FIRE CHIEFS' LEADERSHIP AND A PROACTIVE, COMMUNITY RISK REDUCTION MINDSET IN THE FIRE SERVICE

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by

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Abstract

Fire departments' emergency response workload has increased in size and complexity, while resource allocations have not kept pace. The gaps caused by these trends are creating instability in the fire service. Community risk reduction (CRR), a proactive strategy that could reduce emergency responses, has yet to be widely recognized by fire chiefs as a solution to address the gaps. This study explored fire chiefs' perceptions of CRR and their role in leading it. Generic qualitative inquiry research was conducted with 12 Wisconsin fire chiefs through semi-structured interviews. Using systematic inductive thematic analysis, data were coded from which six themes emerged: changes and trends in workload and resources, methods to handle the changes, foundational definitions related to CRR, fire chief's role in CRR, barriers to a department's CRR, and solutions to remove or mitigate barriers. These results illustrate that most fire chiefs perceive CRR as positive and needed. However, they see CRR as a program rather than a department philosophy; therefore, many view theirs as a support role. Fire chiefs accept the mindset of their personnel against CRR rather than seeing an opportunity to direct a mindset shift. Fire service leaders need CRR concept education to assist them in influencing mindsets. Furthermore, all fire service members need continual communication and education about CRR. Finally, fire chiefs need better metrics to foster communication. A small and somewhat homogenous population sample limited this study. Opportunities for future research exist using broader populations or focusing on one of the exploratory themes.

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Contents

CHAPTER 1. INTRODUCTION

Fire departments across the United States face increasing emergency incident call volumes; higher risk of adverse incident outcomes like more devastating property losses, poorer patient outcomes, and firefighter injury or death; and decreasing budgets (Center for Public Safety Excellence (CPSE)/International City/County Management Association (ICMA), 2020). Modern fire service incidents are increasing due to population growth, aging, and socioeconomic gaps. They are also becoming more complex and more diverse due to changes in climate, political dynamics, technology, population demographics and other factors. If the fire service desires to be relevant and sustainable in the future, today's leaders need to apply innovative concepts to address the combination of increased service demand, higher community risk, and stagnant resources using a combination of existing values and competence and new methods, relationships, and partnerships (Grashow et al., 2009). Fire chiefs, the department heads of fire departments or fire districts, have typically addressed these challenges by adding staff and other emergency response resources to meet higher demands and mitigate higher risks. Alternatively, or in combination with added resources, fire chiefs have also attempted to restructure organizations locally and regionally to lower costs and increase efficiencies. These efforts, however, are primarily reactive, based on heritage, and only address downstream issues; they do not resolve or reduce the root causes of the emergency themselves.

Community Risk Reduction (CRR) has burgeoned in the fire service in recent years as an extension of traditional fire prevention efforts. The new industry standard addressing community risk reduction defines CRR as the "process to identify and prioritize local risks, followed by the integrated and strategic investment of resources to reduce their occurrence and impact" and defines risk as "a measure of the probability and severity of adverse effects that result from

exposure to a hazard" (NFPA, 2020, p. 1300-5). The expansion of fire prevention into CRR has identified additional community risks in 'all-hazards' areas, such as various types of technical rescue, hazardous materials response, and Emergency Medical Services (EMS). Community risk reduction now encompasses fall prevention, community Cardiopulmonary Resuscitation (CPR), wildfire urban interface fuel reduction, mobile integrated health, child passenger safety, and other topics. Fundamentally, many CRR activities accomplish more than reducing risk; they address all-hazard events proactively, resulting in upstream impacts of reducing emergency occurrences altogether or limiting their severity (Heath, 2020; Manchanda, 2013).

Despite the increase in CRR activities, however, the mindset of much of the fire service membership has remained focused on fire suppression and emergency response (Byrne, 2009; Byrne, 2021; CPSE/ICMA, 2020; Fleming & Zhu, 2013; Horton, 2023). To realize the best for their communities and to assist in mitigating the organizational challenges they face, fire service leaders need to direct a significant philosophical shift to a proactive mindset that looks to systematically reduce emergencies and their severity, thereby reducing, or at least slowing, the growth in the need for downstream emergency response resources.

Background

Although trade publications call for fire service leaders to direct a philosophical shift away from reactivity toward proactivity, little academic research has investigated fire service leadership for CRR and an upstream mindset (Byrne, 2009; Byrne, 2021; CPSE/ICMA, 2020; Durre, 2017; Fleming & Zhu, 2013; Horton, 2023; Hsieh & Tai, 2020). In a topical review of all the published articles in the International Fire Service Journal of Leadership and Management in 16 years of publication, no entries exist addressing the leadership of CRR efforts. Most literature about CRR focuses on understanding specific risks like campus fire safety and wildland-urban

interfaces or evaluating specific solutions such as fall prevention programs or community paramedicine. In their study of local fire department roles and responsibilities for wildfire management, one element of CRR, Madsen et al. (2018) note in their findings that some fire department staff, but not all, see wildfire management as a primary responsibility of their departments and work to instill that responsibility into their mindset.

The Wisconsin fire service has also seen increasing call volumes and other service expansion requirements along with increasing costs to provide emergency response without commensurate resource growth (Amenta & Henken, 2022a). One prime factor contributing to the growth in emergency calls is the aging population and their increased use of prehospital medical care (CPSE/ICMA, 2020; Fleming & Zhu, 2013). Wisconsin's and the town of Grand Chute's populations of people 65 and older are 6.3% and 6.9% higher than the national population, respectively, as shown in Table 1 (U.S. Census Bureau, n.d.). The Grand Chute Fire Department (GCFD) has also seen a 51% increase in call volume in the last 10 years, exceeding 3000 calls for service in 2022 (GCFD, 2023). Meanwhile, the town's population has changed more slowly, increasing by 11% over 10 years and 6% over five years (Demographics Service Center, n.d.). Commercial development in the town has risen cumulatively 45% over the last 10 years but with significant fluctuations over that span (C. Nate, personal communication, January 17, 2024). Furthermore, commercial development has decreased by 7% over the last five years, while the total fire department incidents have increased by 30% in the same period (GCFD, 2023; C. Nate, personal communication, January 17, 2024). Figure 1 illustrates the ten-year growth comparison of these measures. It also shows how the growth rate of incident call volume is outpacing the growth rates of the two other elements (Demographics Service Center, n.d., GCFD, 2023; C. Nate, personal communication, January 17, 2024). The disparate growth indicates that the aging

population and changes in other socioeconomic factors, more than town growth, may contribute to higher call volumes.

Table 1

Comparison of Populations of People 65 and Older

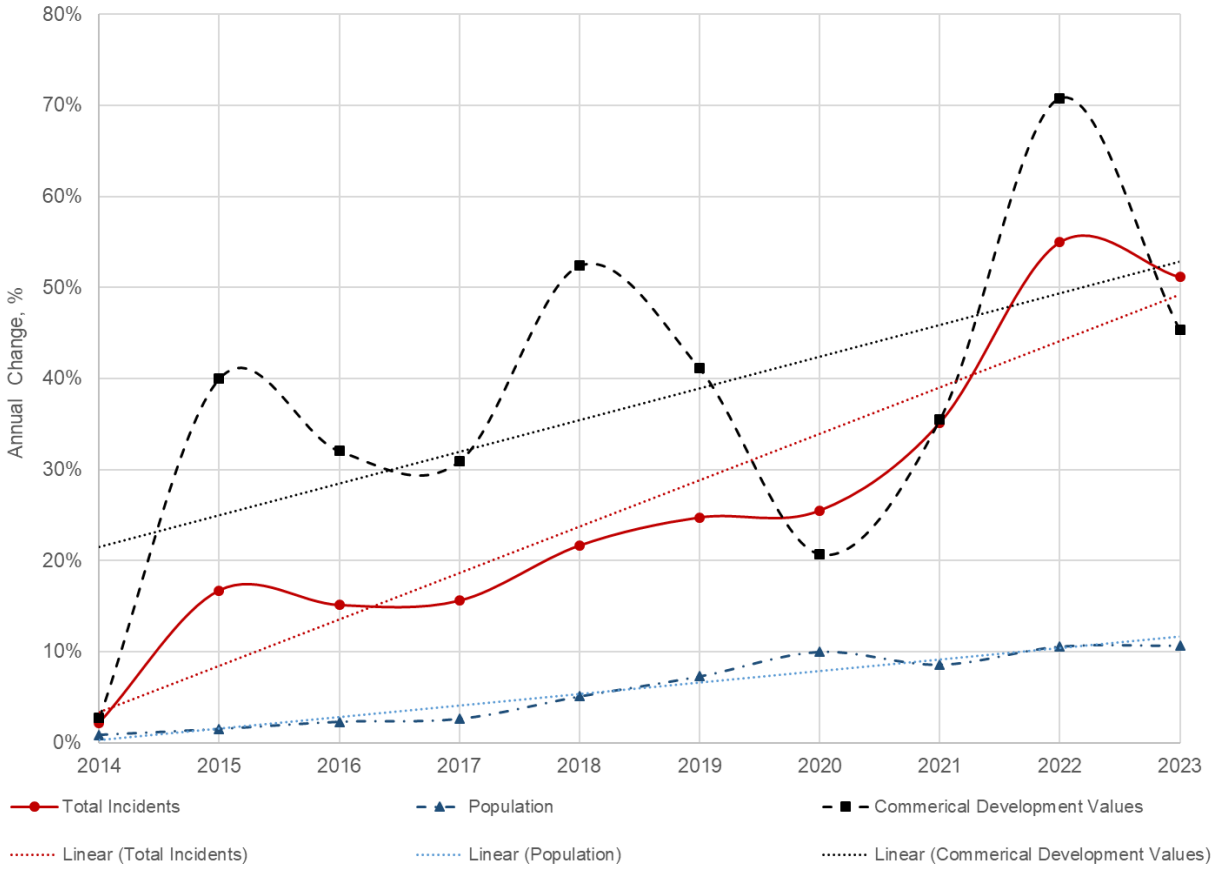
Population Fact	United States	Wisconsin	Grand Chute
Persons 65 years and over, percent	16.8	17.9	18.0
Percent above the national level	---	6.3	6.9

In Wisconsin, the tax levy limits imposed by the state legislature starting in 2006 and becoming most strict in 2011, have caused the erosion of financial resources (Amenta & Henken, 2022b). For example, Wisconsin towns' debt service rose nearly 45% between 2014 and 2020. However, towns are spending less on road maintenance and borrowing to pay for other services when traditionally, municipalities have largely only borrowed for road projects. Municipalities have also experienced rising inflation, supply chain issues, waning interest in public safety careers, and other factors contributing to fire departments' resource challenges.

A significant opportunity for mitigating these challenges may lie with a more significant investment in community risk reduction. Disaster risk management professionals have researched the cost-benefit analysis of disaster mitigation. One study concludes that savings of $4-$11 are realized for every dollar invested upstream. The specific benefit value from that range depends on the specific disaster mitigation strategy employed (National Institute of Building Sciences (NIBS), 2019). The benefit dollars in this cost-benefit analysis research represent positives such as adding jobs and preventing deaths, nonfatal injuries, and cases of post-traumatic stress disorder.

Figure 1

Comparison of 10-year Grand Chute Growth Elements



Note. To compare the fire service measure of total incidents to some municipal indicators of growth, population change and commercial development values, this graph depicts the annual changes in three elements cumulatively. The initial value for each element is the initial percent change in 2014 from 2013, then the percent change for each of the next 10 years is added to show the overall growth. A best-fit line is also shown for each of the elements to provide some general sense of the growth rates.

Community risk reduction efforts in the fire service have had their successes. In Oregon, where wildfire risk has been a priority community concern, a successful, well-supported program

was implemented to remove vegetation that poses a hazard to structures (Horton, 2023). In 2016, the Grand Chute Fire Department implemented an internal program called Community Assistance Referral and Education Service (CARES) in partnership with the local Aging and Disability Resource Center (ADRC). This program offered referral and education assistance services to the community's aging population, especially at senior living facilities, after establishing that falls made up a significant percentage of calls for service in these areas. Specifically, at one of the largest senior living complexes in the town, 2017's call percentage fell 29% over the previous year's call total (GCFD, 2018). However, accomplishments like these have yet to be leveraged by fire service leaders to bring about mindset changes and the commensurate investments in community engagement and resources that could affect significant upstream improvements for the whole community.

Significance of the Study

This study's designed goal is to provide an understanding of fire chiefs' attitudes and perceptions about their roles in community risk reduction, gain insight into constraints leaders may perceive about shifting department and fire service philosophy toward a proactive mindset, and outline possible solutions for fire chiefs in addressing obstacles to adoption of a CRR philosophy. As Grashow et al. (2009) instruct, embedding an upstream mindset into the fire service requires diagnosis first, then action; the results of this study will, first, support the diagnosis and then suggest some actions to take. This information will provide the Grand Chute Fire Department, and perhaps other departments, a foundation to build a more robust community risk reduction philosophy internally to provide the best overall fire and life safety service to its constituency (Federal Emergency Management Agency (FEMA), 2023). With an ingrained

mindset of community risk reduction within the department, the expectation would be to expand that into clear support at the municipal level and community engagement more broadly.

Problem Statement

The problem is that the United States fire service continues to be a reactive public safety entity facing significant challenges to its sustainability. Yet, the fire service remains unwilling or unable to embrace proactive paths to address the challenges (Durre, 2017; Faulkner, 2011; Fleming & Zhu, 2013; Horton, 2023). Most fire service leaders face increasing call volumes, higher incident risk profiles, more diverse call types and patterns, and reduced or stagnant resource allocation (CPSE/ICMA, 2021). Confronted with these destabilizing factors, most leaders still employ traditional, reactive problem-solving methods by adding operational resources or restructuring operations rather than focusing proactively on reducing emergency incidents and their associated risks (Durre, 2017; Fleming & Zhu, 2013). Furthermore, fire department members at all levels also push for and support reactive solutions that add resources rather than develop a proactive mindset toward addressing risks to them and the communities that they serve (Byrne, 2009). Multiple authors implore fire chiefs to lead the fire service in a significant culture change to build the community risk reduction mindset throughout (Byrne, 2009; CPSE/ICMA, 2020; Durre, 2017; Faulkner, 2011; Fleming & Zhu, 2013; Horton, 2023; Madsen et al., 2018).

Purpose Statement

The purpose of this generic qualitative research is to explore fire chiefs' perceptions, attitudes, and strategies toward proactive resource deployment, organizational structures, and department mindsets to focus on community risk reduction and what solutions may be available to assist in overcoming any potential struggles. A combination of pragmatic and constructivist

worldviews will underpin the construction of a semi-structured interview instrument for interviewing a sample of Wisconsin fire chiefs. The information gathered will be analyzed to gain insight into fire chiefs' views of their role in community risk reduction and the barriers they may perceive in embedding community risk reduction into their departments' mindset, especially as a way to affect call volumes, complexities, and resource allocations upstream of emergency incidents (Creswell & Creswell, 2018).

Research Questions

The research questions to be answered through this study include the following:

1. What strategies do fire chiefs consider when addressing changes to incident call volumes, incident complexities, and resource allocations?
2. How do Wisconsin fire chiefs view their role in community risk reduction?
3. What barriers, if any, do they perceive that prevent embedding a community risk reduction philosophy into their departments?
4. For perceived barriers, what solutions could assist Wisconsin fire chiefs in removing or reducing those barriers?

Summary

Chapter 1 briefly compared what a reactive, emergency response-focused fire service is versus what a proactive, risk-reducing focused fire service could be and illustrated the need for research into CRR leadership. Chapter 2 will provide an overview of the existing literature on the research topic, while Chapter 3 will detail the methodological design and analytical approach used in this study. Chapter 4 will present the themes delineated from the data captured from the Wisconsin fire chiefs about CRR leadership. The report will conclude with insights about CRR

leadership attitudes, obstacles to a department's embrace of CRR, and potential methods for overcoming obstacles in Chapter 5.

CHAPTER 2: LITERATURE REVIEW

Introduction

The launch of Vision 20/20 in 2008 by the U.S. Branch of the Institute of Fire Engineers, in collaboration with many of the fire service's professional organizations, laid the foundation of modern community risk reduction (Institution of Fire Engineers, 2008). In the fifteen years beyond that launch, little research has looked into the fire service leaders' role in achieving one of the original strategies - to "raise the level of importance for [CRR] within the fire service" (Institution of Fire Engineers, 2008, p. 16; Hsieh & Tai, 2020). This literature review explored existing research from the fire service, public health, economics, public administration, and other disciplines to frame the need for CRR and provide context from some of CRR's successes to inform this research further. Scholarly literature from related industries, such as the military and healthcare, where upstream impacts have been researched and documented, were also studied to gain insight into proactive mindset barriers and solutions to adapt for enhancing CRR leadership. Finally, material addressing social sciences and tangential leadership concepts such as social capital's impacts on communities, behavioral public administration, proactive motivation, transformational leadership, and leading innovation were reviewed for their applicability to this generic qualitative study into the fire chief's leadership of CRR.

Existing Literature

Supporting Economic Theories

The basic economic theory of supply and demand, as applied to the provision of fire and emergency services to a given population, established a starting point from which to review fire chiefs' CRR understanding and their roles in leading CRR. The economics of the fire department in the form of budget establishment and management have been a large part of fire chiefs' duties.

A fire department's economic 'market' has been described as a quantifiable measure of the all-hazards emergency response service for which the community is willing to pay (Ohls & Wales, 1972). In other words, the demand curve represents the amount of fire protection required, and the supply curve describes the resources that make up the marginal cost of that service. Researchers developed various supply and demand curve models that incorporated and tested the influences of elements such as measures of community losses, demographic factors, community factors, employee wages, funding sources, quality ratings, and organizational structures (Ahlbrandt, 1973; Duncombe, 1991; Ohls & Wales, 1972; Southwick Jr. & Butler, 1985).

Each of the models and the resultant conclusions from their use differed based on the focus areas and goals of the research studies in which they were developed (Ahlbrandt, 1973; Duncombe, 1991; Ohls & Wales, 1972; Southwick Jr. & Butler, 1985). Population density, poverty, and a community's per capita income were, however, common influential elements of overall community costs for the services of a fire department. Regardless of the complex details of how supply and demand may be represented or measured, the basic economic theory illustrates that reducing the demand for fire protection reduces the supply of resources required equivalently. One of Southwick Jr. and Butler's (1985) conclusions states "an implication for a city manager [and a fire chief] is that investing in alternative measures to reduce the incidence and magnitude of fire losses may greatly reduce the demand for fire fighters" (p. 1061).

Another basic economic theory, cost-benefit analysis (CBA), has also been shown to apply to public safety domains (Jaldell, 2023; Shreve & Kelman, 2014; Taylor et al., 2019). Cost-benefit analysis (CBA) compares the costs and benefits of a project, program, or policy initiative, expressed in terms of monetary value estimates. As applied to CRR, cost-benefit analysis could be used to evaluate whether the risk reduction effort improves the community.

Beyond a comparison tool, CBA is often used to support decision-making efforts regarding resource investment or reallocation. Therefore, for public safety applications, leaders may estimate the investment or reallocation costs of an initiative that is expected to reduce a service need, reduce risk to their community or to their personnel, or increase the capability of their service and then compare those costs to estimates of the value of those expected benefits. While the monetary values for the cost of a community risk reduction effort may be relatively straightforward to estimate, estimating the monetary value of the effort's benefits – lives, health effects, and other non-market items – is often much more complicated and limits wide us of CBA as a tool in the fire service.

