



Presentation Title: Teaching and Technology: A Recipe for Fire Safe Cooking

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I. Formative Evaluation – Planning

Worcester (MA) Fire Department's (WFD) thorough review of fire incident data and discussions with the Worcester Housing Authority revealed that 759 apartments (862 residents) in four buildings had a high level of cooking fires (an average of 12 fires/month in the four buildings – resulting in \$223,889 in property loss in 2015.) 100% of the residents are elderly, 100% meet low-income guidelines, and 15% have no income. Nearly 86% of these residents suffer from a physical mobility and/or mental disability, putting them at a much higher risk of fire injury or death. Project objectives to reduce fire risk among the focus audience were to 1) build a robust partnership between WFD and WHA, 2) research technological solutions to the cooking fire problem, 3) install Temperature Limiting Control in 100% of the units in the four high-risk properties, 4) update WFD's fire education materials (based on NFPA's *Remembering When*) to include the new technology components, 5) provide education sessions to brief residents on the project, 6) create protocols to manage/track the installs and 7) analyze results for program improvement and replication.

By the end of the FY15 project period of performance, WFD and WHA had visited 820 apartments, installed 800 TLC burner sets (3,200 burners total), and educated nearly 900 residents using customized materials and methods to address audience needs.

II. Process Evaluation - Implementation

Having chosen a product that offered Temperature Limiting Control or TLC (which keeps the cooking oil from reaching its ignition temperature without sacrificing cooking efficiency) trained WFD/WHA teams visited every apartment in each of the 4 high rise buildings for approximately 25 weeks. The teams installed approx. 33 burner sets per week (4 burners per set) and provided in-apartment education for the residents. The project team made careful notes on any resistance from residents about using the new TLC burners, length of time needed to complete the install/education process, what to do if the residents were not home at the time, and how to overcome other barriers.

III. Impact Evaluation – Short-Term Results

The team established tracking systems (post-installation reports of cooking fires, any injuries/deaths/property damage claims, etc.). They monitored results in comparison to prior experience there and also to WHA's other 20 complexes (especially other senior housing) to

demonstrate impact. In addition, the team measured other impacts such as reduced call volume and lower WHA energy costs from use of the more energy-efficient TLC burners.

We received an extension and permission to apply leftover funds to retrofit 60 more apartments following a stovetop fire in a different WHA complex that destroyed 2 apartments and displaced 4 residents. In all, our team completed a total of 802 apartment retrofits. The relationship between WFD and WHA has never been better, with ongoing monthly meetings established to review progress, execute project improvements based on FY15 experience, troubleshoot issues and promote the project locally and at state-level CRR conferences in Massachusetts and Colorado.

IV. Outcome Evaluation – Long-Term Results

While admittedly still early, WFD has documented an immediate reduction in the number of cooking fires in the focus area. There have been NO stovetop fires reported in any of the project apartments in the 10 months following completion of the FY15 project and no complaints from residents. Fire department call volume due to stovetop fires has been reduced by 97% and there has been no need for costly renovations from stovetop fire damage to date! WFD continues to monitor our fire server for incidents. We communicate with WHA on a regular basis to verify any reports of smoke or other issues to make sure these are not related to the TLC burners. Our team maintains a presence in each building at social gatherings and special events. We have noted a dramatic improvement in attitudes about the new burners among users now that they are familiar with the technology and understand the value of TLC in keeping people, pets and property safe from a tragic fire.

Recommendations for others:

- Promote engineered solutions for cooking ranges that prevent the fire before it starts. Emphasize the benefits to tenant and firefighter safety by virtually eliminating these fires in your most at-risk occupancies.
- Focus on multi-family dwellings, specifically low income and senior housing.
- Strong partnership is essential for accountability, expectations and long-term outcome measures – identify the problem together and seek joint funding.
- Be prepared to address questions related to slightly increase cooking times.

Conclusions:

On the strength of a very successful FY15 pilot project and zero fires in any of the retrofitted units, Worcester Fire Department received a second FP&S grant for FY16 that is enabling the team to expand to 6 more residential buildings (approximately 800 apartments) in 2018. WFD currently seeks a third round of funding for an additional 800 burners, which would complete installation in the homes of all the Worcester Housing Authority's low-income, highest risk senior residents identified in our initial risk assessment.