall assure that all surfaces are free of deteriorated lead-based paint within 30 days after deteriorated lead-based paint has been visually identified or within 30 days after receipt of a written or oral report of deteriorated lead-based paint from any person including the department, a tenant, or an owner of a child care facility. Because exterior paint repairs cannot be completed in cold weather, any exterior repair work identified after November 1 shall be completed no later than the following May 31 provided that access to surfaces and components with lead hazards and areas directly below the deteriorated surfaces is clearly restricted.
4. If more than one square foot of deteriorated paint is found on any exterior wall surface or fixture not covered by subdivision (3) of this subsection, the owner shall:
   A. promptly and safely repair and stabilize the paint and restore the surface; or
   B. prohibit access to the area, surface, or fixture to assure that children will not come into contact with the deteriorated lead-based paint.
5. For any outdoor area, annually remove all visible paint chips from the ground on the property.
6. At least once a year, using methods recommended by the department, thoroughly clean all interior horizontal surfaces, except ceilings, in common areas accessible to tenants.
7. At each change of tenant, thoroughly clean all interior horizontal surfaces of the dwelling, except ceilings, using methods recommended by the department.
8. Post, in a prominent place in buildings containing rental target housing units or a child care facility, a notice to occupants emphasizing the importance of promptly reporting deteriorated paint to the owner or to the owner's agent. The notice shall include the name, address, and telephone number of the owner or the owner's agent.

(b) The owner of rental target housing shall perform all the following:
1. File with the department by the due date an EMP compliance statement certifying that the essential maintenance practices have been performed, including all the following:
   A. The addresses of the dwellings in which EMP were performed.
   B. The dates of completion.
   C. The name of the person who performed the EMP.
   D. A certification of compliance with subdivision (4) of this subsection.
   E. A certification that subdivisions (2) and (3) of this subsection have been or will be complied with within 10 days.
(2) File the statement required in subdivision (1) of this subsection with the owners' liability insurance carrier and the department.
(3) Provide a copy of the statement to all tenants with written materials regarding lead hazards approved by the department.
(4) Prior to entering into a lease agreement, provide approved tenants with written materials regarding lead hazards approved by the department, along with a copy of the owner's most recent EMP compliance statement. The written materials approved by the department pursuant to this subdivision shall include information indicating that lead is highly toxic to humans, particularly young children, and may even cause permanent neurological damage.
(c) The owner of the premises of a child care facility shall perform all of the following:
(1) File with the department by the due date an EMP compliance statement certifying that the essential maintenance practices have been performed, including all the following:
   (A) The address of the child care facility.
   (B) The date of completion of the EMP.
   (C) The name of the person who performed the EMP.
   (D) A certification that subdivision (2) of this subsection has been or will be complied with within 10 days.
(2) File the statement required in subdivision (1) of this subsection with the owner's liability insurance carrier; the department for children and families; and with the tenant of the facility, if any.
(d) An owner who desires an extension of time for filing the EMP compliance statement shall file a written request for an extension from the department no later than 10 days before the due date. The department may grant or deny an extension. (Added 1995, No. 165 (Adj. Sess.), § 6; amended 1997, No. 37, §§ 2-4; 2007, No. 176 (Adj. Sess.), § 30.)

Appendix B: 18 V.S.A. § 1760a. Enforcement; administrative order; penalties
(a) A person who violates section 1759 of this title commits a civil violation and shall be subject to a civil penalty as set forth in this subsection which shall be enforceable by the commissioner in the judicial bureau pursuant to the provisions of 4 V.S.A. chapter 29.
(1) An owner of rental target housing who fails to comply with subdivisions 1759(b)(1), (2), and (3) of this title by the due date or an owner of a child care facility who fails to comply with subsection 1759(c) of this title by the due date shall pay a civil penalty of not more than $50.00 if the owner comes into compliance within 30 days after the due date; otherwise the owner shall pay a civil penalty of not more than $150.00.
(2) An owner who cannot demonstrate by a preponderance of the evidence that essential maintenance practices were performed by the due date shall pay an additional penalty of not more than $250.00. (Added 2007, No. 176 (Adj. Sess.), § 32, eff. Jan. 1, 2010.)