The earliest applications of CBA related to public safety have been made to disaster risk reduction programs and policies because estimating costs and benefits relative to infrastructure damage due to disaster has been easier than estimating the values of human lives and incidents that have not occurred. The National Institute of Building Sciences' Natural Hazard Mitigation Saves: 2019 Report (2019) states that national benefits of $4 are realized for every $1 invested in several disaster mitigation areas, a standard generally used in promoting disaster mitigation. This report also highlights that every dollar invested in building to the latest building codes and standards results in $11 of future savings. Shreve and Kelman's (2014) study also illustrates similar economic effectiveness measures of disaster risk reduction efforts in various areas. However, their study also highlights some limitations of using CBA in public safety leadership decision-making, particularly noting the dependency of cost and benefit value estimates on differing perspectives, cultures, and vulnerabilities. Similarly, Jaldell's (2023) summary of the CBA for residential fire prevention programs concludes that the benefit-to-cost ratios are sometimes highly dependent on the details of the programs. The fire service has been slow to

adopt CBA as a decision-making tool to assess CRR programs, especially in the United States. The little CBA research found in this literature review illustrated that residential smoke alarms and home fire sprinklers have a positive benefit-to-cost ratio, indicating economic efficiency supporting CRR in these areas.

Despite the economic motivation for investment in CRR efforts as a potential mechanism to reduce costs, research into the effects of local government fiscal constraints has indicated that reductions have often been made to CRR prior to any considerations of reductions to emergency response assets (Donahue & Hendershot, 2021). The scope of the reductions varied significantly from organization to organization based on factors such as what CRR activities the local government was engaged in prior to cutbacks and whether or not those activities generated any revenue, the organizational structure of the fire department, community population, and level of fire department staffing.

Further economic research has been conducted into how local governments respond to fiscally stressed environments. Researchers noted that local government fiscal decisions have been more sensitive to the specifics of their communities than state or federal decisions because the public effects have been more immediate and visible (Kim & Warner, 2021). For this reason, existing literature details local governments' preferences for cutback management, or a more recent revision of that concept called pragmatic municipalism, that focuses on balanced, incremental modifications to services and revenue generation versus wholesale budget cuts (England & Brown, 2014; Kim & Warner, 2021). This literature provided a backdrop to fire chiefs' fiscal stress and motivations that informed the research design.

Upstream Mindset Barriers

Beyond the economic theories that may support or refute fire chiefs' support for and leadership of CRR, the literature review illustrated other decision-making facets considered in this research study. Community risk has been described as a complex social problem of human vulnerability because neither the probability nor the severity of the risk can easily be identified, and both are heavily based on the people involved (Runefors et al., 2023). These risks present a clear adaptive challenge requiring changing collective hearts and minds (Grashow et al., 2009). Fire chiefs have been tasked to use publicly provided resources to provide services directed at the public's vulnerabilities. In this public environment, emergency response has been routinely placed as the highest priority by the public, who typically lack a complete picture of fire department operations (Donahue, 2004; Donahue & Hendershot, 2021).

Furthermore, fire departments' heritage and public image have been based on emergency response. Only recently in the history of the fire service has the prevention of emergencies been a part of its mission (Donahue & Hendershot, 2021). The combination of the public's limited view of operations and challenges and the fire service's culture has led to what Heath (2020) names " 'problem blindness' – the belief that negative outcomes are natural and inevitable" (p. 22). In their limited research, Tannous et al. (2018) also found that fire service personnel's resistance to placing CRR on par with emergency response could create a barrier to a proactive mindset. They conclude that further research needs to explore organizational changes that might be necessary for CRR to take hold. This concept is the direct basis for the first research question in this study and the possibility that many fire chiefs will view increasing call volume and higher incident risk as reasonable and expected.

An apparent difference between emergency response activities and risk reduction efforts is that the former has been required, and the latter has been optional. If some or all risk reduction initiatives have yet to be considered the purview of the fire service by its leaders, then the work of reducing risk has not been owned by fire departments and has not been done (Heath, 2020). At an even higher level, CRR has been seen by some in the fire service as direct competition to their mission and, therefore, a threat to their values and even their profession. This organizational inertia can present significant challenges for the fire service leader (Arundel et al., 2019; Glor, 2021; Grashow et al., 2009; Williams et al., 2022).

Structural fire prevention activities, one slice of CRR efforts, have seen some ownership by fire departments for decades. However, other facets, such as wildfire mitigation or mobile integrated health, have yet to be fully owned or have only recently been owned (Madsen et al., 2018). CRR ranks lower in the goal hierarchy and value assignment that research in behavioral public administration indicates is used for decision-making by public managers in complex environments (Hansen & Nielsen, 2022). Hansen and Nielsen (2022) specifically state that "understanding how attention is allocated and priorities set are probably even more pertinent problems in public organizations as these often pursue multiple, potentially competing, and democratically contested goals" (p. 948). Since more research in this area is needed, this study will begin to address this potential barrier to a proactive mindset in the fire service.

Heath (2020) refers to the final barrier to an upstream mindset as tunneling or allowing the little complexities to crowd out the larger ones, often generating more reactive actions than proactive ones. Various internal and external pressures in social, political, fiscal, technological, and professional areas have influenced fire chiefs' management decisions about resources and service delivery mechanisms (Donahue, 2004). The fire chiefs who participated in Donahue's

research reacted strongly to the various pressure categories, albeit in different combinations aligned with their specific environments. Conversely, they had benign perceptions about how performance data informed their budget decision-making. Despite having a variety of viewpoints based on the pressures participant felt in their environments, however, all of the fire chiefs stated unequivocally that one of their primary leadership roles is in the acquisition and management of resources to meet future service demands, a clear sign of a reaction-based mindset and assumption of demand growth. Tunneling, as described above, is losing sight of the balcony view (Grashow et al., 2009; Heath, 2020), but research also defines risk aversion and a lack of change management skills as elements that can drive leaders to focus on the little things and what they know (Albury, 2005; Arundel et al., 2019).

Upstream Successes

The potential lack of a proactive mindset in fire chiefs' leadership styles has not been due to a lack of successful CRR program implementations. Targeted programs focused on specific risks have been shown to be successful in various research studies. Home fire safety visits are one type of CRR activity that has shown significant positive results in reducing the global burden of residential fire-related mortality, injury, and economic loss (Al-Hajj et al., 2023; Al-Hajj et al., 2022; Tannous et al., 2018; Taylor et al., 2019). These programs have reduced residential fires, increased the presence of operational smoke alarms in homes, increased the number of fires contained to the area of origin, and reduced fire casualties. One specific research study into home fire safety visits provides recommendations to guide successful CRR initiatives that apply to fire chief leadership and is one of the most critical literature review findings for this research study (Al-Hajj et al., 2023). The authors emphasize the active support provided by the municipal government in partnership with the fire department. They also recommend that leaders employ

clear and systematic processes to guide the management of the programs and to provide data to support decision-making.

Al-Hajj et al. (2023) further discuss the mindset changes in the Surrey Fire Service and in Surrey, British Columbia, more broadly. In this Canadian city and its fire department, with many similarities to the U.S. fire service and communities, a collaborative, respectful relationship between municipal leadership, department leadership, department labor management, individual firefighters, and other service providers based on mutual goals contributed significantly to the success and sustainability of the initiative. Specifically, Al-Hajj et al. (2023) state that "the mutual understanding between fire management and firefighters has led to a cultural shift of incorporating the activities of HomeSafe *into regular daily duties* [emphasis added]" (p. 13). This research study aims to understand if and how a department's cultural shift, like the one that the Surrey Fire Service accomplished, might be impacted by the fire chief's leadership of CRR.

In addition to residential fires, medical emergencies and wildland fires have generated high numbers of incidents to which the fire service has responded. They have also created significant community losses in lives, dollars, and environmental impacts (Breyre et al., 2022; Madsen et al., 2018; Sanko & Epstein, 2021). These areas of fire service responsibility have also seen reductions in incident volume or decreased incident severity after departments have actively engaged in CRR efforts such as wildfire mitigation and mobile-integrated healthcare.

Upstream activities have also taken root in law enforcement, placing more emphasis on addressing the causes of crime and the costs of crime versus focusing solely on deterrence through arrests and citations (Corsaro & Engel, 2020; Gorkoff et al., 2021). Like the fire service, law enforcement initially developed upstream crime prevention programs administered primarily by law enforcement personnel. Those programs have since evolved to engage community

residents and many other stakeholders in the efforts. One example of a recent collaborative program in Tulsa, Oklahoma resulted in a total crime reduction in the targeted area by almost 60% (Corsaro & Engel, 2020).

The military, too, has taken a holistic view of the impacts of service on veterans and on the communities in which they live and work to begin to address issues upstream of their discharge (Seamone et al., 2014). Service members with military disciplinary problems resulting from combat service-generated mental health issues have been offered justice-mandated treatment and training prior to discharge using the concept of rehabilitative justice. The result of this program has been shown to provide a better path to reintegration into the civilian environment for many service members. Research in military suicide prevention has also shown the benefits of upstream actions through a program emphasizing training for leaders at all levels to create team cohesion and instill a sense of purpose and meaning in subordinates (Trachik et al., 2020). Benefits of improved mental health of service members post-deployment have been shown from the successful use of these leadership skills.

Healthcare has been the primary industry where upstream efforts have been incorporated. Many programs have been developed and implemented successfully to reduce healthcare costs and improve community outcomes. For example, medical-legal partnerships were established between public interest lawyers, health care teams, social workers, public health professionals, and other community partners to assist people early in situations where legal issues could begin to impact a person’s and their family’s health and wellbeing (Avis, 2017; Hemeida & Wong, 2022; Teitelbaum & Lawton, 2017). Healthcare organizations traditionally suffered from the lack of ownership in solving the problem of a community's health and healthcare costs; addressing homelessness, poverty, access, and other health determinants was the purview of other

organizations (Avis, 2017). Increasingly, however, healthcare organizations have researched where they may be most cost-effective or best equipped to address aspects of patient health upstream, such as patient education, timely access to medication, and delivery of prevention-focused care, so that further medical problems can be reduced or eliminated (Avis, 2017; Naccarato et al., 2021). Healthcare organizations have launched programs of their own and in partnership with other community stakeholders, resulting in more successful patient outcomes and lower healthcare costs for them and their communities.

Applicable Leadership Philosophies

Despite the successes of upstream initiatives in healthcare, law enforcement, the fire service, and other community sectors, more research must contain information about whether or how leadership specifically applies to upstream concepts (Hsieh & Tai, 2020). Therefore, literature looking at performance-based leadership, leading innovation, proactive motivation, transformational leadership, impacts of social capital, and organizational change, most often not specific to the fire service, was reviewed to be able to incorporate thoughtful interview questions about leadership philosophies into this research study.

Community risk reduction has used data to identify risks and to target the reduction efforts based on risk prioritization (Institution of Fire Engineers, 2008). Therefore, an expectation of successful CRR leaders may be that they should rely heavily on performance information to drive organizational learning and change (Hansen & Nielsen, 2022). However, Hansen and Nielsen's research into public managers' use of performance measurements for learning, change, and innovation does not bear out this expectation. Additionally, Asselineau et al. (2022) caution against focusing solely on numbers and metrics for decision-making in complex environments like those in which fire chiefs lead due to these potential pitfalls – using

the wrong performance measures, allowing the performance measures to replace the underpinnings of strategy, and allowing performance measures to dehumanize the goals thereby demotivating engagement (Asselineau et al., 2022). Behavioral public administration, a relatively new field exploring the infusion of social science into long-standing public administration theories, supports the cautions about allowing performance measures to drive successful public sector leadership (Bhanot & Linos, 2020). Early information from the research about cognitive biases in leaders and other psychological processes that govern decision-making also informed this study.

Social scientists also research the impacts of social capital on communities. Social capital encompasses community organization involvement, civic engagement, social network structure, volunteerism, social trust, and other facets of social and community engagement (Andrews & Brewer, 2010; Collins et al., 2014; Kumari & Frazier, 2021). Increased social capital has been shown to influence positive outcomes in areas such as public health, criminology, and disaster management. Andrews and Brewer (2010) found that "rates of unintentional death by fire are significantly associated with social capital and a range of external constraints, and that engagement with public affairs and social trust are likely to have the largest positive impact on reductions in the rate of fire deaths" (p. 588). Fire service leaders may find that to better lead CRR, they need to understand the dynamics of social capital and how that influences a community's ability to take positive action collectively.

Proactive motivation concepts from management research were reviewed to inform research about the leadership practices that might support an upstream mindset in the fire service. Parker et al. (2010) state that "being proactive is about taking control to make things happen rather than watching things happen," or in the case of CRR, taking control to make things

not happen – to eliminate emergencies, if possible – versus simply waiting for emergencies to happen (p. 828). The research identifies three qualities that a proactive leader must possess or develop: self-starting, change-oriented, and future-focused (Parker et al., 2010). One of the inherent needs to develop these traits has been identified as a willingness to learn. Steen-Hansen et al. (2021) apply this directly to the fire service in their research, connecting learning through fire investigations and research into fire causes, which fosters a proactive mindset and increased fire safety. Zhang and Inness (2019) expanded on Parker's proactive motivation model to show how transformational leadership, and its elements of idealized influence, inspirational motivation, intellectual stimulation, and individualized considerations, foster proactive employee behaviors and mindsets.

Excellent communication skills have always been necessary for successful leadership. Public safety leadership literature emphasizes the requirement to elucidate a clear vision and purpose both internally and externally to support organizational change, especially when attempting to institutionalize a philosophy (Corsaro & Engel, 2020; Donahue, 2004; Madsen et al., 2018; Williams et al., 2022). Madsen et al. (2018) state most clearly that "the ability to convey the importance of pre-fire mitigation work [i.e., CRR] in a clear and compelling manner could help gain municipal support and funding as well as greater buy-in among fire department staff and homeowners" (p. 458).

As has already been noted, research in fire service leadership is limited in breadth and depth (Hsieh & Tai, 2020). While the other tangential topics noted in this literature review have provided insights, literature regarding leading innovation, particularly in the public sector, aligned most directly with this research study. Much of the literature begins with varying definitions of innovation. The common elements of the various definitions of public sector

innovation focus on implementing processes, policies, services, and delivery methods that are new to an organization and create incremental or radical improvement in efficiency, effectiveness, and quality for people in and served by the organization (Albury, 2005; Arundel et al., 2019; Glor, 2021; Williams et al., 2022). Implementing CRR within a fire department has included new processes and services intended to improve fire departments' efficiency and the quality of life in communities in various ways, thereby putting CRR efforts squarely in the realm of innovation in the fire service.

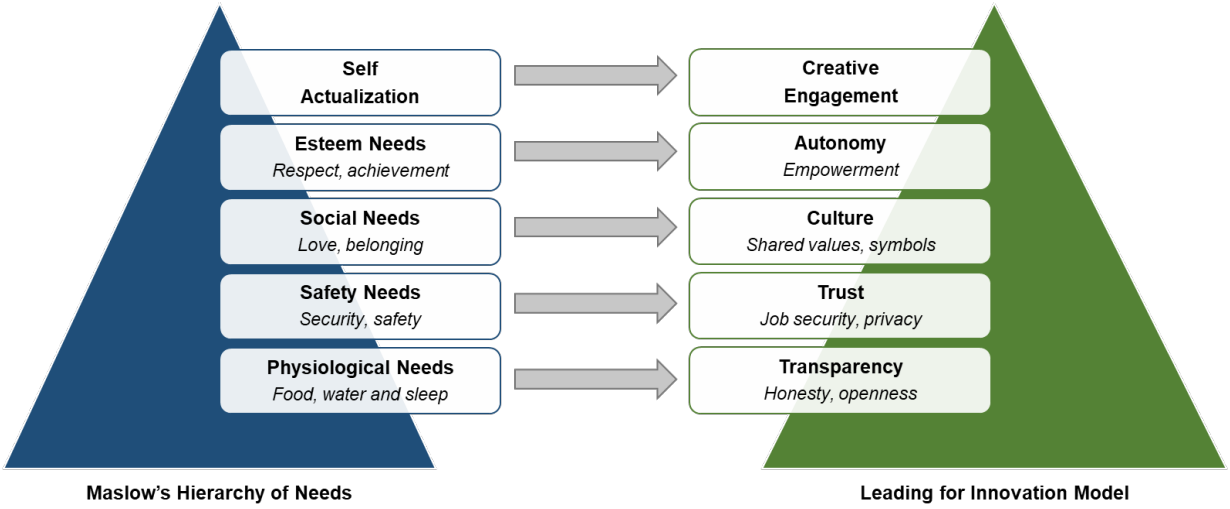
The literature about leading innovation highlights several factors that influence success. Significant emphasis is placed on the connections and relationships among all the internal and external stakeholders involved in innovation implementation (Albury, 2005; Al-Hajj et al., 2023; Arundel et al., 2019; Williams et al., 2022). The bonds between fire service leadership, the community population, labor management, municipal leadership, community partners, and others form an innovation framework. Innovative idea generation and the impacts of workplace generational differences on idea generation are also highlighted. The literature further provides insight into the adoption phases of innovation, the revision of innovations, and the need for a continued focus on innovation as opposed to viewing innovation as a one-time activity (Albury, 2005; Al-Hajj et al., 2023; Arundel et al., 2019; Glor, 2021). Without focusing solely on performance indicators, leading innovation still requires outcome measurement to support decision-making and illustrate value (Al-Hajj et al., 2023; Arundel et al., 2019).

One of the most engaging articles reviewed in this area introduces a model for leading innovation that defines a hierarchy of organizational elements analogous to Maslow's hierarchy of needs (Maslow, 1954; Williams et al., 2020). The multi-generational workforce, emotional intelligence, and rapid technological changes form the basis of these elements (Williams et al.,

2020). Figure 2 illustrates the hierarchical levels of an innovative organization that leaders need to create and support and their equivalence in Maslow's hierarchy (Maslow, 1954; Williams et al., 2020).

Figure 2

Comparison of Maslow's Hierarchy of Needs to Leading for Innovation Model



Note. Adapted from "Leading for innovation: A new model for 21st-century leadership," by Williams, E., Armistead, J., and Rude, D. A., 2022, *New Horizons in Adult Education & Human Resource Development*, *34*(4), p. 8 (https://doi.org/10.1002/nha3.20366). Copyright 2022 by SAGE Publications.

Synthesis of the Existing Literature

Research literature addressing fire service leadership of community risk reduction is minimal. Recent studies of CRR activities were reviewed to substantiate CRR's benefits and support the need for this research. However, the lack of connections to any decision-making or leadership concepts within this research required reviewing other subject areas. Literature from

various disciplines and industries related to community risk reduction and fire service leadership provided significant insights into fire chiefs' potential for success and the challenges they may face with leading CRR. The literature review provided a better understanding of local government economics and an understanding of how they may affect fire chiefs' decision-making and CRR philosophies. Perceptions about potential barriers to proactive mindsets taking root in the fire service became clearer through this literature review. Leadership philosophies that can be applied to increase the incorporation of an upstream mentality in the fire service were also identified.

Summary

The need for community risk reduction to address human vulnerability and aid local governments and fire departments in effective, efficient stewardship of the resources provided to them will continue. The literature review further solidified the need for research into barriers to a proactive, community risk-reducing mindset in the fire service and fire service leadership's part in advancing that mindset. The review was designed to provide foundational material on which to develop and conduct the semi-structured interviews to gain a more complete picture during those interviews.

CHAPTER 3: METHODOLOGY

This research study was designed to gain insight into fire chiefs' perspectives on the leadership of community risk reduction and promotion of upstream philosophies in the fire service. After a thorough search and review of fire service and adjacent public safety literature found little research dedicated to leadership strategies for embedding proactive, community risk reduction focused mindsets in fire departments, the review was expanded to include other industries and disciplines to gather foundational material to guide this research. Given the lack of existing research and the need for exploratory information to advance this area forward, generic qualitative inquiry was chosen as the research methodology (Creswell & Creswell, 2018; Ellis & Hart, 2023; Percy et al., 2015). Semi-structured interviews were employed to gather data from Wisconsin fire chiefs. The data was thoroughly analyzed with structured, inductive thematic analysis techniques to develop a conceptual model to describe the perceptions, attitudes, and beliefs of fire chiefs toward proactive resource deployment, organizational structures, and department mindsets (Naeem et al., 2023; Percy et al., 2015).

