Causal Chain Analysis and Data Driven Messaging

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OBJECTIVES
Goals

• Identify root causes and interventions for local fire-related risks through application of causal chain analysis
• Reduce the fire death rate and number of civilian fire-related injuries
Causal Chain Analysis

• Explores factors or actions that contribute to the cause of a risk beyond traditional data collected
• Examines the chain of events from pre-event to event to post-event
• Interventions that disrupt the chain can eliminate or reduce the risk
FORMATIVE EVALUATION
Risk Assessment

• Analyzed 5 years of data
• Evacuate and Call 911
  – Occupants attempted to fight the fire in 40% of residential structure fires
  – Delayed call to 911 at least 15% of the time
  – 54% of civilian fire-related injuries were people trying to fight the fire themselves
Risk Assessment

• Working smoke alarms
  – Only 53% of homes involved in structure fires had one

• Candle Fires
  – Experienced more candle fires in a 3 year period than the prior 10 years
PROCESS EVALUATION
Intervention Strategies

• Get out and call 911
• Working smoke alarms
• Enough with the candle fires! Blow out candles when leaving a room
Implementation

• Messages delivered across 3 main platforms
  – Community magazine and social media
  – Elementary school fire and life safety education program
  – Home visits with smoke alarm installations
Impacts

• Get Out and Call 911: Results
  – Occupants attempting to fight the fire themselves reduced from 40% to 32% for residential structure fires
  – Occupants attempting to fight the fire themselves reduced from 50% to 40% for cooking fires
Impacts

• Working Smoke Alarms: Results
  – Percentage of homes involved in a structure fire with a working smoke alarm increased from 53% to 69%

• Candle Fires: Results
  – Candle fires reduced 80%
OUTCOME EVALUATION
Results

• Residential structure fires
  – Reduced 7%
  – Total dollar loss reduced 28%
  – Dollar loss per structure fire reduced 20%
Results

• Smoke alarms installed by the fire department alerted in 3 structure fires – 17 year old rescued from one of the fires

• Rate of civilian fire-related injuries per structure fire reduced by over 60%
RECOMMENDATIONS
Data, Data, Data

• Create user fields in incident reporting software to collect data on risk factors
• Use a checklist to guide fire officers and investigators in gathering risk data
• Local data is most beneficial
Lessons Learned

- Promote successes for greater buy-in of risk reduction efforts
- Train personnel in standard messages
- Utilize partnerships to help get the message out
- Pair messaging with other intervention strategies such as home visits