Appendix C: Video Links

Please find our translated videos on the project YouTube channel, Burlington Refugee Lead Resource Guide, linked here: https://www.youtube.com/channel/UCXM70VrnrZHiSC-JLhXMJjIQ

The channel contains our video in English, Swahili, French, Arabic, and Nepali.
Appendix D: Final Video Scripts

English:

Welcome to Vermont! We hope you are settling in and beginning to feel at home.

By now you have discovered that Vermont has a lot to offer between its beautiful scenery and friendly people.

It is a great place to live, but you should know about a problem that all Vermonters should be aware of: lead exposure.

But first, what is lead?

Lead is a metal that has been used for a long time in everyday products like gasoline and house paint. But over time, scientists have discovered that too much lead is bad for the environment and for our health.

Lead is used in products all around the world, but lead paint was banned in the US in 1978. Still, many old houses in VT have lead paint. In these houses, it is very common to see the paint chipping and peeling, especially around doors and windows. Peeling paint turns into dust which collects both inside the house and in soil around the house. We can get this dust into our mouths and swallow it, which causes some serious health problems, especially for young children who are still growing.

The Vermont Department of Health recommends that everyone gets tested for lead. When relocating to the US, most people get their lead levels tested. In case of exposure after arrival, parents should also get their kids tested at ages 1 and again at age 2. All doctors’ offices can administer a lead test, which is nothing more than a small finger prick. So ask your doctor to test your 1 and 2 year olds.

If you do not have health insurance or Medicaid, the Vermont Department of Health offers W.I.C, a free program for mothers and their children that can administer a lead test free of charge.

You will receive the results in the mail within in a few weeks’ time.

Most children do not have dangerous levels of lead, but, if they do, the most common reason is lead dust in the home, coming from that peeling lead paint.

The best solution is to have a trained professional conduct the necessary repairs within your home to get rid of the causes of lead dust.

The good news is that there are programs you can use to take care of this and not spend all your money!

If you have lead in your home, your landlord is legally required to fix it. The Burlington Lead Program is a great organization that can help you and your landlord make your home safe.

These programs are here to serve YOU, so look in the accompanying “lead resources guide” or in the video description below to get connected with these resources today.

Everyone has the right to live in a healthy home, and there is nothing to lose by asking for help, so get tested and take the necessary steps to get rid of lead in your home.

Thank you.
Swahili:

Karibuni Vermont! Tunatumaini yakwamba mmeanza kuzoe mazingira na kujiskia mko nyumbani.

Kuja kufikia sasa mmeshagundua kwamba Vermont inavitu vingi kwanza mandhari mazuri mpaka watu wakarimu

Ni sehemu nzuri sana yakuishi, lakini mnatakiwa kujua kuhusu tatizo ambalo wakazi wote wa Vermont wanatakiwa kulifahamu: vumbi ya risasi

Lakini kwanza, risasi ni nini?

Risasi ni aini ya chuma ambayo imekuwa ikitumiwa kwa muda murefu ndani ya bidhaa za kila sizu kama petrol na rangi za kupaka nyumba. Lakini kadri muda ulivyokwenda, wanasaayansi waligundua kwamba risasi ikiwa nyangi ina madhara kwenye mazingira na afya zetu.


Idara ya Afya Vermont inashauri kwamba kila mtu apimwe kiwango chake cha risasi. Watu wengi wakiwa wanahamia Marekani huwa hupimwa kupata kiwango cha risasi mwilini. Wazazi wanapawezesha kupihalewa watoto wao kwenda kupima wakiwa na umri wa mwaka mmoja na tena wakiwa na umri wa miaka miwili, ikiwa waliathiriwa baada ya kuwasili. Kila ofisi ya daktari inaweza kupima risasi iliyo pamoja ndani ya nyumba, ambapo uta chomwa sindano kidogo sana kwende kidole. Muombe daktari wako ampimi mtoto wako wa mwaka mmoja na miaka miwili.