Research Design

Qualitative methodology was chosen for this study over quantitative or mixed methods due to the lack of a hypothesis or theory to test, the lack of statistical measures for this topic, and the time constraints for this project (Ellis & Hart, 2023; Percy et al., 2015). Specifically, generic qualitative inquiry was selected over other qualitative methods such as grounded theory, ethnography, or phenomenological research because this is exploratory research seeking to understand the complexities of fire chiefs' beliefs, attitudes, and mindsets and does not fit well into one of the distinct, established methods (Creswell & Creswell, 2018; Ellis & Hart, 2023; Percy et al., 2015). Ellis and Hart (2023) specifically state that a generic qualitative research

design is “useful when trying to determine participants’ subjective beliefs and opinions about their external experiences” (p. 1760). Furthermore, generic qualitative inquiry is expressly noted to be a good choice for research design when existing research in the study’s area is limited, as it is in this case (Creswell & Creswell, 2018; Ellis & Hart, 2023; Percy et al., 2015).

Generic qualitative inquiry has been considered subjective and lacking credibility in the past, particularly in some fields, because it sometimes draws on components from multiple distinct methods, such as a mixture of phenomenology and grounded theory, and is seen as lacking rigor (Ellis & Hart, 2023). However, generic qualitative inquiry is becoming more widely accepted in most academic circles because of its flexibility, dynamic nature, and focus on attitudes and experiences (Ellis & Hart, 2023; Percy et al., 2015). This study followed established criteria and guidelines for quality data collection and analysis following generic qualitative inquiry research methods.

Rigor was also established using reflexivity during the study to acknowledge and address bias and assumptions (Ellis & Hart, 2023). The other potential limitation of this research design is the typical inability to generalize the results for a larger population due to the smaller sample size in qualitative research (Creswell & Creswell, 2018). However, exploratory research such as this can provide a deeper, more subtle understanding from the results with a smaller sample size (Ellis & Hart, 2023; Percy et al., 2015). Percy et al. (2015) also state that “if the sample is transparently and fairly *representative* of the target population or is clearly *information-rich* about the topic, readers may be persuaded to apply the findings to similar people or situations outside the sample itself” (p. 79).

Population and Sample Size

Fire chiefs, who are ultimately responsible for their department's culture, philosophy, and mindset, were interviewed for this research study. Wisconsin fire chiefs were chosen purposefully because their environment is largely consistent from one department to the next. Wisconsin fire chiefs are bound by the same state statutes, operate in similar municipal and department structures, lead similarly educated firefighters, and face similar challenges and regional tendencies. Available access to Wisconsin fire chiefs was also a consideration in selecting the study population. Compared to quantitative research or some of the other qualitative research methodologies, generic qualitative inquiry is often completed with smaller sample sizes, especially when the research topic is exploratory, because the methodology generates more depth in the data from each participant (Ellis & Hart, 2023). The sample size goal for this study is 10-12 fire chiefs unless data saturation, a point at which new data does not include new insights into themes, could be proven prior to the completion of data collection from all identified participants (Creswell & Creswell, 2018).

Wisconsin had 813 active fire departments in 2021, the most recent year of published statistics, each with a fire chief (Brown, 2023). Random selection or solicitation from this large sample size was not considered for this study. The primary criterion used to identify appropriate participant candidates was to require some established level of community risk reduction already in place in the department. Participant fire chiefs must have had at least person serving in a defined full-time or part-time role in CRR, such as fire marshal, fire prevention officer, community risk reduction specialist, or public educator, in their department. This criterion provided the necessary environment within which to conduct the research and on which a foundation for the interview was grounded.

Other than being an active fire chief, no other limitations about the participants' experience level nor the size or demographics of their departments were established. This was done to allow for variety in the participants due to the exploratory nature of this research. Introductions to the study and a request for participation were developed to solicit participation from fire chiefs and approval from their municipal leaders. These communications contained information about why the persons were chosen for inclusion, the expectations of their participation, and the benefits they may reap from participation. See Appendix A for the details of these communications. This solicitation was sent to 20 Wisconsin fire chiefs whose departments met the established CRR staff member requirement and to the municipal leaders to whom those fire chiefs reported. This number was used to ensure that at least 10 participants could be interviewed. Fifteen positive responses to the request-for-participation emails were received. No negative responses were received from any of the municipal leaders to whom the introductions were sent. Thirteen participants were selected from those fifteen responders based on the order in which the responses were received and the participants' availability during the data collection window. One of the 13 participants dropped out after selection, so 12 fire chiefs participated in the data collection phase.

Instruments

A semi-structured interview was identified as the primary data collection instrument for this research because of the flexible and dynamic way this tool can gather perceptions and opinions about a participant's environment (Creswell & Creswell, 2018). This data collection method aimed to gather rich, thoughtful, nuanced insight into the leadership of CRR (Percy et al., 2015). An interview protocol, provided in Appendix B, was prepared based on Creswell and Creswell's (2018) template to guide the researcher in establishing rapport with the participants,

creating a conversational environment, and conducting the interviews consistently. The protocol included beginning and ending instructions to the participants, an opening question, the content questions, and potential probes. Before conducting the interview, an informed consent form, as detailed in Appendix C, was completed. Participants also completed a demographic information collection form, shown in Appendix D, to gather basic information about their departments, communities, and themselves.

The interviews were conducted in person with nine of the 12 participants, and an audio recording was captured via a smartphone voice recording application. When logistics did not allow in-person interviews for three of the interviews, the virtual meeting tool, Webex by Cisco, was used to conduct and record the interviews. Transcripts of the interviews were created from the recordings using the online transcription tool, Rev.

The research instruments were tested to ensure participant comprehension and, ultimately, the validity of the results. The demographic information collection form and the interview protocol were carefully reviewed by individuals with expertise in fire service leadership, community risk reduction, or qualitative research. The subject matter experts' feedback was used to refine the form and the interview protocol to ensure that the instruments supported the research goals and were neutral, transparent, and inclusive.

Research Process

A systematic research process was followed to gather and analyze usable, credible, and interesting data to understand leadership of CRR. After selecting the participants based on their interest and availability, interviews were scheduled with each participant at a time convenient for them. Each was sent the demographic collection form and the informed consent form to complete before their scheduled interview. The interviews were conducted either in person or via

virtual meeting software and recorded. After each interview, the researcher documented reactions for reflexivity and bias control (Creswell & Creswell, 2018).

Detailed transcripts of each interview were created with the assistance of transcription software. These transcripts were redacted to remove any potential personally identifiable information (PII) and other information that could point to a particular department. Each interview record was uploaded to the qualitative research software tool, Dedoose, for data analysis. Post-interview reflexive notes were also uploaded. A table of descriptors created from the Demographic Information Form was uploaded into Dedoose, and each participant's applicable set of descriptors was tied to their interview transcript and reflexive notes to assist with the analysis.

To develop thorough and unbiased results for this research study, the structured, rigorous process of thematic analysis was employed (Creswell & Creswell, 2018; Naeem et al., 2023; Percy et al., 2015). Using the research questions as guidance, keywords, patterns, and codes drawn from the data were identified through inductive thematic analysis, which is specific to research where data is not being separated into preexisting categories (Percy et al., 2015). This distillation developed themes and rich interpretations into a final conceptual model to present the research results (Naeem et al., 2023).

Specifically, the first step in the analysis was to read all of the data in detail, one interview record at a time, and select highlights and quotes that aligned with the research questions (Creswell & Creswell, 2018; Naeem et al., 2023; Percy et al., 2015). A key part of this step was to pare the data by eliminating interesting items not directly relevant to the research questions. Next, the Dedoose software helped automate a careful search of the interview records for recurring patterns and relevant terms designated as keywords and assign relevant codes to the

data based on those keywords. This coding process organized the data to make the text volume more manageable. Care was taken during this process to maintain consistency in the use of the codes. In the next step, the researcher created themes by interpreting the codes and the patterns they formed and aligning them with the research questions. Narrative descriptions connected to the themes completed the thematic analysis. Rich interpretations of the results were used to construct a conceptual model of the themes to finalize the research process.

Ethical Considerations

The primary ethical considerations in this study were the freedom and confidentiality of the participants (Creswell & Creswell, 2018; FEMA, 2023). The trustworthiness of the researcher and the research study was demonstrated to the participants through the consistent use of the research introduction documentation, the informed consent form, and the interview protocol. These tools were employed to accurately and completely communicate the purpose of the research, the expectations of the participants, the benefits of the research to the researcher and the participants, the voluntary nature of their participation, and the processes in place to ensure complete confidentiality of the participants and their departments. No PII related directly to the requirements of the Privacy Act, such as name, Social Security Number, or date of birth, was recorded for the participants. Demographic data (Appendix D) collected were only used in conjunction with their applicability to research questions and to interpret themes that may have tendencies associated with participant demographics. The Wisconsin fire and emergency services population is relatively well-known to each other, so special care was also taken during the redaction of all transcripts and in the use of quotations so that no other identifying information was used in reporting the results, conclusions, and recommendations. All data has been stored

digitally using password-protected tools and applications. The data will be deleted after the required four-year data storage period.

The other important ethical consideration for this research was to take all necessary steps to ensure the accuracy of the data and that no bias was introduced into the study given the researcher's experiences in the position of leadership in CRR and as a Wisconsin fire chief (Brown, 2019; Creswell & Creswell, 2018; Ellis & Hart, 2023; Naeem et al., 2023). Using the structured data analysis process was one mechanism that limited potential bias by allowing the data to define the keywords, codes, themes, and interpretations. The risk of subjectivity and bias was also mitigated using the reflexive approach of documenting post-interview notes to stimulate regular reflection by the researcher on her assumptions and positions relative to the research topic (Brown, 2019; Ellis & Hart, 2023). These memos provided a reference during data interpretation and model conceptualization to ground the researcher and allow the data to define the results.

Summary

The flexible, dynamic, and exploratory generic qualitative inquiry methodology was used to research Wisconsin fire chiefs' attitudes, perceptions, and beliefs about leadership of CRR. A demographic information collection form, a semi-structured interview protocol, and the review of documents was used to collect the requisite data for this study. This data was analyzed using the structured, rigorous process of inductive thematic analysis. Keywords, codes, themes, interpretations, and a conceptual model were developed to communicate the study's results, conclusions, and recommendations. Participant freedom and confidentiality, along with mitigation of bias introduction from the researcher's experiences and position base, were the ethical considerations for this research.

CHAPTER 4: STUDY RESULTS

This generic qualitative research study explored fire chiefs' perceptions, attitudes, and strategies toward proactive resource deployment, organizational structures, and department mindsets to focus on community risk reduction. The information gathered through semi-structured interviews of 12 Wisconsin fire chiefs was analyzed using inductive thematic methods to gain insight into the answers to the following four research questions:

1. What strategies do fire chiefs consider when addressing changes to incident call volumes, incident complexities, and resource allocations?
2. How do Wisconsin fire chiefs view their role in community risk reduction?
3. What barriers, if any, do they perceive that prevent embedding a community risk reduction philosophy into their departments?
4. For perceived barriers, what solutions could assist Wisconsin fire chiefs in removing or reducing those barriers?

Demographics of the Participants

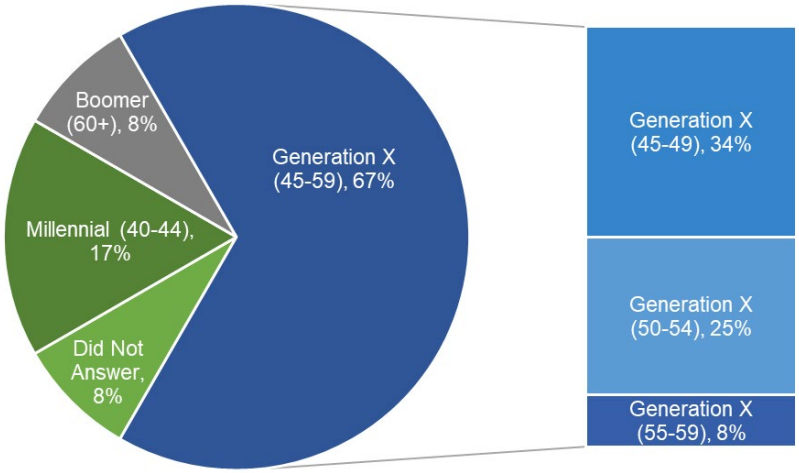
Research data for this study was collected from 12 participants serving as fire chiefs, heads of fire departments or districts, in Wisconsin. Aligned with the demographics of Wisconsin's fire service and particularly that of the fire chiefs in the state, all of the participants were white males. Nine of the 12 further designated themselves as non-Hispanic or Latino. The other three did not answer that question. Most of the participants were members of Generation X, born between 1965 and 1980 and aged 45-59 (Brunjes, 2019). One participant was from the Boomer II generation, born 1955-1964; two were Millennials, born 1981-1996 (see Figure 3).

The participants in the study had a wide range of years of experience in the role of chief of the department, from less than one year to 14 years, and an average number of years as fire

chief of 3.9 years. The Wisconsin fire chiefs interviewed for this study were very experienced in the fire service and had 22 to 35 years of experience.

Figure 3

Participants' Generations and Associated Age Ranges



The one requirement for this study's population was that the participants' departments had to have at least one staff member employed with a defined CRR role. The participants' departments employed from one-quarter to five Full-Time Equivalent (FTE) personnel in defined CRR roles such as Fire Marshal, Community Risk Reduction Specialist, and Prevention Educator in both sworn and civilian roles, part-time and full-time. The average number of CRR-dedicated FTEs for the 12 fire departments was 2.4. The other CRR-specific demographic data collected from the participants were their estimates of their CRR budgets separated into personnel costs and other line item costs. Annual department budgets ranged from approximately $1,400,000 to $25,600,000, with an average of $8,900,000. Line item CRR budgets ranged from $1,500 to $15,000, except for two outliers, at $100,000 and $1,300,000. The personnel budgets ranged

from approximately $28,000 to $1,200,000. The CRR budgets represented 1.2-17.7% of the total annual budgets, with an average of 5.7%. See Table 2 for the CRR budget percentages and FTEs by department. Detailed budget figures were not included to maintain confidentiality.

Table 2

Participants' Community Risk Reduction Budget Percentages and Personnel

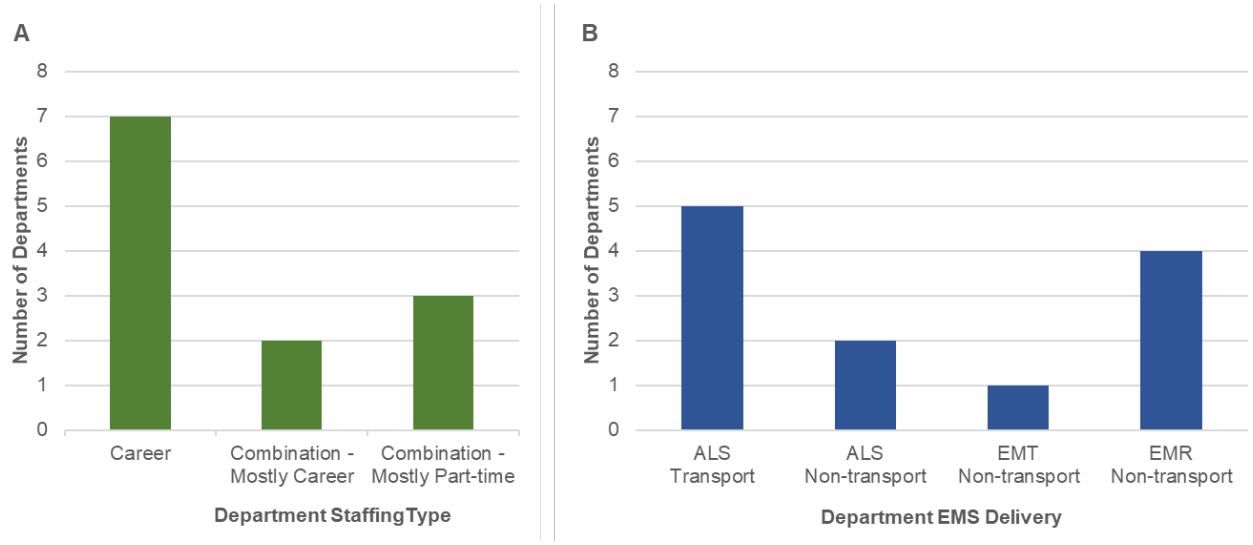
Participant ID	CRR Percent of 2023 Total	CRR FTEs
P01	4.4	1.25
P02	1.6	1.00
P03	17.7	3.45
P04	7.5	2.00
P05	3.3	1.75
P06	*	3.00
P07	*	5.00
P08	7.6	1.00
P09	8.5	2.00
P10	3.0	3.70
P11	1.2	0.25
P12	2.3	5.00
Average	5.7	2.40

Note. * Participant did not provide enough information on the demographic information form to calculate this value.

Other demographic data about their municipalities and departments were collected from the participants to provide additional context. Figure 4 illustrates the mix of department types from a career or combination style and the level of EMS provided. EMS delivery was separated by the highest level of EMS service they provide, Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), or paramedic / Advanced Life Support (ALS), and whether the fire department also provides the ambulance transport service to the hospital or not.

Figure 4

Participants' Department Styles



Note. Panel A: Illustration of the participants' departments' staffing types with career and part-time or volunteer personnel. Panel B: Illustration of the participants' departments' methods of EMS delivery.

The career and mostly career departments had approximately 20 to 200 full-time personnel, while the mostly part-time departments ranged from 35 to 65 part-time and 5 to 20 full-time staff. The 12 participants' departments served 18,000 to 107,000 residents in 1,400 to 17,000 total incidents, averaging 46,000 residents and 5,700 incidents, respectively. Table 3 provides calculated relationships of the total number of incidents versus the population and total sworn staff to illustrate one view of the workload for the different departments represented in the study.

