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Heat vs. Health: Wood Smoke in Vermont

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Methods

• We developed and administered a 2-page survey to assess Vermonters’ current wood burning practices, types of appliances, and awareness of potential health impacts of wood smoke.
• We collected surveys (n = 234) at 3 polling locations in Chittenden County: Burlington (n = 67), Milton (n = 58), and Williston (n = 109).
• Data were entered into Excel and 10% were randomly selected for quality control check.
• Descriptive statistics were analyzed in Excel; statistical significance was determined using Graph Pad.

Introduction

• Many Vermonters use wood as a fuel source for heating during the winter months 1,2.
• Wood-heated homes can generate a significant amount of potentially harmful wood smoke 3,4.
• Wood smoke emissions, particularly particles below 2.5 microns, have been associated with respiratory and cardiovascular disease, and subsequent morbidity 5-7.
• There are a variety of wood fuel sources and heating devices that can significantly impact the amount of wood smoke emissions and efficiency of wood burning units 8,9.
• We surveyed the public’s knowledge about the health effects of wood smoke, the types and condition of burning appliances used, and fuel sources.
• We assessed public awareness about methods to reduce health risks and the best avenues to provide additional information and resources.

Discussion

• The majority of respondents (61%) were concerned about effects of wood smoke on respiratory illness.
• Significantly more participants were uncertain (“Don’t Know”) regarding the efficiency of EPA-certified stoves (21.8%) than were uncertain about emission reduction (9.4%; p=0.005) and health impacts (11.4%; p=0.026).
• Those who want assistance in proper wood stove use would like easy access to published guidelines (68%) and monetary incentives for equipment upgrades (64%).
• More respondents who heat with wood want information about reducing health risks of wood smoke than do those who do not heat with wood (30% vs. 14%, p=0.01).
• There was no significant increase in knowledge of wood smoke hazards among those who have, or who live with someone who has, respiratory or cardiovascular disease.

Conclusion and Suggestions

• Survey respondents were overwhelmingly concerned about the respiratory complications associated with wood smoke, yet divided on the best methods to reduce wood smoke emissions.
• Uncertainty persists among respondents concerning the efficiency of EPA-certified wood stoves.
• We suggest targeted internet-based information including: proven methods of lessening wood smoke emissions, benefits of adopting EPA-certified stoves, and how to confirm a stove is EPA-certified.
• Our project highlighted the need for additional succinct and accessible health information about wood smoke.
• We also identified a need for increased public awareness of available information.

References


Primary Wood Burning Appliances

<table>
<thead>
<tr>
<th>Health Concerns</th>
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</thead>
<tbody>
<tr>
<td>Respiratory Illness</td>
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<td>Total=65</td>
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Beliefs about EPA-certified Stoves

<table>
<thead>
<tr>
<th>EPA-certified Status</th>
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<tbody>
<tr>
<td>EPA Certified Produce Fewer Emissions</td>
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EPA-certified Stove Status

<table>
<thead>
<tr>
<th>Preferred Information Resources</th>
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</thead>
<tbody>
<tr>
<td>Emission Reduction Assistance</td>
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</table>

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References