Kama huna bima ya afya au Medicaid, Idara ya Afya Vermont ina programu ya bure inayoitwa W.I.C Programu hii inatowa vipimo vya risasi kwa wakati wa watoto.

Ndani ya wiki mbili mpaka mne, utapokea matokeo katika mfumo wa barua

Watoto wengi hawana viwango vya risasi vilivyo hatari, lakini, kama wanavyo, sababu kuu huwa ni vumbi ya risasi iliyo ndani ya nyumba, inayotaka kwenye rangi ya nyumba iliyomeguka

Suluhisho zuri ni kurudia matam Courage kwenye nyumbani mwako afanye marekebisho yanayohitajika ndani ya nyumba kwa kuwa vumbi vya risasi

Habari njema kuwa bina nyumba kuna programu unazoweza kutumia kufanya marekebisho haya bila kutumia pesa zako.

Kama kuna vumbi ya risasi nyumbani mwako, kisheria mwenye nyumba anatakiwa kufanya marekebisho kwenye nyumba. Programu ya risasi Burlington ni shirika zuri ambalo linakusaidia wewe na mwenye nyumba kufanya nyumba kwa iwe salama
Programu hizi zipo hapa kwa ajili yako, kwahiyoye angaliya kwenye maelezo yaliyokuja na video hii, kujiunga na programu hizi

Kila mtu ana haki yakuishi ndani ya nyumba salama, na hautapoteza chochote ukiomba msaada, kwahio nenda ukapimwe na chukua hatua zinazohitajika kuonda risasi nyumbani mwako.

Ahsante.
Bienvenue au Vermont! Nous espérons que vous êtes bien installés, et que vous commencez à vous sentir chez vous.

Vous avez maintenant découvert que le Vermont a beaucoup à offrir au niveau de son beau paysage et de sa population sympathique.

C’est un bon endroit pour vivre mais vous devriez être au courant d’un problème qui concerne tous les habitants du Vermont: l’exposition au plomb. Mais d’abord, qu’est-ce que le plomb?

Le plomb est un métal qui a été utilisé pendant longtemps dans des produits d’usage quotidien comme le carburant et la peinture de bâtiment. Mais les scientifiques ont découvert plus tard que l’usage intensif de plomb est mauvais pour l’environnement et pour notre santé.

Le plomb est utilisé dans des produits du monde entier. Cependant la peinture au plomb fut interdite aux Etats-Unis en 1978. Malgré cela, de nombreuses vieilles maisons ont encore de la peinture au plomb. D’habitude, on peut constater sur ces maisons des peintures qui s’écaillent et se détachent, surtout autour de leurs portes et fenêtres. Les peintures écaillées se transforment en poussière invisible qui s’amasse à l’intérieur et dans le sol autour de la maison.

Les enfants peuvent avaler cette poussière accidentellement vu qu’ils jouent souvent dans ces endroits. Cela peut générer un sérieux problème de santé, spécialement chez les enfants aux plus jeunes âges qui grandissent encore.

Le Département de Santé de l’état du Vermont recommande que tout le monde qui vient aux Etats-Unis fasse un diagnostic plomb. Les parents doivent tester leurs enfants à l’âge d’un an et encore à deux ans au cas où ils seraient contaminés par le plomb après leur arrivée. Tous les médecins peuvent effectuer un test. Ce n’est qu’une petite piqûre au doigt, alors demandez à votre médecin de tester vos enfants à l’âge d’un an et encore à l’âge de deux ans.

Si vous ne bénéficiez pas d’une assurance ou de Medicaid, un diagnostic plomb gratuit peut être effectué par le WIC, un programme de nutrition pour les femmes, les mères et les enfants ayant moins de 5 ans. Le WIC fournit aussi des aliments riches qui aident à réduire l’absorption du plomb et qui pourrait diminuer ses effets toxiques.