Table 3

Total Number of Incidents versus Population and Total Sworn Staff

Participant ID	Incidents per Capita	Incidents per Sworn Staff
P01	0.121	82.6
P02	0.075	50.7
P03	0.092	76.0
P04	0.054	30.4
P05	0.166	112.0
P06	0.174	97.9
P07	*	*
P08	0.064	26.0
P09	0.074	21.6
P10	0.184	122.0
P11	0.098	51.2
P12	0.158	79.9
Average	0.115	68

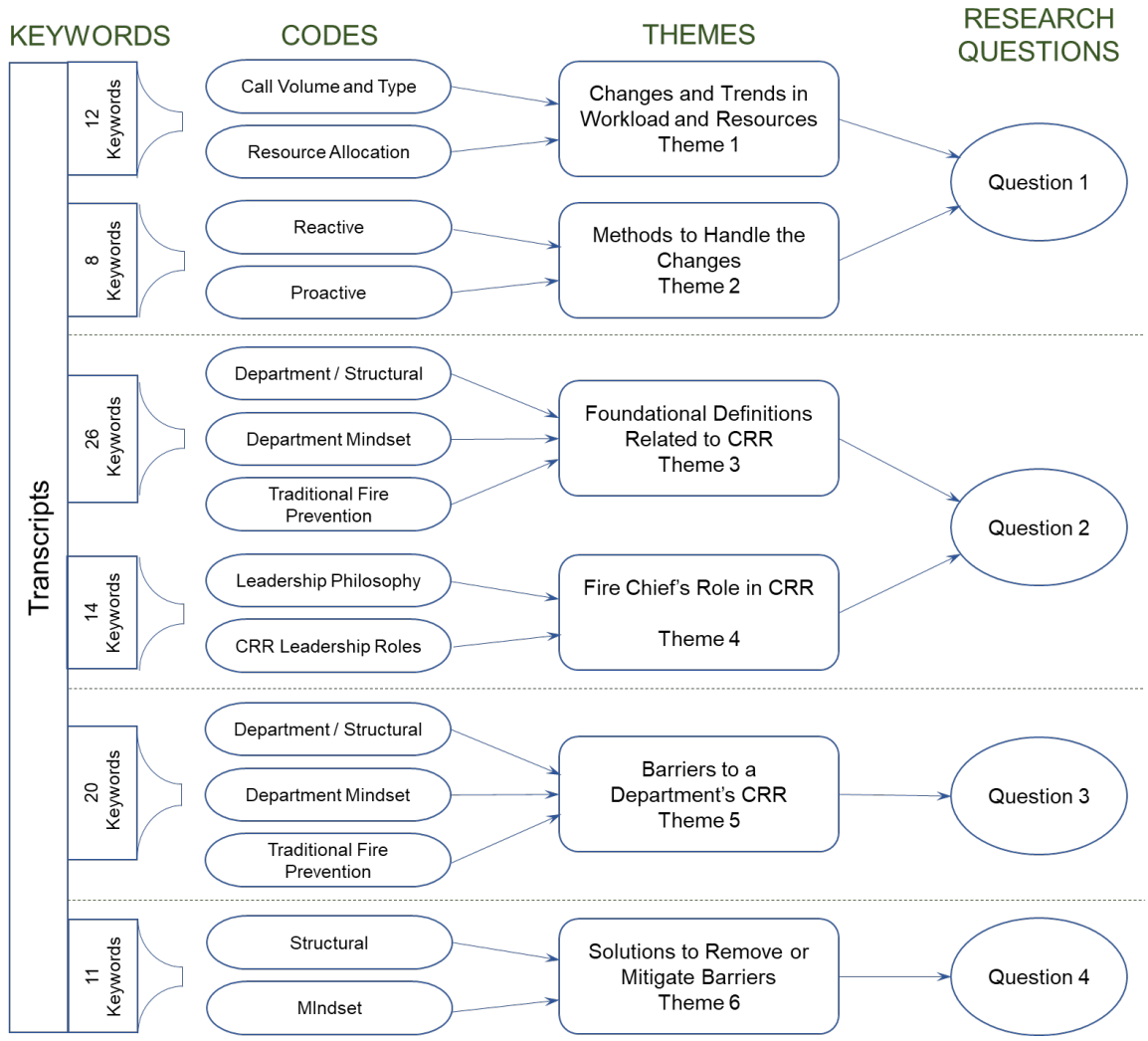
Note. * Participant did not provide enough information to calculate this value.

Research Results

This research study gathered data from 12 Wisconsin participants about their perspectives and methods in leading CRR from their specific position as fire chiefs. A structured inductive thematic analysis process was followed to distill the highlights, quotes, and keywords into codes guided by the data to capture core messages from the participants (Naeem et al., 2023). These codes were further developed into principal themes to address the study's research questions, as depicted in Figure 5. Specifically, the 12 interviews yielded 91 keywords collected into 14 codes and further developed into six themes. Of those six themes, two primarily address the first research question, two primarily address the second research question, and each of the final two themes addresses the final two research questions.

Figure 5

Structured CRR Leadership Inductive Thematic Analysis Process



Theme 1: Changes and Trends in Workload and Resources

This theme captures data that illustrates the challenges faced by the participants related to their departments' emergency response workload and emergency response resources. These results set the foundation for answering the first research question about strategies to address changes in call volumes, incident complexities, and resource allocations. This theme was

developed from two codes, Call Volume and Type and Resource Allocations, which evolved from the 12 keywords in the interview data.

Code 1A: Call Volume and Type

The participants discussed the trends and varied reasons behind the changes to call volume, call types, and call complexities. All participants indicated an increase of some level in call volume in recent years. Participant 12 stated, “Here specifically, we’ve seen calls go up three to five percent a year.” Participant 6 said, "Every year we set new records…and it's been that way for the last ten years." Participant 3 described his department’s call volume increase as “up about 26% in the last five years.” The exception to annual increases for some were the two primary years of the COVID-19 pandemic, during which some departments saw a decrease due to the unusual dynamics in public safety during that time. However, the increases have reemerged in the last two years. Participant 5 described it this way, “COVID was weird, right? We saw some growth ahead of that, then a little bit of flattening and then a dip and then now some really substantial growth after that.” Participant 12 said:

> COVID was that anomaly where we saw a decline in the number of medical calls… Last year we went back up pretty quickly…This year we actually saw a little bit of decline from last year. So, it's weird.

The mix of the call types has continued evolving according to most research study participants. Across the range of participants, all noted EMS call growth as the primary driver for the overall call volume increases. Participant 1 noted, "Call volumes are increasing, especially since COVID, there was kind of an uptick, especially in EMS.” Participant 3 said, “Our call volume for just EMS calls have [sic] gone up 37%. So we're seeing a trend where we're getting more EMS than the rest of the calls." Two participants specifically re-characterized their

departments in describing the rise in EMS calls. Participant 8 said, "We are an EMS department now that dabbles in fire." Participant 1 stated, "I mean fire departments are kind of a misnomer now, so that's the minority of what we do for most things. EMS has really been the big piece of a lot of [the call volume increase]."

All participants mentioned "falls" as the particular type of EMS incident that has increased across their communities. Participant 3 said, "We've noticed that about 16 to 19% of our EMS calls are somewhat fall related in one form or another." Participant 6 said, "The big talk that the three of us … here have been talking about is falls. That's a trending thing nationwide, and it's really climbing in [our community]."

Although EMS calls changed the emergency response workload mix, other drivers were also noted. Participant 6 highlighted the all-hazards changes that fire departments have seen:

> We're not just fire anymore, the fire service. People call 911, and it's us. We're going. It doesn't matter if it's a cat in a tree or someone's stuck under a lawnmower or high-angle rescue or confined space or any of that anymore. So, we're there for everything.

Participant 9 summarized the change in this way:

> Our call types have changed a lot over the years, which is probably similar in every other department. We're seeing less fires and more service demand as far as alarms, and, I don't want to say specialty calls, but unique calls.

Similar to Participant 9, whose community is growing, other growing communities noted increases specifically in false alarms. Participant 8 said, "The more business you're going to get, your false [alarms rise]." Participant 5 agreed, "It's the false calls, a little bit of stability there, but still, with the development, that's been a growing number." The exception to this was Participant

3's department, whose community is not rapidly growing. He noted that "false alarm calls are down almost 20% in the last five years."

Conversely, other participants described some consistency or decrease across some call types. Participant 6 said, "Other than [falls], our calls are pretty consistent…so over the past five years that [sic] I can't really think of anything much [for changes]." Participant 5 noted that the number of fire incidents has stayed between 90 and 110: "Our NFIRS 100 series are consistent…Over the years that has stayed relatively flat." Participant 8 said that "structure fires are on the decrease just like the national trends." Participant 7 said, "We have the same amount of house fires pretty much every year."

Participants struggled to elucidate the reasons for the call volume growth and changes in the mix. Some common thoughts were that the increases were due to an overuse of 911 for healthcare concerns and that the increases did not track population growth. Participant 7 said, "Our population hasn't gone up. It's actually gone down a little.… We just see a lot of issues that are not necessarily traditional life or death." Participant 10 indicated "a lot of the calls that increased were the low acuity social service, more 'need' calls. And so we struggle with those." Participant 1 said succinctly, "I think people just became helpless." Participant 5 said, "[Call volume increases] surpassed our population growth numbers. It isn't a nice chart that says that your population goes up this much; your EMS calls go up. It hasn't followed that. I think the prevalence of elderly housing options drives that a little bit more substantially than just population numbers."

Community residents' socioeconomic status and demographics were discussed as potential drivers for incident trends. Participant 7's department was struggling with serving a

significant unsheltered population, a population suffering from substance abuse issues, and a growing elderly population who is staying longer in their homes with less support:

> Our demographic has changed in the city.… We have an unsheltered population.... Then we also have an aging population…that are [sic] staying in their homes longer and don't have access to traditional long-term avenues of, I would say appropriate care.… We got [sic] to spend our time equally between trying to figure out how to help with the opioid epidemic and how to keep people 80 plus years old living in their homes without calling you every day. It's amazing the extremes there.

Participant 2 echoed the thoughts about aging adults when he described "an elderly population that is becoming more dependent on us, maybe, to do things like their kids used to do for them."

Code 1B: Resource Allocation

Emergency response workload changes, the 'demand' side of the basic economics of a fire department, have changed to create new types of calls and significant increases in volumes. Changes to resource allocations, the 'supply' side, have also challenged the ability of these fire chiefs to maintain their service levels or embark on continuous improvement for their communities' safety and wellbeing. The participants' views of the funding and staff allocated to direct emergency response varied significantly. Participant 7 said, "We are a very well-staffed fire department. We don't do transport, so we have the resources that we need to go on the calls." Participant 12 said, "We're maintaining our levels [of response resources]." Participant 9 agreed, "Right now, we're okay with where we're at with staffing." Participant 6 said, "I think we're pretty solid, and we're in a comfortable spot as a city."

Others portrayed a neutral position, like Participant 1, who indicated that "resources tend to be pretty stagnant." Participant 5 said, "This year, we were allocated for additional spots as a

part of a public safety staffing plan. ... It doesn't really allow us to add resources on the street, but it allows us to bolster our crews, provide a little bit more of a more typical response and some reserve capacity."

Still, others indicated that their resources were substantially behind where they needed to be. Participant 4 said, "When you have a growing community, there's no way you can keep up with it.… I think that [my community's] doing the best that they can, but it'll never be enough." Participant 3 said:

> From a response perspective…we've actually lost four positions in the last 12 years, and we have less staff now than we've ever had…. Our staff—the number of staff we have right now—was the same 18 years ago when our call volume was a third of what were [sic] going on. So, we've tripled our calls, and...we haven't added one person."

Participant 2 described the dearth of resources as a circumstance of ignoring a problem:

> I think money and resources are being thrown at these problems, but not until they've...gone so bad.… It's been a reactive type of thing.… We increased the budget my first year, and we added staff.… And it wasn't because of anything special I did or anything like that. It was just because it had been ignored for so long.

Participant 11 explained the resource allocation to his elected officials, trying to put it in their business context: "I've said this, 'Please understand…we're by design inefficient, and if we continue to try to get more efficiency, there's a breaking point.' [We] are too efficient and putting things at risk."

Wisconsin municipalities and the leaders that manage department budgets have been working under the constraints of the state's levy limit impacts for 15 years. Evidence of fire chiefs' resigned attitudes toward the constraints of levy limits was found in their statements

about funding and budgets. Participant 10 bemoaned, "There's not a lot of new money, so I need to manage with what I got." Participant 5 points out that "[Our community gets] X amount of new developments; we don't get X amount of people resulting from that." Participant 9 said, "Our village supports us a lot, but they're [stuck] with the levy limits." More drastically, Participant 3 describes his municipality's harsh means of addressing levy limit impacts:

> If you want a new position, you have to also identify where you're going to cut one from somebody else in the city because that's how tight the budgets are. So I think that's the big takeaway message is: there's so much work to do, but it's next to impossible to get additional staff to do it unless you go to a referendum.

Theme 2: Methods to Handle the Changes

Given the challenges of the changes to emergency response workload and resource allocations, the participants were asked how they reacted to the trends as the department head. Participants were also asked what their priority would be if they received unlimited funding. The participants' answers were distilled from eight keywords into two codes: Reactive and Proactive. The Reactive code captured participant responses focused on emergency response-related methods to address the changes. In contrast, the Proactive code captured responses that addressed the changes from a prevention or mitigation angle. The data from this theme was used to answer the first research question.

Code 2A: Reactive

Several participants responded to the interview question about how they have addressed the changes in call type complexity and resources with response-driven priorities of some type. Participant 8 stated that he was "poking [elected official] at staffing…building up the department." However, he also said he was looking at how his department deployed its

emergency response units: "We went more aggressive with our alarms, we looked at everything on the MABAS [Mutual Aid Box Alarm System] schedule, and we beefed up a lot of our stuff…to be more proactive at getting people there." Similarly, Participant 12 said, "We're trying to look at ways to right size responses too. So we have changed…some of our fire alarms. We were sending a lot of apparatus…. And so we've changed that." Participant 6 also talked about deployment as his department is in the process of upgrading staffing:

> At some point, when we get up to our [planned] minimum staffing, then we'll talk about deployment plans and maybe even moving some rigs around, keeping up with what's going on in our community, keeping our finger on the pulse of what the trending calls are, what we can help with. Having an EMS division chief and deputy chief that are very EMS-driven, both getting out in front and doing new things.

Participant 9 talked about how they have added part-time station staffing incrementally to address the call volume increases and resulting increases in call response times:

> In [2015], we started the [station] staffing during the day.... Then, we saw our call volume increasing…. So, as our weekend call times started increasing because of call volume and society in 2019, we were awarded the SAFER grant for staffing… We did it…pretty much following the data at the time;...the trends in our response times.

Participant 4 mentioned staffing with "creative scheduling…I still have some people, new people, on 12-hour shifts, which are horrible shifts to work." Participant 4 was the only fire chief to talk about regionalization of services and consolidation of departments as potential means for departments to address the instability:

> I think, honestly, there's only one fix to a lot of it, and it is more regionalization…. You have to realize as a chief when your department needs to grow or when it's at a level of

> where it needs to be. And unfortunately, there's still a lot of…people who don't understand that. I can tell you that there's [sic] a lot of fire departments out there that should be addressing at least some full-time, daytime staffing…. But there's [sic] too many communities who [sic] their fire department has not grown with their growth, whether it's commercial, residential, or whatever. And, you need to realize that and you got to give up some things…. We have other departments that are growing that if they're not at least talking to their communities about full-time staffing or doing some kind of…consolidation. Remember, there's a half a dozen ways to consolidate. It doesn't have to be a full takeover of an organization. Even us, we've talked about shared staffing with [a neighboring community].

Besides looking at right-sizing responses, Participant 12 talked about how his department is exploring a different style of EMS response. He noted that for EMS incidents, the department has only one type of unit to send, an ambulance. To address some of the EMS issues that have developed given that single type of unit, Participant 12 described:

> Our current trend of EMS responses isn't sustainable. We can't keep putting more and more units in service…. If we have low acuity calls, people are okay waiting…. 'I need to go to the hospital, but I don't need to go right now; maybe if you're here in 30 minutes or an hour.' Some of the research on that shows that that's acceptable for most people…. Police have been doing this… [as] a call pending, and that is acceptable.

To clarify the fire chiefs' priorities for their departments, they were asked what their strategies to address the workload and resource allocation trends would be if there were no limitations in funding or staffing. When asked the question that way, some of the participants gave the highest priority to using the opportunity to address emergency response items.

Participant 3 said, “So number one, no budget limitations, I would hire 22 people, and I'd staff three ambulances in a heartbeat.” Participant 10 stated, “I would put a four-person company on the fire companies and probably add a [sic] ambulance transport unit for at least 12 hours on the weekdays.”

Some unconstrained priorities were not aimed at response staff but at response-related items. Participant 6 said, “I guess…my answer…is unlimited funds to being able to purchase the latest and greatest of everything.” Participant 8, whose department operates an ultra-high-pressure system for initial fire attack, said, "The strategy is essentially [to] just keep on looking at technology and innovation that's out there.”

Code 2B: Proactive

A number of the methods or proposed methods to address the emergency workload and resource challenges Wisconsin fire chiefs faced incorporated proactive measures. Participant 6 said, "Community risk reduction is one of those things that we need to [reinforce]…. What I would hope is that the call volume goes down or stays steady instead of climbing.” Participant 5 did add response staff, but the additions were tied to a proactive measure to increase CRR programming:

> That increase in staffing was predicated on the increase in EMS calls…. We could tell you that somewhere between 30 and 33% of the time, the first arriving apparatus on a fire call would be going short-staffed because the EMS unit was out of quarters. That drove the conversation to get us that additional staffing to allow for more adequate fire suppression services. But, tied into that, because we know that's 1% of our business, was the fact that that additional staffing would also be utilized to…provide more CRR

> programs within the community in an effort to identify certain call types that might be prospects for stabilizing or hopefully reducing those numbers.

Participant 7's department added non-emergency response staff with a specific focus:

> We hired a community risk educator, and that individual took on a lot of the responsibilities about trying to figure out and become part of interagency groups that could figure out how we're going to stop with all the needle pickups and address the opioid addictions that we've got going on.

Several of the proactive strategies that the participants discussed were focused on EMS aspects of the emergency response workload. Participant 12 discussed how his department was reacting to the EMS call increases in this way:

> When we look at our call types for specific focus on that, our EMS is still a bulk of what we see. We've done a really good job in fire prevention efforts over the years. We've seen [that] it is now the norm. Fires are not acceptable. … And we've seen this drastic drop of fire-related incidents over the last 50, a hundred years, whatever. We're not seeing that trend on the EMS side, so what we're trying to do is focus more on that EMS prevention, so to speak, programs, innovative programs, community risk reduction efforts to minimize falls, which is our number one med call.

Participant 10 talked about a partnership with the health department:

> We are just in the process of hiring a case manager to manage…those low acuity calls…managing the pathway of where people can get help. So, we're not actually providing them the long-term support; we're directing them to go somewhere and getting them a case manager or getting them into their health insurance plan with a case manager, Medicare, Medicaid. So that, we're hoping, contains some of our increased call volume. I

> don't know that it will decrease our call volume because just the trend as it goes up, but it maybe manages the call volume.

Several participants gave the highest priority to CRR strategies when asked about what they would do with unconstrained resources. Participant 9 said, “The proactive approach…. I would double down on the public education, the prevention, the code enforcement, … getting into the community. And the more we can do that to prevent us from having to go to the calls.” Participants 1 and 7 both indicated that they would invest in community paramedicine. Participant 1 said:

> I'd love to get…one or two active community paramedicine units where we actually would have additional staff to go out, make home visits, ensure people are taking their medicines, have their needs met with food and with their medicines, things like that.

Participant 7 said:

> If I had a check for a million dollars right now that would guarantee me the next five years out, I would start a community paramedic program immediately. And I would run it out of our soon-to-be abandoned station immediately. And we would start using the high-utilizer 911 identification group…who's calling 911 and why all the time…. So, we keep fire trucks and ambulances in the station, and we can prevent people from calling 911.

Participant 5 described a deviation from typical fire-based EMS in Wisconsin:

> I would probably make some delineations between fire a little bit more in our community. I think we'd focus on bringing on maybe sworn EMS providers that maybe aren't interested in the fire side but are incredibly strong on the EMS side and look at integrating them into our system to be very aggressive with community-based programming that primarily improves quality of life. But also…there becomes a

> reduction in those calls that are…on the acuity level, much lower…. The calls that could be mitigated with prevention rather than an EMS response.

At the end of the interview, participants were asked if and how they would invest in CRR if there were no cost constraints. All participants were unanimous in their support of investing in CRR. The investment types varied, but all revolved around additional staff to allow for more focused CRR efforts. Participant 5 would invest in “someone dedicated to [CRR] where they can…focus on that programming.” Participant 12 said, “It's people. I think we know the problems. I think we know the specific solutions. It's just we don't have the people to put on [the solutions].” Participant 4 said, “I need more staff to do the community risk reduction." Participant 3 talked about how community risk reduction efforts have also raised fire department awareness in the community. His take was that "if budgets were a non-issue, we would have to put people into the prevention area to make sure that people understand what we do as an organization.”

Some participants described investments in CRR with more specificity. Participant 10 talked about expanding the department's case manager program "to work with overdose, repeat overdose patients” and “another fire inspector to add staff to do some of the more detailed work.” Participant 2 described a non-response staff team:

> A Monday through Friday kind of team. One [person] that could…be more internal working with crews…. We've identified this person on this call,…and they can set you up [with assistance]…. The other person is out in the community making contacts and creating those partnerships … [and] connecting our department with [partners] on the program level.

Participant 1 envisioned a similar idea to Participant 2's approach but on a larger scale as a countywide system:

> Getting a countywide study…to get…active information that could be utilized. Formulating work groups between not only fire departments and police departments but…branching out to the community service organizations…. They actually start formulating where can people go for these additional helps? How do we get them enrolled? Formulate a system that it [sic] would talk to each other; where it would make the process so much easier…. And then I think to have a continual reevaluation…. Are we making a difference? … How can we solve these problems? Are we over-solving them?

Theme 3: Foundational Definitions Related to CRR

To create a foundation for understanding how the participants viewed their roles relative to CRR as the fire chief, they were asked to provide their definitions and classifications for the fundamental elements of risk, community risk reduction, and community risk reduction activities. The three codes associated with those elements flowed logically from 27 different keywords about the nuances within those definitions. Those codes are Risk Definition, Community Risk Reduction Definition, and Community Risk Reduction Efforts.

Code 3A: Risk Definition

The participants in this research study had difficulty defining "risk" as a standalone term. One definition taken from the new NFPA 1300 Standard for CRR for risk is "a measure of the probability and severity of adverse effects that result from exposure to a hazard" (NFPA, 2020, p. 1300-5). A few participants articulated that risk is about a "chance" or "potential" for negative outcomes described as a "failure," an "outcome that might not be what you want," "having an

outcome not achieved that you're looking for," and "any known of any potential that can cause harm to somebody." Participant 11 defined risk this way: "It's understanding that bad things are going to happen, and it's just a matter of how likely [it is]." Participant 9 said, "The hazards are one thing, but the risk would be what the chances [are] of that happening."

Some participants defined risk through the lens of hazards, giving the two words the same meaning rather than recognizing that the hazards are one element of the definition of risk. Participant 7 talked about "those areas of risk" in his community—"the blight in a neighborhood" or "our unsheltered encampment." Participant 1 said, "I think it depends on what you're describing," and proceeded to use the example of "an accident on the 'I' system [interstate]."

Another definition of risk was given in terms of a risk-versus-benefit analysis without defining the elements that go into calculating risk. Participant 8 said, "Risk is…taking everything into account and calculating it and seeing if the risk is worth the gain." Other participants defined risk assessment and risk management instead of risk on its own. As Participant 4 said, "Risk, to me, is knowing your community…Risk is understanding what's happening in fire prevention; what's happening in your community." Participant 6 defined risk management internally versus in the community:

> Risk comes with everyday…actions. There's risk on calls, there's risk at the station, there's risks on scenes…. We're trying to make sure that the risk we take is calculated and that we're not putting ourselves in harm's way to the point where we're not even able to avoid it…. Defining risk would be…knowing it, recognizing it, and trying to avoid the bad outcome of risk is the key.

Participant 10 said, "Risk is everything we do…. You are managing the resources with your risk every day."

Code 3B: Community Risk Reduction Definition

Most participants more easily defined community risk reduction, although some had trouble separating what CRR is from what activities it entails. Questions about defining CRR generated foundational data about these fire chiefs' understanding of CRR and attitudes toward it. Keywords in the data included "local," "active," "encompassing," "data," "prevent loss," "model," "structure," and more. Asking the participants to give their definitions provided insight into how connected each was to the industry standard definitions and best practices of CRR. Participant 9's definition aligned with the NFPA 1300 definition of CRR as a "process to identify and prioritize local risks, followed by the integrated and strategic investment of resources to reduce their occurrence and impact" (NFPA, 2020, p. 1300-5):

> Community risk reduction is…identifying your risks and then prioritizing them, and then just sitting down and coming up with some strategies. And then after that, you got [sic] to get the resources to put them [sic] strategies into play. And then…you follow up and make sure that the numbers are turned in the right direction, and if they're not, you turn the wheel a little bit.

Participant 5 described CRR in this way:

> So you look at the risk in the community, and the programming should match that risk….We've been very careful to meter [CRR efforts] against what we know about our community and not just plugging in programming for the sake of doing that.

Participant 3 said, "The fire department's job [is] to define what those [risks] are, and then implement strategies to either prevent that risk from occurring or happening or be able to respond appropriately if it does." Participant 7 defined CRR as "looking at opportunities to see

where the risk is and connect it to actual incidents and then how you get in between that." Participant 1 said:

> Community risk reduction is more inclusive. It's active. It actually takes an active, aggressive look at the community because not every community is the same. And it tries to, I'll say, minimize, I don't think eliminate is proper, the Risk or Risk potential for not only the department members but also the people that are facing the risks.

Participant 12 talked about CRR in terms of the accreditation model, "doing a community risk assessment, figuring out specifically some gaps in service areas…. We know the risks that we face, and let's figure out solutions to it."

A couple of the participants' definitions implied a need for more clarity about CRR concepts for them. Participant 8 said:

> It's hard to define [CRR] sometimes, but it is the overall all-encompassing on how the department interacts with the general public and how to educate them with all aspects of the fire service, what we really do on scenes, what we're trying to accomplish.

He also said, "CRR is now being proactive and knocking on doors." Participant 6 initially implied that CRR is primarily a different name for the same activities that have always been done when he stated, "I would think we've been doing [CRR] here…for years. We just haven't been calling it that… But now we're starting to use that buzzword." However, later, Participant 6 described CRR as encompassing many activities and being dependent on the community's specific needs when he said "CRR could be feedback from our members. It could be feedback from the community and what they need from us. It could be feedback from our city leaders, but either way, it's everything."

Several participants discussed the importance of data to CRR and understanding an individual community's risk profile. Participant 5's department used several factors for modeling or anticipating risks in his community:

> The risk specific to what we do in the community is based on what we know from past calls, trending occurrences moving forward…. I think it's understanding …what we know… structure-wise, transportation-wise, all those things, population-wise [and] modeling that against what we need to handle as the fire service. And, finding those hotspots in that diagram that says, 'This is what we can anticipate to see.'... 'This is what we need to be prepared to respond to.'

Participant 11 also talked about using data to quantify community risks:

> I love data…. I try to research…do we even have that data? And if we don't, how do we get it? … And if we do have it, then it's a matter of cleaning it a little bit to make sure it's valid…. Then I try to tell the story with data as far as, like, okay, here's the risk. I mean, if this is acceptable to everybody, then fine, but this is what it is.

Participant 12 stated:

> Community risk reduction is hyperlocal…here's our demographics, here's our problems, here's our call volume, all those things. And, ideally, you can put it into GIS base…and really actually plot that data out and really see some trends and address them specifically…. Community risk reduction is putting all those factors…into one bucket so you can really make informed decisions.

Participant 4 described the data used to "evaluate risk" a little more broadly as "being informed of what's coming in your community, what's leaving in your community, what's changing in your community?"

During the interviews, the participants expanded their definitions of CRR to highlight being an intermediary to connect people with other resources rather than being the definitive problem solver. Participant 2 talked about his vision for CRR:

> Maybe meeting them where they're at, finding these pockets of people. Pockets could be neighborhoods, or it could be a social group, but people who maybe are at high risk for whatever reason…and go hang flyers and let them know that, 'Hey, there's programs out there.

Two other participants talked specifically about filling gaps in the community in ways similar to Participant 2's vision. Participant 5 said, "I think [CRR is] filling gaps that aren't normally filled by other services….When somebody has a problem, and nobody else can take care of it, we're going to." Participant 1 said, "We play a piece…getting the people in need hooked up with the resources or organizations that are more competent or able to share or provide what they truly need."

Many participants also defined CRR as encompassing most of the departments' activities. Participant 9 said, "Everything we do from budgeting to response to the code enforcement…. I mean the five E's – engineering and…incentives. The difference is [that] it's not public education; it's the whole ball of wax. I guess a little bit more from the balcony." Participant 6 said:

> I want…all our people to understand that community risk reduction goes all the way to making sure that we're talking about and training how to get the scenes safely.... That's all community risk reduction. It's not just the people in our inspection bureau that need to get behind it, but it's the whole department.

He also pointed out, "Some [CRR] you're doing when you don't even know.” Participant 4 said, “[CRR] needs to be a big part of your mission statement, and it needs to define you.”

One of the challenges that many of the participants articulated about strategic community risk reduction was the inability to measure the effectiveness of their risk reduction strategies. Participant 7 questioned a traditional prevention metric of effectiveness, dollars saved, in this way, "For a while, we started looking at, well, how effective is our fire department by how many billions of dollars we saved every year…. How did you come to that number?" Participant 12 talked about measuring the outputs, not the outcomes, as lacking:

> Prevention's tough. How do we measure? …We started looking at…some of the Vision 20/20 information…looking at some different metrics to measure prevention…. Output is an important one…. We installed X number of smoke alarms. We did this many events. And we had contact with this many people. Those are good numbers, but it really doesn't show us the success of the program.

Participant 10 described the difficulty this way: “The data I've always thought would be great to be like, ‘No, we make a difference here.’ But I've struggled to find that data." Participant 1 said, "[Measuring effectiveness has] been one of the lacking things in our program, I think, and I'm not even sure where you would start with it.”

As described by a few fire chiefs, a specific piece of the struggle to find suitable effectiveness measures was the community's size; thus, the data set needed to be more extensive. Participant 3 stated:

> You can measure how many inspections you do, how many public education events, and number of people served…. How do you measure your message on 'don't leave candles burning' or basically anything that you do to prevent? How do you measure success? …

> You wouldn't know if somebody blew out a candle because…we don't have the volume…. The data set isn't large enough to see a trend.

Participant 10 said, "The challenge I found is a department my size is not big enough to have enough repeat [calls]. And to say that this program definitely impacted this response, I've not been able to find that."

Code 3C: Community Risk Reduction Efforts

Typical activities like "fall prevention," "smoke detector program," "education programs in the school," "CPR classes," "Fire Prevention Week," "fire inspections," "safe burning guidelines," and more were listed when the participants were asked about the types of CRR or prevention activities in which their departments engaged. The specific programs, procedures, and activities were unimportant to this research study's purpose. The importance of the data collected while participants discussed their activities came in the form of richer perspectives and attitudes about CRR and their place in those efforts. All the fire chiefs expressed variations of the sentiment stated by Participant 4, "Fire departments concentrate too much on fire. They need to concentrate on the other issues."

Many participants highlighted how CRR in their departments went beyond fire prevention and the classic EMS public education like CPR and fall prevention. These newer programs also involve partnerships with other departments like public health departments, law enforcement agencies, housing authorities, hospital systems, and community foundations. Participant 7 said:

> We hired a community risk educator, and that individual took on a lot of the responsibilities about trying to figure out and become part of interagency groups that

> could figure out how we're going to stop with all the needle pickups and address the opioid addictions that we've got going on.

Participant 10 specifically noted the potential for managing call volume through non-traditional EMS prevention:

> We've played around with [mobile integrated health concepts] for several years…managing the pathway of where people can get help. So, we're not actually providing them the long-term support; we're directing them to go somewhere and getting them a case manager or getting them into their health insurance plan with a case manager…. So that we're hoping contains some of our increased call volume.

Participant 5 described:

> Homeless kits are now also starting to work their way in our department, where our crews are starting to do more. If they see something related to homelessness, lack of housing, or other types of conditions, they have resources to provide to that patient; quick hits as far as a case manager position that allows a little additional support.

Participants 6 and 8 indicated that they are actively working with their municipal leadership to implement some form of community paramedicine program. This type of program is also a priority for Participants 1 and 7. However, neither has been actively working on that for their departments due to funding limitations and current implementation of other initiatives.

One point made by multiple participants when talking about their understanding of CRR was that it needed to be applied to all demographics within a particular community. Participant 2 stated it this way:

> We've been talking a lot about schools and the elderly, but there's probably somewhere in the middle; there's groups we're missing. There's groups that speak different languages,

> groups that have different cultural beliefs, maybe immigrants that came here that see us as wearing badges and don't want anything to do with that.

Participant 4 also focused on all ages, saying, "We're good with seniors, and we're good with little kids, but everything in between. And what can we do to fill that out?" Participant 11 was a little more general in his statement, "By the changing of the words, we're expanding [prevention] beyond fire, and it's really about creating a safe community." Participant 3 indicated that his department is "engaging in different community events like the Hispanic cultural events, the Hmong cultural events, anything that we are invited to, we go to, and we can spread messages there while learning cultural and building that community."

Most of the participants recognized that their social media and other outreach communications tools also fit underneath the CRR umbrella. Participant 7 said, "We have made a change to the social media platforms in the last two years that try to identify some type of risk or need. Every week, we try to address prevention." Participant 12 said, "We are very active on social media. We understand that that's a good outreach tool…. We have billboards, too." Participant 5 also described their social media efforts but with a nuance related to its [sic] effectiveness toward the right audience:

> We've got [sic] a team that does an excellent job with programming and messaging that covers all aspects, fire prevention, maybe some emergency management things thrown in there, and really seasonal messaging as we go throughout the year…. I sometimes think that the population we're trying… we are trying to reach with some of that programming, social media may not be their number one option for receiving the messaging, but maybe from a blanketing perspective on that messaging, I think it does provide a valuable resource.

A unique view of CRR that some participants shared was their perspective that participating in the activities typical to CRR, like public education, community outreach, and other activities, constituted recruitment efforts. Participant 6 said

> We're doing a lot more recruiting now than we ever have…. Doing a one-on-one with [candidates], and really, really engaging with that person to see if it's a good fit for them and vice versa. I think that's community risk reduction, because while you're out there, you're talking about different things when it comes to fire prevention, fire education, EMS, I guess all that's there. Even if it's just a 10-minute little thing, it's still some sort of risk reduction if someone held onto [the message].

Participant 3 views the public education element of CRR as relationship building with the fire department and encouraging local people to follow this career path. He described it this way:

> We have to have more curriculum engaging kids at younger ages for two reasons…. Number two, it's a recruiting tool that when you can get in at kindergarten, and you go all the way through sixth grade…you skip middle school, and then you get back into the high schools with different types of prevention messages…. That's a recruiting tool. And what better way to get local people. That if you get them, they're going to stay local.

Participant 12 said, “We have a cadet program that I view also as kind of that risk reduction, but also recruiting side of it too…. We're trying to hit audiences and impact them as they are.”

This third theme of foundational definitions was summarized from the participants' voices. Participant 12 said, “When we talk about risk reduction efforts, I think that's probably the most important thing we can do when we look at our job as a whole. [Risk reduction efforts] should be our primary focus.” Participant 5 stated the importance this way, “I think when you

look at the risk in your community, the ability to mitigate…with the prevention, I think, is, for the fire service, as critical as that initial response." Participant 4 stated:

> When you look at any mission statement for any fire department, it needs to begin that your organization starts with community risk reduction and fire prevention…. I mean, our job should be to educate our public to put ourselves out of a job, and that's the best thing that you can do.

Participant 7 summarized, "The banner for CRR is we should be a big insurance policy. We shouldn't have to go to these things. And it's our responsibility to make sure that we reduce the amount of times that we deal with property loss and life loss."

Theme 4: Fire Chief's Role in CRR

Once the foundation for CRR was established based on the participants' perspectives and attitudes, they were asked to talk about their specific role in CRR. This theme developed from two codes, Leadership Philosophy and Community Risk Reduction Leadership Roles, distilled from 14 keywords. The data from the CRR Leadership Roles code of this theme were used to answer research question number two.

Code 4A: Leadership Philosophy

At the beginning of the interviews, the participants were asked to talk briefly about their leadership philosophies. Their answers provided more foundation for the interviewer to understand the perspectives, attitudes, and mindsets of the fire chiefs. Several keywords that led to this code have been common to leadership ideals. The concepts represented by the keywords have also underpinned the development of department cultures or mindsets.

A focal point for many participants' leadership philosophies was their staff's input and participation. Participant 2 described his philosophy to "take somebody and try to find a personal

driver or a personal thing that connects them to the department somehow. Then it becomes not a job that they have to do; it's something they want to do." Similarly, Participant 5 said that:

> The philosophy has become a lot more inclusive and creating a culture, an environment that people want to work in and be part of. And I think that's a mix of allowing members at all levels and experience to be participative in the direction of the department.

Participant 11 described a similar philosophy of buy-in:

> It's more about educating. And, my goal is essentially trying to grow it from the bottom up of: let them see it, be exposed to it, be trained on it, educated on it. Then it's their idea. I support it. We run with it.

Participant 12 said:

> I trust our people to do the right thing. And, so, I have a certain role to fulfill…. I'm here to support them. We talk about that inverted triangle where truly I work for our firefighters. That's my goal. And I feel my mission is to make sure they have the resources available to do their work.

Participant 1 expanded on staff input to include the concept of psychological safety. He said, "I try to have everybody have input,…to make a pretty safe environment for people to take risks, and if they fail, that's okay because we're just growing, and a lot of times the first pancake doesn't turn out."

Participants also emphasized the "big picture" and "vision" in their descriptions of their leadership philosophies. Participant 3 said, "I look at the big picture, try and identify areas where we should improve, and then build that into a strategic plan and then guide that plan with our staff." Participant 4 said, "You have to be forward-thinking. And whether you're going to get it or not, you better get it on paper the direction where you're going."

A few participants described a more laissez-faire or laid-back leadership style. Participant 10 described his style:

> My philosophy is you promote people that know what they're doing. I'm not an expert in everything. I have people that should know that, and I should know enough to supervise them, but I may not be the expert in every topic and I don't need to be. And my goal is to make them successful…. I think you use your people's strengths….So I don't want to say 'hands-off management'…but a little more like let you do your area, I'll do my area, and then I'm sort of the funnel that goes up and then sells what we need as an organization to the public and to the elected officials.

Participant 8 said, "I also have a very, I don't want to say, hands off, but I told them flat out, we're not policy heavy. Please don't make me be policy-heavy."

Code 4B: Community Risk Reduction Leadership Roles

The degree of leadership and involvement in CRR within their departments varied for the fire chiefs. They used terms like "champion," "sell," and "support." Some fire chiefs recognized their role as active participants and advocates. Participant 1 said:

> I'm the champion of it. So if I don't buy into it and help promote it and talk about it and *get our membership involved in it* [emphasis added], that's obviously going to create a detriment or not be leading them into where we're trying to go.

Participant 12 said, "I see myself as the number one person trying to lead this charge," and "I think, try to be the number one cheerleader of it." Participant 7 answered the interview question about his role in CRR: "I guess I'm not the vehicle that's driving it, but I'm the hood ornament. I'm leading, I'm out front….I've seen loss. I think I have credibility…. You need somebody that stands behind it or is going to lead the charge." Participant 4 said, "It starts with the chief, and I

am constantly reminding my firefighting staff and my EMS staff that we will be a community risk reduction organization."

The more common perspective the participants shared was that their role was one of supporter or salesperson in ways that indicated a more passive role than CRR champion. Participant 9 said, "My role is to provide the resources… I believe my job is to set the need and kind of facilitate the procedures and the policies around putting those vehicles into motion to get that done." Participant 3 said:

> I don't have to be an expert in all these areas, but I have to be able to ask the right questions, coach and mentor the individuals who are responsible for specific areas... I have to be mindful of what they are doing so I can speak intelligently to the committee council and the community when asked, along with supporting that position with funding resources. What do you need to do your job the best you can do? And that's my role is to make sure that they get that.