Vous recevrez les résultats du diagnostic plomb par courriel en quelques semaines. Le Département de Santé fera le suivi médical nécessaire au traitement.

La majorité des enfants n’ont pas un niveau de plomb dangereux. S’ils en ont, c’est habituellement à cause de la poussière de plomb dans la maison et du sol contaminé.

La meilleure solution, c’est d’engager un professionnel formé pour s’occuper des réparations nécessaires afin que votre logement présente moins de risques.

Il y a une bonne nouvelle: il existe un programme qui vous aidera à ce faire, et sans vous coûter cher.

Si vous avez du plomb dans votre logement, la loi exige que le propriétaire s’en occupe. Discutez avec lui/elle pour faire effectuer le diagnostic. Le Programme de Plomb de Burlington (Burlington
Lead Program) est un organisme qui peut vous aider à rendre votre habitation saine et sauve. Ces programmes sont là pour vous servir. Consultez la brochure attachée ou le texte ci-dessous pour prendre contact avec ces organismes dès aujourd’hui.

Chacun a le droit de vivre dans un logement sain. Vous n’avez rien à perdre en demandant de l’aide. Faites un diagnostic plomb et faites le nécessaire pour vous en débarrasser et pour protéger vos enfants.

Merci!
في الرصاص من التسمم مكافحة

المنزل في وائك براحة تشعر بدمينة الله شاء إن فرمونته في وسهال أهل

اللفاء والناس الجميلة المناظر من الكثير توفر فرمونته أن اكتشفت قد أكيد

الرصاص من التسمم وهو مشكلة على تعرف أن تحتاج أنك إلا فيه للعيش عظيم المكان

الرصاص؟ هو ما أولاً لكن،

الوحدات في والدهات البنزين مثلًا عدة منتجات في استخدمت قد معدنية مادة الرصاص
ضرار وهو البيئة تلوث في يتسبب الرصاص أن العلماء اكتسب الزمن بمرور والبيوت السكنية
للصحة.

في منعت الرصاص على تحتوي التي الدهات أن إلا العالم أنحاء كل في الرصاص يستخدم
تحتوي دهات هناك القديمة المباني من العديد في ذلك ومع 1978 عام في المتحدة الولايات
رصاص على

يتجمع غبار إلى وتحول والأبواب الشبابيك بجانب خصوصًا تنغش، الدهات البيوت هذه في
في الغبار ويدخل هذه مثل أماكن في الأولاد يلعب ما كثيراً البئت حول التراب وفي البيت داخل
 للأولاد خصوصًا شديدة، صحية مشاكل إلى يؤدي قد الرصاص ابتعاث يبتلعونه ثم أفواهم
والشباب الصغر

إلى الدخول عند الدم في الرصاص نسبة بفحص بالقيام فرمونته في الصحة مكتب يوصي
من فهو أمريكا إلى الوصول بعد للرصاص إلى التعرض الحالة في.الأمريكية المتحدة الولايات
رصاص نسبة فحص إجراء أجل من طبيب إلى بالطفل يذهبوا أن والأباء للأمهات الضروري
أخذ من يتكون الذي الفحص إجراء الأطباء كلي يستطيع العمر من والثانية الأولى السنة في الدم
وسنتين سنة بين عمرهم يتراوح الذين للأطفال دم فحص الأطباء من أطلب لذلك.دم عينة

للنساء الغذاء توفير على تعمل منظمة (ويك) الفحص تجري أن (ويك) منظمة تستطيع
يقلل الذي المغذي الطعام توفر.الخاصة سن دون من والأطفال الوضع مع والأمهات الحوامل
السامة أثاره من والحد للرصاص الجسم امتصاص من
حالة في الصحة وزارة الموضوعة ومتتابع أيام بضعة بعد البريد في الفحص نتائج على ستحصل العلاج إلى الحاجة.

ناتجة تكون عادة المرتقبة النسبة أن إلا الرصاص، من خطيرة نسبة لديهم ليس الأولاد أغلبية والتراب الدهانات في الكنز الرصاص على يحتوي غبار عن من عمليات في ومطهوين مؤهلين عمال تعين هو البيت من الرصاص لإخراج طريقة أحسن النوع هذا.

هذه مصاريف كل تدفع أن اللازم من وليس العمليات لهذه الدعم توفير تستطيع برنامج هنالك الخدمة.

لتنكل أن فعليك، إصلاحه العقار مالك على فيجب تستأجره الذي البيت في رصاص هناك كان إذا في المساعدة تقديم الرصاص لمكافحة بور لمجتمع مدينة برنامج ويستطيع البيت لفحص معه الرصاص من خالي ليكون البيت إصلاح الإصلاح المشاهدة فيمكنك لخدمتك موجودة البرنامج هذه DVD على لتكون المنشورات قراءة أو البرنامج بهذه الاتصال.

الدم يا فحص فقم المساعدة طلب في شيء أي تخسر وللجميع حق صحي البيت في السكن الرصاص من خالي بيت أجل من اللازم وعمل جزيلاً شكرًا.
Nepali:

The Nepali script translation was done by our translator by hand.
Appendix E: Lead Resource Guide

The *Lead Resource Guide* is our accompanying information guide that will be available in a sleeve format as well as in a digital format. The front side of the guide is available in the same languages as the video (English, Swahili, French, Arabic, Nepali). The back side of the guide is a map that is in English for all versions.

*Front Side*

English:
Swahili:
guide de ressources plomb

Pensez-vous que vous avez besoin de faire tester?
Community Health Centers of Burlington (CHCB)
(802) 439 8550

Pas de Medicaid ou d’assurance santé?
Nous pouvons vous aider!
Vermont WIC (Women, Infants, Children)
(802) 439 8550

Avez-vous besoin d’aide pour éliminer le plomb de votre maison?
Burlington Lead Program (BLP)
(802) 865 5323

Avez-vous besoin d’un traducteur?
Téléphonez-nous!
Northern New England Poison Center
(802) 439 8550

Healthy Homes Lead Poisoning Prevention Program,
Vermont Department of Health (VDH)
(802) 439 8550

Vermont est là pour vous aider!
دليل المراجع للتعرض للرصاص

هل تعتقد أنك بحاجة إلى فحص نسبة الرصاص في الدم؟
Community Health Centers of Burlington (CHCB)
(802) 439 8550

هل أنت بحاجة إلى المساعدة لتجعل البيت خاليًا من الرصاص؟
Burlington Lead Program (BLP)
(802) 865 5323

هل أنت بحاجة إلى مترجم؟
Healthy Homes Lead Poisoning Prevention Program, Vermont Department of Health (VDH)
(802) 439 8550

أليس لديك تأمين صحي؟
Vermont WIC (Women, Infants, Children)
(802) 439 8550

 دائماً بالخدمة ، فرمانت!
लेडबाट बचाउँ र बचाउँ

लेडको जर्च कहाँ गरिन्छ?

Community Health Centers of Burlington (CHCB)
(802) 439 8550

मेडिकल अथवा बिमा छैन? हाम्रो सहयोग जरूर सकिउँ

Vermont WIC (Women, Infants, Children)
(802) 439 8550

तपाईलाई घरबाट लेड हटाउँ सहयोग चाहिउँ?

Burlington Lead Program (BLP)
(802) 865 5323

Healthy Homes Lead Prevention Program,
Vermont Department of Health (VDH)
(802) 439 8550

नेपाली भाषा बोलिन्छ अनुसार चाहिउँ?
हाम्रो फोन जरूर ज्ञात हुनुहोस्!

Northern New England Poison Center
(802) 439 8550

भमोन्ट यहाँ तपाईंको लागि छः!
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