Participant 6 said, "I would sum it up with just support…. I want to be the chief that supports internal stakeholders when they see something that's important, as well as external stakeholders." Participant 4 said:

> I think that you need to sell your organization. And I will tell you that there's not one firefighter within my organization or one paramedic within my organization that doesn't hear it come from my mouth at least a half a dozen times a year directly that we will be involved in fire prevention, public education, community risk reduction, EMS, everything. We will be doing it all.

Participant 5 said, "It's really a sell job, right? External and internal to talk about the benefits of it, what it means for the community, and how it helps define the department for the future."

Two of the most passive answers came from Participants 8 and 11. Participant 8 acknowledged that he is "the face of the department" but went on to emphasize that he is "the person that gets to say 'yes,' …to encourage [CRR activities]" to someone else who will champion it. Participant 11 said:

> [My role is]…giving our folks opportunities to understand it, and then those that have some sort of interest in it, really trying to encourage and give them opportunities to further that. And hopefully, if they're excited and they find these areas that we can be helping them, ultimately, my role would be to get them whatever resources they need. And if I need to, as part of a strategy, get out in front of some groups and talk to help about the cause, then absolutely…. I definitely need [the battalion chief] to drive that.

When the interview process drilled deeper into their roles relative to CRR, several participants talked about their actions as leaders, primarily around prioritizing and internal communication. Participant 10 talked about prioritization:

> It's my role to look at the bigger picture and say what are our priorities? … Looking at our risk…then also creating priorities that address some of those risks…. And then there's outcomes on the backend that can demonstrate the value of the money that's being invested.

Participant 5 described his internal role this way, "Internally in the department, I'd say it's helping the department find that strategic direction…. Or [address] the misconceptions associated with CRR."

Participants also discussed their relationships with municipal leadership and the importance of solid communication about CRR with elected officials, municipal administration, fellow department heads, and other external stakeholders. Participant 5 described the external

communication as “advocacy and helping to define the department…. The advocacy starts at the city hall side.” Participant 2 focused on external communication and the specific message in his description of his role:

> Bringing up the awareness that we need to have CRR…. Talking to city hall that, ‘Hey, instead of thinking of it like we will sit here and wait for something to happen and then we'll go take care of it when it does, what if we got out of the station a little bit more and stopped stuff before it happened?’ We won't stop everything, but maybe we can think ahead a little bit and maybe see if there's, again, some kind of pattern or some kind of indication that these things are happening; let's go target these groups.

Participant 9 described external communication as "taking the data and the ideas and educating our political body,… just keeping them in the know and educating them and letting them know…our needs and keep trying to sell [CRR].” Participant 7 said:

> The other piece of it that's important is the relationships that you have with your governing body…. If you're not working that avenue as the fire chief and letting people know what you're doing and why you're doing it, that's the only way you can move forward.

The participants were also asked if CRR was contained in department doctrine. This question provided insight about a concrete action the chief of the department could be a part of to influence mindsets. This question generated mixed reactions from “no” and “not really” to “Yep, it’s there” and “It’s in the five-year strategic plan.” Participant 10 said, “We have five major strategic goals…. One is taking care of the citizens, so [CRR] is addressed in there.” Participant 4 said, "[CRR is] mentioned in our plans, but we don't have a defined direction for that."

Participant 11 admitted that “we're just beginning strategic type of work? We don't have one. [CRR] will be [in the plan]. But right now, no. There's really nothing.”

Theme 5: Barriers to a Department’s CRR

Barriers to implementing CRR efforts and departments' mindsets toward CRR were explored with the participants to answer the third research question. The participants talked about internal and external barriers that kept them from doing more in this area and kept their personnel from embracing CRR as a department-wide mission. This theme was developed from three codes, Department or Structural Barriers, Department Mindset, and Traditional Fire Preventions, distilled from 20 keywords.

Code 5A: Department or Structural Barriers

Much of the discussion about barriers to CRR efforts and philosophies that the participants described centered on issues with resources and stakeholders. Every participant talked about a lack of “time,” “cash,” “staff,” or a combination of those. Participant 1 said, “Probably the big ones that everybody has. Time, that's one…. Financial, obviously, there's that too.” Participant 12 said, “I think just really staff right now…. We know everything that needs to be done, but we probably would need ten full-time people to do all the work…. It's just, I think, budget. So time and money basically.” Participant 10 said, “Funding…is probably the number one [barrier].” Participant 11 said:

> We want to do [CRR]. It's just that the one staff member that we have dedicated to it, as you saw, only dedicates about 12% of his time to it, and that's the best we got [sic]…. So, if we had more money and had more people, then absolutely we would increase it as much as we could.

Participant 8 characterized his primary barrier to CRR as “having the staff to go out and do that. But we’re taking baby steps right now, and [more dedicated CRR staff] is the goal.” Participant 4, whose community is growing significantly, talked about his resource barrier as "that balance in trying to get that extra money to not only handle your call volume but handle that community risk reduction." Participant 3 mentioned the particular funding limitation imposed in the Wisconsin levy limits: "I would say the largest [barrier] is staffing. There is a ton of work to be done in community risk reduction, and trying to get staff…is so hard in the state with the restraints to levy limits.” Participant 7 talked about the challenge of the risk assessment and then managing the resource allocation, "It's identifying a lot of things that don't need a firetruck and an ambulance, and how do you reduce that risk? But how do you address it with the right amount of resources that are appropriate?”

In coding the data, two sublevel keywords fed into “time” to help capture the nuances of the barrier of not having enough time to implement CRR or put forth the effort necessary to change a department’s mindset. The first of these was “busy.” Participant 1 said, “They're busy…. They're trying to fit everything in a day, and our responsibilities keep growing. The calls keep growing.” Participant 3 said:

> In [my department’s] case, over the years, there's always been stuff added to their plate. And throughout the years, they look at it like we're getting busier and busier and busier…. And I think a lot of our staff are really dedicated and want to be highly proficient in everything…. I think their mindset is, ‘We want more training time, and what can we give up to get that?’ And, for them, the thing that they would really like to get rid of is public education and inspections because they don't find that response value to what they enjoy doing the most when they're here.

Participant 9 talked about how his primary outreach person splits their time:

> It's the time, which pretty much is the staffing. I have one full-time [person] that is our community outreach [person].... [This person] is also the lieutenant on the engine during the day….So [this person] is kind of getting pulled in both directions [facilitating community outreach] and being the company officer on the engine, running the calls, doing the drills.

Participant 5 said, “Time is another big one for us because the individuals working on our CRR programming, not surprisingly, are working on a lot of other things, too.”

The other sublevel keyword feeding into time as a barrier was “on-duty.” Participant 2 said, “We're doing most of it with on-duty crews…so if we're supposed to be at two o'clock at a school giving a presentation and at 1:59 we have a call, well, that school isn't getting it." Participant 6 said:

> The biggest glaring one for us here is, anytime we schedule training, calls get in the way. So, I think it'll be the same thing with [CRR]. Calls are always priority number one…so…every day when you make a plan, it goes away and it's postponed.”

Another structural barrier described by the participants was stakeholder understanding and a need for more data to explain CRR in understandable terms for elected officials, municipal leadership, and the community constituency. Participant 2 said he faces a lack of "understanding from politicians of what we actually should be doing…. There's not a mindset of me of doing something proactive. It's just a question of being reactive to everything.” Participant 2 also said:

> We can't really show our product. I can't go, ‘Oh, this is what we made for the community.’ And then the people that use us get to see us for a little bit. But Joe Taxpayer, who goes a year and doesn't have a fire in their house and they're relatively

> healthy and never uses the ambulance service, [never sees] the product or whatever they're paying for.… It's not like we can increase our budgets by increasing our products.

Participant 10 said:

> I wish there was more [data] because I think back to maybe some of the questions that come here about risk reduction is how do I sell that to an elected official to show it's a priority in my budget… They look at things, and they'll say, well, if you can reduce your response time, that's…getting on the front page of the newspaper. 'Fire department got there quicker, saved a life.' They're going to pick that. If I say, 'Hey, I need another fire inspector.' They're going to be like, yeah, you're just going to create more calls and complaints to me that, 'Your fire inspector is harassing me.' … So the data I've always thought would be great to be like, no, we make a difference here, but I've struggled to find that data.

Participant 1 posed his view as a conundrum:

> If…you're successful at having great risk reduction efforts, that means your call volumes go down, which means [your municipal leadership asks] 'Well, why do you need all that extra stuff, because you really don't have that many calls?' And it is very hard [without] data…to present to your elected officials that…we really need more people so that we can institute this program so we can reduce more calls. [Leadership answers with,] 'Well, but you don't have that many calls now?' 'Well, yeah, because we're so active in this.'… Catch-22, if you will.

Participant 10 also introduced a nuance of the stakeholder understanding aspect.

> [The second barrier] is from more on the code enforcement side of things. We definitely could be harder on [enforcement]. But there's politics to it. The owner of the movie

> theater calls the mayor and says, ‘Hey, the fire department is giving me a hard time, and I can't open my little food stand…because the fire marshal is scrutinizing.’ The fire marshal's right. But it's Friday night, and the owner wants to make money. This is the big movie…. Stuff like that happens.

Code 5B: Department Mindset

All of the participants who have led career or mostly career departments had similar descriptions of their department members’ mindset toward CRR, ranging from “hate” to “historical” to “mixed.” Participant 1 made a general statement about the fire service: “[CRR] is one of those things that has the potential to have this great positive outcome, and the membership hates it.” Of his department, he said:

> I think that's one of the biggest things that stands in our way to have a great community risk reduction program is trying to sell it to the membership saying, ‘Hey, this is some really great activities that we need to do because that'll create a safer culture. And then that'll help to eliminate calls that we have to go on and help keep our people safer for longer.’ Doesn't always work [for the membership].

When asked what his department's mindset toward CRR was, Participant 11 said, "Overall? Probably not great…. I think they're still just the mindset of run calls, and that's it…. I think some are just annoyed by it. I would say there's very few…that I would put in the passionate category.” Participant 3 said, “I would say the overall sentiment of community risk reduction activities is lukewarm…. I think…their mindset is, ‘What [like public education] can we get rid of to do more of what we like [fires and training for fires]?’”

Some participants described their firefighters as having a traditional view of the career that has colored their attitudes toward CRR. Participant 2 said the mindset of his department was

“some of the old-timey firefighter mentality of, ‘We don't do this. We're firefighters. We're not teachers or educators. We should just go when they call.’ That mindset of not doing anything until the call comes in.” Participant 7 agreed that his department has a number of staff with “the mindset of the fire service, the historical fire service, 'I want to put out fires, and I want to save people's lives.'” Participant 10 took some responsibility for those within his department who hold the traditional or historical mentality:

> I think the hiring process for firefighters could have been a barrier…. We could have done a better job screening for people that may have been less… ’jarhead,’ … hardcore…. Those are the people who I find generally don't like doing community risk reduction.

Participant 12 expressly stated, "Others are [of] that logic of it takes away our call volume…. That optic of preventing fires then does have some challenges for some of our members.” Participant 3 also indicated that, at least to some extent, he also holds on to the traditional firefighter mindset:

> [Emphasizing CRR is] really hard because when you look at what's going to get our members injured or killed, going on a fire inspection is not going to probably cause that. I would rather have them hanging on ropes and advancing hose lines and doing all that crazy stuff. I want to make sure that they go home safe every day.

Other participants described the mindsets as mixed across the department membership. Participant 10 said, “I think it’s probably 50-50.” Participant 5 said:

> It's a mixed bag…. I would say we skew much more on the positive side than the negative, but just enough on the negative side to [create]...a lot of questions about it and perceptions that more work is coming on an already busy schedule.

Participant 2 said, “Probably the same as everywhere else. There's probably 20% that are [engaged] and really care about it and 80% that just are going along for the ride and taking advantage of the situation [overtime pay].” Participant 8 painted his department’s mindset in more neutral brushstrokes:

> You'll hear some comments every once in a while. They understand that [CRR activities are] all part of the job, though. I really haven't had any real kickback that I had to address or anything like that. And those were some of the clear expectations that we had to lay out with our staff.

Another factor that participants felt impacted the department philosophy was generational and tenure differences in the departments’ memberships. Participant 12 said:

> [I don’t know] if it's generational. I think it is somewhat. I think our younger firefighters like the work. But they also see the value in helping others and preventing things from occurring in the first place. So I think it's better… Certainly the feelings towards outreach efforts and risk reduction efforts. I think we've seen that shift. I think we've still got some work to do as a whole.

Participant 1 said:

> I think some more of the traditional fire department people that were here, whatever, 10, 15, 20, 25 [years], or ones that had family members that were in the service at some time. ‘We're the fire department. We put out fire.’… Where a lot of the newer people that are coming in either have a very rough idea of what we do or they're…more apt to be malleable.

However, Participant 1 also pointed out a difficulty that may also be generational. He said, "[CRR is] not an instantaneous return, right? ... If they can't see the results of it in [sic] a short

term basis, they're more likely not to do them again." Participant 11 expanded on the mindset of his department members:

> Our staff is fairly young [in the] leadership…. We have our newest hires, not a problem, bought-in; they love it. It's the folks that have been here for 15-plus years that have been the slowest to adapt to the idea of we need to be out more,…our job is beyond just inspecting and going on ambulance calls. And, so it's been tough to try to get buy-in from those folk.

Participant 4 said, "You're going to have a Gen Z and a Millennial look at public education a lot different than [someone] like myself. But you're just going to have to understand that the fire service is generational."

Many fire chiefs expressed a resigned attitude towards the negative attitudes of personnel in their departments rather than a commitment to changing the attitudes. Participant 10 said, "I don't know that the fire service will ever get a hundred percent buy-in on risk reduction from the line staff." Participant 1 said, "I think they're open to it as long as it's convenient. I think that's something that the fire service, I believe in general, is going to have a continual struggle with." Later, he said, "How do you impassion the crews and the members to do that when it's another piece of the puzzle? And I think people view [CRR] as one of the minor pieces. Because we're still…a reactive department." Participant 6 said, "And unfortunately, you're never going to get away from [the percentage who is stirring the pot saying, 'We don't want to do this']." Participant 4 said, "You're always going to have your complainers about it. There's no doubt about that."

The mindsets within the departments represented in this qualitative study, as described by their fire chiefs and coded as "Department Mindset," fit primarily into the theme describing CRR

barriers because, in most cases, the line staffs' perceptions and attitudes toward CRR were characterized as a CRR barrier. However, some participants reported attitudes that were more positive from their staff. Participant 12 said, "I think as whole, everybody's pretty much on board, understands that fire prevention and total risk reduction is important and part of the reason why we're here. I would say it's well over probably in the 80 plus range of supporting." Participant 9 said, passionately.

> I'm telling you, our guys like to run calls, but I'm telling you, they're committed to going out in the public and doing [CRR] stuff. They are. They like it. They enjoy it…. We got [sic] a good majority of our people are paid on call. So maybe if they were doing it 56 or 72 hours a week too might change a little bit. But they love it right now.

Participant 2 introduced a caveat to the positivity that his department has been perceived to have:

> They're pretty good here,… but there's one caveat to it…. They love to do it, but they want to get paid for it…. There's not a lot of overtime for, say, calls…. The overtime around here revolves around special projects or being able to come in and do stuff like that. So, the pub ed team had a big committee.

Code 5C: Traditional Fire Prevention

Participants were asked to compare traditional fire prevention to CRR to determine whether participants felt like CRR was a rebranding of similar scope and thus presented a barrier to their perspectives and attitudes. None of the participants indicated that CRR and traditional fire prevention covered an equivalent scope using different words. All participants saw CRR as broader in audiences, topics, and more. Participant 5 identified some common ground between CRR and traditional fire prevention:

> So, I think there's more similarities with [traditional] prevention program [sic] and CRR because you're going out as educators, you're going out to gain buy-in, set up relationships with the end game of improving the quality of life either for business, for facilities that take care of the elderly, or whatever the case may be.

In most other cases, the participants pointed out the differences between traditional fire prevention and CRR. Participant 12 highlighted that traditional fire prevention was not always based on the local community, "Traditional fire prevention efforts were…anecdotal-based. Where it's like, I think that this is what's happening where we saw fires or here's one specific thing we saw on television in the news report or a nationwide problem." Participant 11 also highlighted the local focus of CRR and its broader reach saying, "By the changing of the words, we're expanding it beyond fire, and it's really about creating a safe community, but it's analyzing things that we're not typically used to analyzing." Participant 3 described traditional fire prevention as deficient:

> If I think back to when I started in the fire service, fire prevention was 'stop, drop, and roll,' getting into schools, telling them what you do as an organization, and putting your gear on so that nobody's afraid of you…I don't know if that was the best way to do fire prevention.

Participant 10 focused on how CRR has addressed the all-hazards nature of the fire service:

> I think traditional fire prevention in my eyes was…your traditional fire inspection … [looking] for smoke detectors, exit lights, exit signs. And I'm going to go to the school and talk to the five-year-old or the 10-year-old about exiting a home, matches, 'stop, drop and roll.' Whereas, I think most organizations have evolved…. We're an all-hazards

response department, so we should be also addressing risks that all those hazards bring to us, not just fire.

Participant 2 highlighted the demographic differences, "the target groups" for CRR delivery that have included "the elderly…groups that speak different languages…maybe immigrants" versus traditional fire prevention that was primarily for "the grade schools." Participant 7 described traditional fire prevention education as being passive, “going through the motions,” while the public education his department has delivered recently has been more active and designed to “engage kids at a very young age and make an imprint.” Participant 4 also described the passive nature of traditional fire prevention: “We only went places when we were called. [CRR is] getting out in the community and…continuing all year round to promote your different programs.”

Two participants provided answers that did not correspond to the most common comparisons. Participant 6 said, "The biggest difference is technology and educating ourselves." Participant 8 said traditional fire prevention "was, oh, it's fire prevention week. We got [sic] to go and do stuff. [CRR] is now being proactive and knocking on doors…[or] stopping the engine if you see something.”

Theme 6: Solutions to Remove or Mitigate Barriers

The participants described concepts and actions as potential means for removing or diminishing the barriers to CRR implementation strategies and a department CRR philosophy. These mitigating strategies were distilled from 11 keywords into two codes like the fifth theme’s codes, Structural and Mindset. This theme and Code 2B of the second theme provided the data to answer the fourth research question and start a discussion about what could change the hearts and minds of department members.

Code 6A: Structural

This code captured the solutions primarily involved in improving agencies' capabilities to execute a CRR plan with different programs, projects, activities, and relationships. Keywords like "strategic," "people," and "collaboration" emerged in the development of this code.

Given that the participants described a lack of resources, funding, and staffing, as a significant barrier to CRR implementation, many said that a solution would be to have more resources to allocate to CRR efforts. Participant 1 said, "People, money, time. Pretty much adding any of that would help." Participant 12 said, "It's like we either do nothing or we can do something, and we are doing something now, but we know we can do it better. And again, that's going to be more people, plain and simple." Participant 8 said, "I guess everything boils down to the almighty dollar. Getting the staff…. With a community-based paramedicine type of thing, we want to have a vehicle. So…that boils down back to money." Participant 11 said additional funding and staff would be welcomed but acknowledged that planning comes first, "We would [invest] in CRR,…I'd like to, but we also need to do a better job of figuring out what areas we would apply that extra time and money to. Because right now, we just don't know."

Additional staffing has already been added to some departments to assist with CRR. The additional staff members were described as "educator," "inspector," "case manager," "officer," and "specialist" or a combination of those roles. Many positions were designated for non-response staff, and others were filled by responding staff who split their time. In addition, some roles were civilian, and others were sworn positions. Participant 4 added a CRR-dedicated position and hired a person from his sworn staff. He said, "The biggest thing that I saw was a weakness in the day-to-day stability of the [CRR] program. And, so, a year ago from right now…I named our first community risk reduction officer. That's all [that person] does."

Participant 7's addition was described: "So the one thing we did is we hired a community risk educator…. [The educator] didn't come from within the department; [the person] came from outside." Participant 10 has a position that focuses a lot on their fall prevention, "the position [is] called community risk reduction specialist." Participant 12 has had a full-time public safety educator for some time, but he talked about a success with additional temporary staff dedicated to education:

> Last year, during fire prevention month, we actually had one individual that was on light duty. And, then, we actually brought somebody off, one of our line staff members, back into our risk reduction, our public education office. So, we had three people that were dedicated to that. Our numbers went through the roof…. And they did a tremendous, tremendous amount of work just that one month. And so, we see that in more staffing, and we're looking, we're going to probably do that again now between now and summer is bring somebody back. And, so, we just have two people in our outreach and risk reduction office and truly double the output. And it makes a huge difference.

A few of the added staff described were less directly focused on the broad range of CRR elements. However, they effectively provided more capacity to implement programs and plans or filled another unique role in CRR efforts. Participant 8 described budget adjustments to add part-time fire inspectors so that the fire marshal, who is passionate about CRR, could spend more time on developing those plans and programs:

> The fire marshal [is]…a very proactive person when it comes to [CRR]…. We crunched the numbers with the budget, and we said we can [sic] put on two part-time people to take some of the load off him so he can [sic] start focusing on this.

Participant 5 added response staff, but with a strategic intent of being able to do more CRR:

> One of our strategic objectives was the standup of a CRR program, a formalized program in our department. So, as part of our modeling and that request for the staffing, it was that that would also allow us to provide more CRR programs within the community in an effort to identify certain call types that might be prospects for stabilizing or hopefully reducing those numbers.

Participant 3 modified a role to a different scope and found some success:

> We retooled that position into a public education specialist and fire inspector, and that's a civilian role. [This person] is really taking over our social media presence and working on developing more public education curriculum and basically coordinates all that…. I think with some of our future plans for our fire department…that we need to have a bigger presence in social media so that people understand what we're doing.

Additional staff was a high-priority wish list for other participants. Some desirable positions matched some previously discussed ones, while other desired positions were completely different. None of the participants interviewed have had active community paramedicine or mobile integrated health programs. However, several participants discussed this as a need they have been currently studying or actively seeking. As noted above, Participant 8 has been considering adding a community paramedicine program. A community paramedicine program was also a very high priority for Participant 7, who said, "If I had a check for a million dollars right now,… I would start a community paramedic program immediately, and I would run it out of our soon-to-be abandoned station immediately." Participant 1 also stated as one of his highest priorities, "I'd love to get an active one or two active community paramedicine units." Participant 6 has been working on adding this position to his department with the goal of a pilot in 2024:

> We're meeting with the hospitals…talking about this new community care paramedic position…going into the homes and preventing 911 from being called…. I would hope that we could show that in data that we're keeping people from calling 911 because we're educating and taking care of them right in their own homes.

Participants emphasized the desire for new positions for separate staff who would focus on CRR. Participant 10 said, “I think you can hire a specialized workforce to do community risk reduction…. I think you'll have a much more successful program. It’s just financially…tough to support that.” Participants acknowledged that a dedicated CRR workforce could lead to “silos” that may not be healthy for that workforce or the department, but they also felt the trade-off might be worth it to get “the best product for…public education.”

Departments that have implemented CRR committees also reported a more positive department mindset. Participant 5 said, "I think the committee is doing an excellent job spreading the message to our department.” Participant 9 described a “full-time, public educator… [who] doesn't do it all but coordinates it…. We have a…community outreach team…made up of people on our department, and they come in for their meetings Sunday night,…outside of shift.” Participant 1 has not had a committee but suggested that a group of people might facilitate the removal of barriers also, “at least having one on each shift at a minimum…. If you could have one lesser-in-charge person on each crew, that would probably be optimal.” Participant 2 said, “They're pretty good here…. The pub ed team had a big committee.”

Partnerships and collaboration were also discussed as a potential key element to removing or mitigating barriers. Some of those partnerships were already noted during the discussion about the definition of CRR. Some additional examples came from participants like Participant 10, "We are just in the process of hiring a case manager.... It's a partnership with our

health department. They're going to hire the person; we're paying for it to manage those low acuity calls." Participant 5 said, "We have a case manager that is shared between the health department, the police, and the fire department…. Fire embraced that…case manager and really has utilized that resource heavily." Participant 1 said, "We're trying to get more involved with our community partners… sharing our workload with nonprofits and social organizations and community partners." Participant 2 talked about his vision of collaboration, "We get those partnerships built, and then we get out in the public, and we get them aware of it somehow…You got [sic] to kind of meet them where they're at."

Another structural solution described by the participants was having clear strategic direction for CRR and strong external communication about that strategy. Some of the participants described how all fire service leaders over decades have educated their municipal leadership and communities to focus on the reactive elements like response times and response staff, resulting in fire chiefs being evaluated on those things and those things being what makes headlines. Participant 3 described the problem this way:

> You're not judged by anything on the prevention side. Everything that we have to show… - it's all response times to patient, how long are you on scene? ... How fast was the fire put out? Did you find anybody? All those things.

Participant 9 acknowledged that and described a general solution: "I think as the fire service, maybe we need to turn our attention to the newer things like the community risk reduction and educate [the political body] from a different angle." Participant 5 said, "We need to get some of this program and the data collection to show what the positive impacts are because that helps reinforce the programming and substantiates future resource allocations." Participant 2 offered a description of how he might communicate a need this way:

> If we were to miss a bunch of fire prevention stuff because we were out taking calls, I'd just kind of make it known…in probably a real laid-back setting…to the elected officials that, "Oh, so-and-so over at the school was kind of disappointed we couldn't show up. We tried to get there, but we were out running these [calls].

Code 6B: Mindset

While structural solutions have been easier to define, this research aimed to understand perceptions, attitudes, and philosophies and how fire chiefs have led with those in mind. Therefore, the second code in this theme captured the various methods successfully employed by fire chiefs to change mindsets within their departments or methods they presented as ideas they have for how mindsets might be changed.

Aligning with their leadership philosophy of including staff in the direction and decision-making for their departments, participants talked about guiding their staff to adopt the CRR mindset from within the ranks rather than from the chief officer level. Participant 1 said, “I think it's one that can't be pushed down the throats of membership. It has to be embraced…. It's almost like it has to come from them.” Participant 5 said, “It starts with the line personnel initiating those [case manager] processes, and they've got to understand the programming and be supportive of that programming to initiate that.” Participant 8 said, “It is just getting them to understand it's not necessarily preaching for buy-in; you just kind of throw it at them and watch them take it and run with it.” Participant 7 also talked about strategic directions:

> That internal stakeholder group laid that out where they want to go. And one of them is they want to start an…alternative emergency response, community paramedicine…to address some of the calls that we had.… So those are the wins that we've identified in our strategic plan, and that's where we'd like to be…. And that came from within, not me,

them. So, I think that's how you got to win it. I mean, that's how you can…move forward. It is got to come from within.

Participant 6 suggested that encouraging the line staff to be on the lookout for needs in the community was a way to change mindsets: "Just opening [their] eyes to what's going on and around [them]. You see something, say something type thing, right? 'Okay, I've seen this twice today. Maybe this is something going on in our community.'"

More communication and more focused communication about CRR internal to their departments was one potential solution offered by the participants to help their department members see the value and gain engagement. Participant 6 said, "If you don't keep talking about it, it'll go away." Participant 3 said, "I think emphasizing it more as an organization." Participant 5 talked about communication as a means for driving direction: "Internally in the department, I'd say it's helping the department find that strategic direction." Participant 1 suggested, "Maybe personalize [CRR] a little bit more. And I don't even know how you'd do this, but…give people the personal responsibility and action to actually look at the data, capture it, utilize it, how do we solve it?"

A more specific type of internal communication that several participants talked about was training and educating their existing staff about CRR more. Participant 1 said succinctly, "Yearly education would be great." Participant 6 said, "I think it's about education and making sure that they understand it." Participant 12 said, "I think it's just maybe education; …understand a little bit more about [CRR] and what it's all about. And again, it's not okay to have home fires when we know what's causing them and how we can prevent them." Participant 12 also indicated that his department has educated their officers but acknowledged that might not be enough to bring the department's mindset in line with CRR:

> As part of our Officer Rank Academy, we have specific lessons with our fire marshals. Again, talking about some fire prevention efforts and inspections and all the importance of all of the risk reduction efforts. So, they're getting some education, but again, I think that it never hurts to keep trying or trying different avenues.

Participant 8 talked explicitly about the enforcement portion of CRR and educating firefighters on the importance of the inspections and associated code enforcement. He said:

> Inspections? The fire marshal, he loves it. The [line staff], no. The caveat to that is they really weren't getting the education that they needed for the inspection purposes and why they're really going out and doing that until we got them into some of the real severe places…once they see the worth in it, that's when they start understanding.

Participant 4 bluntly stated, "If those smaller organizations want to cut down on their calls, get out there and educate your people [about CRR]."

A couple of the participants took the education piece further. They suggested that a better way to influence the mindset of the fire service regarding CRR was to include more education about it at the start of firefighters' careers. Participant 1 proposed this idea:

> You'd have to start instituting this in level one kind of stuff…. One of the first things that we do, right? I mean, you learn about fire principles and your gear and this and that, but [CRR] should be one of those things…. Why wouldn't we start learning about things that we do all the time?

When talking about his department's mindset towards CRR, Participant 3 also brought up early career education:

> I think that's a mind shift that has to occur. And I think that starts all the way back into their education where the entire two years,…there is what I would call one solid class out

> of a two-year associate degree that deals with prevention. And maybe there should be more than that.

Participant 2 said, “So, let's go up to [the technical school] and tell these people when they're starting out that [CRR} is part of the job. It's a bigger part than you probably realize.” Participant 7 described changes made to his department’s recruit academy to incorporate that early career CRR education:

> We're trying to establish more robust academies coming in…. But, it was a definite change in the last two years that we saw we needed to do in order to … also implant the seed of community risk.… This is what you'll be expected to do here. Don't ‘pooh, pooh’ your fire inspection thing…. Expect that you're going to be able to have to go help people up. You may have to help them with their catheter. These are things that you may not have been taught in school, but this is [sic] things that we need to do in the community. So, try to change that mindset.

Participants also suggested a couple of times that establishing some form of reward and recognition for CRR efforts may be a way to bring CRR to the forefront of department members' minds. Participant 1 said, “Truthfully, I think people like pats on the back as much as they say they don't. So maybe having a yearly award for it….where you really start to encourage…some people going out taking risks and making a difference.” Participant 6 said, “Sometimes it can even be about finding ways to motivate. It could be awards; it could be ceremonies.”

The other potential solution expressed by the participants was leveraging members who are highly engaged in CRR to help drive a department-wide mindset shift and assist the fire chiefs in developing a CRR focus from within the rank-and-file. Participant 4 said, "I just think

that you have to have a base. You have to have a foundation of it within your organization to get people to continue to do it." Participant 5 talked about their case manager's help in this area:

> We have that case manager…doing some ride-alongs. And there are some crews, and it took a little while, but having that case manager there helps maybe break down some of the walls or barriers and perceptions about what CRR is in our community.

Participant 6 talked about leverage this way:

> It's about finding what [their] passion is and using that to our advantage as a department. That could be a little bit more time-consuming, but everybody has different passions…. Don't make somebody do something if someone else has the passion to do it, and then find that other person's passion and capitalize on all those things, and all of a sudden, you're conquering more objectives than just focusing on one.

Summary

A generic qualitative inquiry was conducted with 12 Wisconsin fire chiefs to gather data about their perspectives, attitudes, and strategies for leadership of community risk reduction. Each participant's responses injected varied, resonant data into the research. This data was analyzed through coding and thematic analysis to develop six principal themes to answer the four research questions posed at the study's outset. The 91 keywords, 14 codes, and six themes provided data about changes to emergency response workload and resources, methods to handle those changes, foundational CRR-related definitions, fire chiefs' roles in CRR, barriers to CRR efforts, and possible solutions to eliminate or mitigate the barriers.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

Summary of the Results

Semi-structured interviews with 12 Wisconsin fire chiefs about call volumes and complexities, fire department resources, leadership philosophies and roles, community risk reduction concepts, and department members' mindsets generated a significant amount of data collected into six themes. These themes provided the answers to the four research questions posed in this study to explore fire chiefs' perspectives, attitudes, and strategies for leadership of CRR.

The first theme, Changes and Trends in Workload and Resources, captured how fire chiefs described the changing landscape of emergency response workload and resource allocation for their departments and communities. The participants confirmed that call volumes are increasing, call types have changed in more complex ways, and a lack of new funding and other resources persists.

The information from the first theme provided the base for the second theme, Methods to Handle the Changes. Direct answers emerged for the first research question about fire chiefs' strategies when addressing changes and trends. In this theme, the data described reactive strategies to address emergency workload increases and proactive strategies to reduce or curtail the increases.

The third theme, Foundational Definitions Related to CRR, was distilled from discussions about risk and what community risk reduction meant to the participants. This data was necessary to gain insight into their understanding of CRR as a starting point for answers to the remaining research questions. The level of understanding across the participants varied significantly. Some focused primarily on broader community engagement for public relations

and public education. In contrast, others spoke of CRR encompassing all aspects of their fire department, and finally, some had answers that fell in between these two.

The fourth theme, Fire Chief's Role in CRR, flowed naturally from discussing the CRR concepts that generated the third theme. Most participants defined their role as supporting, providing the resources of time, funding, staffing, prioritization, and stakeholder support. A handful described their role as a leader or champion. A few also talked about the strategic nature of CRR. The second research question about how Wisconsin fire chiefs view their role in CRR was answered with the results of this theme.

While defining community risk reduction and when explicitly asked about barriers, participants described challenges with the implementation of CRR. This data developed into the fifth theme, Barriers to a Department's CRR, and the answer to the third research question. The barriers to a CRR philosophy within the department were segregated into either structural challenges, like time, money, and staff, or department mindset challenges of ambivalence, dislike, and misunderstanding. Some participants countered the negative mindset data, describing the interest or passion that most of their staff members have demonstrated. The participants also described how attitudes and mindsets based on comparing traditional fire prevention to CRR affected their and their departments' philosophies about CRR.

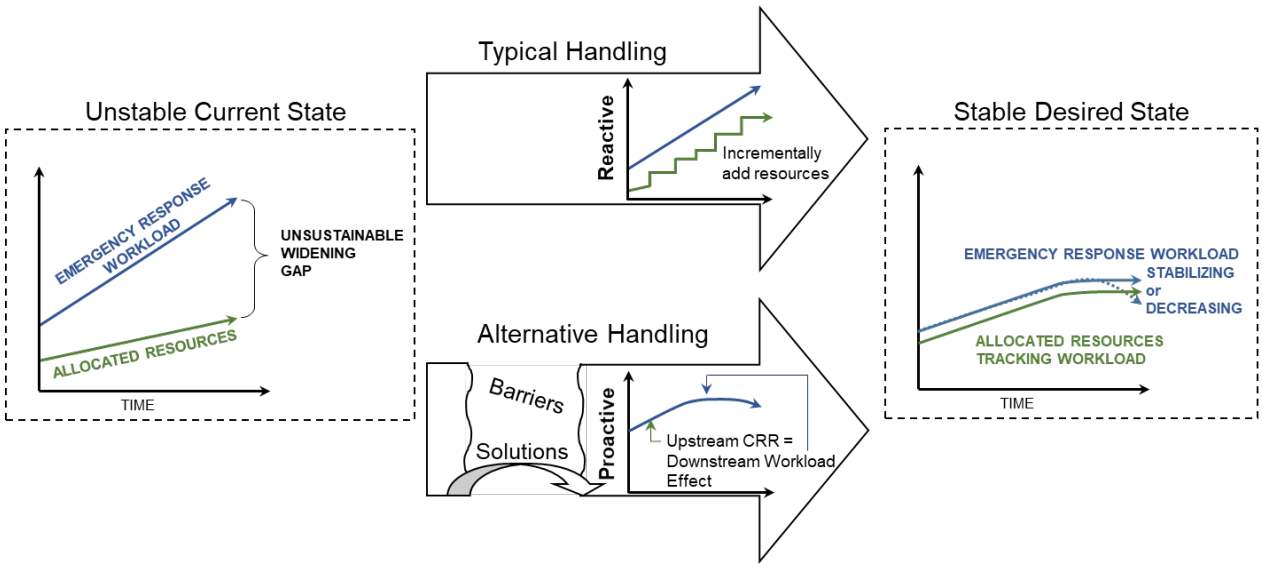
Given that all participants described some barriers to CRR efforts, they were asked about what they have done or what they might do to eliminate the barriers or mitigate their impact. This data led to the sixth and final theme, Solutions to Remove or Mitigate Barriers, and the answer to the fourth research question. The participants described possible solutions to assist them in embedding a CRR philosophy into their departments. These were classified as either structural or mindset-based.

Conclusions Based Upon Your Results

The final step in the systematic thematic analysis process described by Naeem et al. (2023) is to develop a conceptual model from the keywords, codes, and themes that emerged from a study's data to answer the research questions. The conceptual model developed for the conclusions of this study is depicted in Figure 6. An unstable current state highlights the unsustainable gap between an ever-increasing emergency response workload and allocated resources that cannot match those increases. The stable desired state illustrates an emergency workload that remains stable and may even begin to decrease, coupled with resources that track the workload sustainably. Fire chiefs' typical, reactive method for handling the current state is shown. An alternative means to move from the current state to the desired state is illustrated but is shown with barriers in the gap of this handling method. A bridge over that gap represents solutions that can remove or mitigate the barriers.

Figure 6

Exploration of Fire Chiefs' Leadership of CRR – Conceptual Model



The research data supports the problem statement for this study, which is that fire departments face increasingly complex call volume increases without commensurate increases in resources to address these challenges. In terms of basic economic theory, the demand curve is rising while the supply curve is not, creating an unstable economic system. Emergency calls for service are increasing. However, the types of calls increasing in many departments are low-acuity with respect to their emergency level but often require more complex solutions than traditional fire and rescue response or pre-hospital care can provide. The data also illustrates that fire chiefs feel that resource allocations are not keeping up with the workload increases. None of the participants raised the alarm about severe resource curtailments. However, all indicated that they have current needs without indication of when resources for those needs may be funded or otherwise filled. This resource depreciation portends the unsustainability of the fire department operational model as it stands today in the Wisconsin Fire Service.

The data answer the first research question, "What strategies do fire chiefs consider when addressing changes to incident call volumes, incident complexities, and resource allocations?" Building up staffing and modifying how their departments respond to specific incidents or schedule their personnel dominate the reactive strategies being employed or prioritized for consideration by the participants. The data confirms that some fire chiefs see the increasing emergency response workload as reasonable and expected, the "problem blindness" barrier to upstream thinking described by Heath (2020, p. 22).

Refreshingly, however, half of the participants have implemented or advocated for proactive strategies, like adding a community educator or case manager to the fire department or municipal staff. These fire chiefs associate community risk reduction efforts focusing on upstream solutions, such as fall prevention or involvement in assisting the local unsheltered

population, with call volume stabilization or reduction. They see that resources invested on the supply side of the economics equation can reduce or, at least, flatten the growing demand. However, the results also indicate that despite supporting these programs, some fire chiefs whose departments have proactive, innovative programs do not prioritize CRR first overall for investment. A contributing factor to their reticence to prioritize CRR may be the frustration expressed about the longer timelines and complexity of capturing CRR outcomes and returns on proactive CRR investments.

Defining “risk” and “community risk reduction” proved difficult for the participants. Many keyed on specific hazards, risks, or CRR tactics rather than the concepts themselves. The data indicate that no participants could define "risk" completely. Some talked about hazards or probability and chance, but none highlighted the severity of the outcome as a part of the risk definition. When defining CRR, however, some participants matched the industry standard by highlighting the identification and analysis of risk and the development of local strategies to overcome or mitigate the local risks. Data indicate that others grasp CRR as more encompassing than just educating people about fire safety. However, these participants focused more on public relations and the broader community as the highlight of CRR, missing the heart of analyzing and strategizing locally. This is an important finding because a lack of understanding of the base concept can undermine the mindset about the activities built upon these base concepts. Grasping the fundamentals provides the ability to articulate the reasons for specific actions and for undertaking innovation. Fire service leaders without a keen understanding of the details of CRR will not be able to articulate to their personnel or to their leadership to influence why a proactive mindset must be embraced, and CRR investments made.

Many Wisconsin fire chiefs are finding innovative ways to address CRR with different staff positions, programs, and partnerships. A connection between these departments' innovations and those participants displaying a higher understanding of CRR appears evident. However, all the participants support CRR, even those who do not have a complete grasp of its details. No participants equate traditional fire prevention to CRR with a different name.

The data indicate that the participants demonstrate a proactive leadership style in some portions of their purview by focusing on the future, embodying a willingness to learn, and being unafraid of change. However, their descriptions of their leadership roles for CRR indicate that 75% of the participants view their role as "supporters," not "actors." They provide a voice for CRR and resources for others to conduct and champion the efforts. Most participants did not express the need to be change agents for CRR in their departments or to drive a CRR mindset. This is disappointing given that culture is one of the organizational elements that leaders need to create and support, according to William et al. (2020) in their model for leading innovation. If fire chiefs do not see their role as creating the CRR culture within their department while focusing on the future and adapting to change, CRR and its proactive, upstream impacts may not take root.

Several participants also espouse a leadership philosophy that tries to heavily engage and involve the membership in setting the direction. The data indicate that this leadership style may be incompatible with leading innovation, like CRR. Given that many of these leaders indicate that strategic direction setting is intended to be carried out by the internal and external stakeholders, how do those groups set that direction if they do not know about CRR and its potential impacts? A foundation exists for incorporating CRR philosophies and leadership in fire

departments, but the study results show that more investment of thought, energy, and time is needed to change hearts and minds about CRR.

Structural, externally driven issues with funding and staffing are the primary barriers defined by the participants that prevent CRR implementation. Every fire chief conveyed a need for their departments to be more active in some aspect of CRR. However, the barriers that prevent embedding a community risk reduction philosophy or mindset into fire departments are less concrete. Data show that these barriers come from the lowest ranks within a department and from as high as the fire chief position. The data also show that the solutions can flow in either direction.

Many participants talked about varying portions of their staff lacking desire, interest, and motivation to participate in CRR. With the exception of one or two participants, the participants seemed to consider this mindset inevitable, representing another "problem blindness" area. However, the study results provide possible solutions to remove the mindset barriers. These potential solutions focus on increased internal dialog about CRR at all levels and more education and training in CRR – starting as early as the earliest firefighter courses and recruit academies.

Because the fire chief has the most expansive view of the fire department and resource landscape, they are the true gatekeeper for establishing a CRR mindset. Those participants who struggle to connect to the fundamentals and importance of CRR and their place in leading the innovation that CRR represents will continue to struggle with full implementation of CRR. Some see emergency workload increasing as inevitable. Fire chiefs say their leadership and communities evaluate or judge their department performance using emergency response metrics. Therefore, those metrics are what they focus on improving. Community risk reduction performance evaluation requires different metrics based on outcomes (NFPA, 2020, p. 1300-7).

To embed CRR philosophy and actions into a fire department, educating external stakeholders about CRR's opportunities and benefits becomes necessary to drive change in the evaluation metrics. Additionally, fire chiefs need to become more educated on aspects of behavioral public administration to leverage aspects of goal hierarchy and value assignment to also drive change in the evaluation metrics (Hansen & Nielsen, 2022).

Structural solutions to improving CRR implementation through additions of funding and staffing are important for near-term implementation improvement. Positive impacts of CRR actions improve the community in small, incremental ways. The real power of additions of funding and staffing lies, however, in providing the data and examples that come from CRR execution that can change the hearts and minds of the municipal administration and elected officials overseeing resource allocations and of the line staff who witness the impacts first-hand.

Several participants commented that the interview was thought-provoking and may have generated additional ideas about actions to explore within their departments. By the end of the interviews, some fire chiefs appeared to realize they might have to engage more actively in the CRR realm. For example, near the end of his interview, Participant 3 said:

> So, unfortunately…I might be the cause of some of that [negative mindset]. So, I think maybe that starts with me as more of a [sic] emphasis on community risk reduction, prevention. When I have an opportunity,… I feel like I should probably emphasize the importance of it and why we're doing it. And then, if we do have concrete examples of where our prevention activities saved the life or prevented a fall,…share those messages so that they see the value in it. Then, preventing stuff is just as important as responding to things.

Limitations

The limitations of this generic qualitative inquiry research study arise primarily from the small size and composition of the specific population sample. The participants' demographics, departments, and municipalities limit the ability to generalize the conclusions and recommendations due to the inability to represent wide diversity in twelve interviews. However, these limitations are fully understood and were well considered during this study's research, data analysis, and results-reporting stages.

The participants in this study provided rich, meaningful data about their perspectives, attitudes, and mindsets on CRR and leadership. However, 12 fire chiefs cannot represent the full range of leadership views in this area, thus limiting the ability to apply the conclusions and recommendations across the whole of the fire service. For example, one participant in this study alluded to perspectives about CRR expressed by one of his neighboring fire chiefs that did not align with any data gathered during this study.

Regional cultures, operating procedures, challenges, and other factors can also influence mindsets. The participants in this study were all from a single state. Furthermore, due to the small sample size and research schedule, they were not from all regions of Wisconsin and did not represent all municipality sizes or socioeconomic types. This lack of state regional coverage also limits the generalization of results, conclusions, and recommendations.

Other participant demographics that may create limitations include the lack of gender, race, and generation diversity. The potential impacts of these factors were expected to be minimal for this research's topic and purpose, but the researcher recognizes them nonetheless as limiting the viewpoints gathered.

By design, this study's population sample was also constrained to the chief of the fire department, thereby generating data about the leadership of CRR from a specific position and role. Without the inclusion of other levels of the command staff, a more encompassing application to the leadership of CRR is limited with this data. Furthermore, the study was limited to departments with at least one person in a designated CRR role. Therefore, small departments with no, or very limited, full-time staff were excluded from the study, posing further limitations on the applicability to the entirety of the fire service.

Implications and Recommendations to the Field

This exploratory research study looked to diagnose the mindset of fire service leaders and, to a lesser extent, fire department members toward community risk reduction. The results illustrate that fire service leaders need to direct a significant philosophical shift to embrace CRR in a proactive mindset at individual and organizational levels for the betterment of their departments and communities. The expected outcome of this philosophical shift is a systematic reduction in emergency response workload, thereby reducing, or at least slowing, the growth in the need for downstream resources (Donahue & Hendershot, 2021; Heath, 2020; Southwick Jr. & Butler, 1985). The following recommendations emerge from the exploration's data.

First, fire chiefs need to understand the concepts of risk and community risk reduction before setting out to influence mindsets. They need to recognize hazards or adverse events, probabilities, and severities or consequences completely before conducting risk analysis or risk management. Fire chiefs also need to understand the elements of community risk reduction before guiding the development of a CRR plan or implementing programs. CRR is local, analysis-driven, collaborative, and strategic. Grasping these fundamental building blocks will

assist fire chiefs in developing and embracing the proactive mindset needed to apply that knowledge and influence the departments and their municipalities.

In public safety, it is common to evaluate department performance solely on emergency response elements without incorporating risk reduction efforts. Emergency response measures do not fully describe the public's vulnerabilities or the full scope of outcomes toward which fire departments work. Developing mechanisms for better performance evaluation is recommended. One such mechanism is better applications of Cost Benefit Analysis techniques in the fire service. Another may be revisiting and revising past fire service supply and demand economics research to extract supporting indications of CRR investment benefits and influencing factors (Ahlbrandt, 1973; Duncombe, 1991; Ohls & Wales, 1972; Southwick Jr. & Butler, 1985). Other performance evaluation means may require leaders to take risks in implementing programs or processes that will generate data helpful in refining strategies, communicating needs, and changing philosophies. The counterpoint to this recommendation, based on behavioral public administration research, is not to rely on performance measures alone. Overused performance measures can dehumanize outcomes and erode long-term strategies, counteracting efforts to influence mindsets towards proactive philosophies.

Fire chiefs need to talk about CRR openly and often to raise awareness, emphasize the benefits to the department and the community, and lead public safety innovation. Frequent, positive communication with internal stakeholders will influence their mindset and help them to incorporate small steps and actions that identify the benefits of CRR on which to build. From those small steps, recognized and rewarded, staff will begin to develop and drive CRR strategies and efforts from their street view. External communication with municipal leadership, elected

officials, and community members will educate all these groups about the full range of a fire department's operations to make them better-informed decision-makers.

Department staff needs to be educated about CRR routinely, not once. While training in public education tactics may be necessary, that is not sufficient education to influence department members' mindsets. Staff must have the same foundational building blocks regularly reinforced about risk and what CRR is, why CRR matters, and, when available, the data that shows CRR's impact. This education needs to begin with new people in their earliest education for their chosen career and even for those exploring it. They need to be given the opportunities early to understand what the fire service encompasses – not to scare them away but to help them embrace the scope and develop a proactive mindset. The fire service's newest members may be the most likely to generate the most innovation in CRR. The cautionary note to this recommendation is that the right person has to be the one to introduce the newest members to CRR; someone who does not embrace a topic will not provide the best education about it.

Recommendations for Future Research

Due to the lack of existing research about community risk reduction leadership and the application of upstream philosophies to the fire service, widespread opportunities are available for future research. The most straightforward extension of this study is to broaden the population sample. A study with more fire chiefs, chiefs from more regions, or chiefs representing more diversity of age, gender, and race will foster generalization of the results and uncover the effects of these additional variables. Valuable research about the proactive mindset perceptions and attitudes of company officers and command staff chief officers at ranks below the fire chief is another possible extension of this study to facilitate additional generalizations or comparisons. Conducting a similar study with volunteer fire chiefs would also benefit the fire service, given

the high percentage of volunteer fire departments in the United States. Barriers to embedding a CRR philosophy and the solutions for those barriers may differ significantly in that population.

This generic qualitative inquiry research generated abundant exploratory data to use as the foundation for more directed research into any one of the themes. The most obvious need in this arena is to study how upstream interactions affect the fire service. Several participants indicated the need for more data to support allocating more resources in this area, but all expressed difficulties with resources or the expertise to generate that data.

Another specific area of future research that surfaced during the interviews was the need to investigate the risks and benefits of non-traditional fire roles in departments. Participants often discussed the need to hire civilians or other non-response staff to implement CRR programming. The researcher questioned the potential for this structural solution to create silos that do not support a department-wide proactive mindset, but exploring that question was outside the scope of this study.

The literature review and the results of this research solidify the need for additional foundational research within the fire service surrounding the relationships of leadership to community risk reduction. As collaborative municipal leadership becomes more commonplace and fire departments branch out of their all-hazards response mentality, research and education of fire service leadership to develop proactive best practices is needed. Benefits from research into the fire service's relationship to behavioral public administration, behavioral economics, innovation leadership, proactive motivation, the effects of social capital, and more are readily apparent.

Conclusion

Through hours of discussion about community risk reduction, barriers to CRR, and possible means to removing those barriers, the researcher explored fire chiefs' attitudes and perceptions about their roles in community risk reduction. While the participating fire chiefs could not provide clear and concise explanations of CRR, they all have some awareness and interest in it. They appreciate the broader scope and deeper reach that CRR represents for their departments and their communities. However, many need more clarity about CRR so that they can better formulate their leadership of it. The participants also see barriers preventing embedding a proactive CRR mindset in their departments, but they may have some blind spots in their mindsets.

The research results, conclusions, and recommendations present a current state of instability in the fire service with respect to emergency workload and resource allocation and provide a vision for the future desired state of stability in those areas. Diagnosis is provided of some constraints that leaders may perceive about shifting department and fire service philosophy toward a proactive mindset. The research also outlines possible solutions for fire chiefs in addressing obstacles to adopting CRR. Rich, plentiful, exploratory data about the leadership of CRR provides numerous future research opportunities to move beyond the exploration and diagnosis of the adaptive challenges presented here. Actionable recommendations as starting points are also available from this research.

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TABLES

FIGURES

Appendix A

Introduction Emails

E-mail to Select Wisconsin fire chiefs

Dear Chief:

I am writing to see if you might participate in my capstone research project's study of fire chiefs' leadership of Community Risk Reduction (CRR). This capstone project will support my completion of the National Fire Academy's Executive Fire Officer Program. The project has no affiliation with my employer, the Grand Chute Fire Department.

Many fire departments face challenges as incident call volumes increase, incident risks and complexities increase, and resources plateau or decrease. I am interested in learning more about proactively addressing those challenges through upstream actions and mindsets. My research aims to explore fire chiefs' perceptions of and strategies for proactive resource deployment, organizational structure, and department mindset relative to community risk reduction (CRR).

Very little research exists in this area, so this study will be primarily exploratory. As a starting point, I am focusing on the '5-bugle' perceptions, attitudes, and beliefs about CRR leadership. Fire chiefs in Wisconsin were chosen to create consistency because you follow the same state statutes, operate in similar municipal and department structures, lead similarly educated firefighters, and face similar challenges and regional tendencies.

One additional qualifying criterion for participation is that your department must have at least one designated full- or part-time position, sworn or civilian, for community risk reduction or fire prevention. This could be anything from a single part-time public educator or fire inspector to a complete fire prevention bureau.

To participate, you would complete a required Informed Consent Form, a Demographic Information Collection Form, and a one-on-one interview with me in person or via virtual meeting software. Demographics include basic information about your community, your department, you, and your experience for possible correlation purposes only. Participation is completely confidential; no identifying information about you, your department, or your community would be presented in the report. The interview is expected to take approximately 60-90 minutes and will be scheduled at your convenience. My goal is to have the interviews complete no later than Tuesday, February 20. To ensure the credibility of the results and unbiased analysis, I will also share my preliminary findings from your interview to gather your feedback about whether these findings align with your intent.

The final results, conclusions, and recommendations would be shared with you. My desire is that you would find the interview process and the research results insightful and applicable for the continued leadership of your department and its existing or future challenges.

If you are interested in participating, please e-mail, call, or text me at your earliest convenience so I can send you the preliminary documents and schedule a meeting. You are also welcome to reach out with any questions you may have. Please be aware that, at the suggestion of our program manager, I am also sending an introduction to your municipal leader to request their support for your participation.

Very respectfully, <e-mail signature with contact information>

E-mail to Fire Chiefs' Municipal Leaders

Dear <Municipal Leader> (Mayor or City Administrator, Village President, Town Administrator, Fire District Chairperson):

I am an assistant fire chief responsible for community risk reduction (CRR) and health and safety for the Grand Chute Fire Department. I am working on a capstone research project supporting my certification as an Executive Fire Officer (EFO), a leadership development program administered by the National Fire Academy. I am writing to request your support of the possible participation of your municipality's Fire Chief in my research. This project has no direct affiliation with my employer.

A similar email was sent to your Fire Chief inquiring about their interest in participating. After reading the information below, please let me or your fire chief know if you do not want your fire chief to participate. Participation is entirely voluntary and may be ended at any time.

Many municipalities face challenges as public safety incident call volumes increase, incident risks and complexities increase, and resources plateau or decrease. I am looking at potential opportunities to address those challenges proactively through upstream actions and mindsets in the form of Community Risk Reduction (CRR) efforts within fire departments. My research aims to explore fire chiefs' perceptions of and strategies for proactive resource deployment, organizational structure, and department mindset relative to CRR. I expect to gain some insight into fire chiefs' struggles in leading CRR efforts and into what solutions may be available to assist in overcoming any potential struggles.

Very little research exists in this area, so this study will be primarily exploratory. I have chosen to focus specifically on the perceptions, attitudes, and beliefs about CRR leadership of the Fire Chief – the department head – as a starting point. Fire chiefs in Wisconsin, specifically, were chosen because they follow the same state statutes, operate in similar municipal and department structures, lead similarly educated firefighters, and face similar challenges and regional tendencies.

Your fire chief would be asked to complete a required Informed Consent Form, a Demographic Information Collection Form, and a one-on-one, semi-structured interview with me for 60-90 minutes in-person or via virtual meeting software. Limited demographics for general reporting and possible correlation purposes are all that will be collected. The individual, department, and community participants will remain confidential throughout the process and reporting. This data collection activity will all take place very soon, as my goal is to complete the interviews no later than Tuesday, February 20.

The final results, conclusions, and recommendations will be shared with the Fire Chief and provided to you directly if you are interested. My desire is that your fire chief would find the interview process and the research results insightful and applicable for their leadership of the fire department and its existing or future public safety challenges.

Please feel free to reach out with any questions you may have.

Very respectfully, <email signature with contact information>

Appendix B

Interview Protocol

Interview Protocol

Participant # _____ Interview Date: _____ Interview Time: _____

Interview Location: _____

Recording Filename(s): _____

Interview Introduction: [*Introduce myself again and provide a small amount of my background.] The purpose of my research is to explore Fire Chiefs' perceptions, attitudes, and strategies around proactive resource deployment, organizational structures, and department mindsets with a focus on community risk reduction. I expect to gain some insight into fire chiefs' struggles in leading CRR efforts and into what solutions may be available to assist in overcoming any potential struggles. You have signed the informed consent form and provided your demographic information to me already – thank you! Do you have any questions about that preliminary information?*

I have 13 content questions related to the purpose of this study to provide some structure to the interview. I may also ask some follow-up questions with some of them, but I will let you know what question we are on as we move through the interview. This is intended to be a conversation, so please do not feel constrained by the question wording. If you think of something related, please share it with me. Also, please ask any questions you have at any time.

You may end this interview at any time. As was noted on the consent form, your participation is entirely voluntary, and if you wish to withdraw from this study at any time, notify me of that desire.

Demographic Information Collection Form Received:☐

Informed Consent Form Received: ☐

Opening (Preliminary) Question – Tell me a little about your department and your leadership philosophy as chief of the department. *Possible follow-up – tell me about how you approach decision-making for your fire department?*

Content Questions:

1. How have call volumes, call types and complexity, and resource allocations changed for your department and community in recent years?

2. How have you reacted to these changes?

   Possible follow-ups
   - Reacted = addressed - Added staff, changed deployment models, looked at shared services / consolidations, etc?
   - "You" - fire chief and "you" department, if different
   - Tell me more about the leadership aspects or challenges of managing these changes?

3. What strategies would you use to address the changes to call volumes, call types / complexities, and resources if you had no limitations?

   Possible follow-up – If budget were not a constraint, …

4. How do you define risk?

   NFPA 1300 defines risk as "a measure of the probability and severity of adverse effects that result from exposure to a hazard"

   Follow-up – How do you assess or measure risk?

5. How do you define community risk reduction in the fire service?

   Possible follow-ups
   - What is your idea or definition of community?

6. How do you view your role in community risk reduction?

   NFPA 1300 define CRR as a "process to identify and prioritize local risks, followed by the integrated and strategic investment of resources to reduce their occurrence and impact"

   Possible follow-up – Given this definition, how might you view your role differently?

7. What community risk reduction efforts does your fire department engage in?

   Follow-ups
   - Ask about "outreach efforts" if they seem to struggle with CRR.
   - Explore programs (some topics may not be considered CRR to some chiefs – community education / awareness, inspections, investigations, enforcement, social media campaigns, ...)
   - Does your department have anything regarding CRR embedded in your department documentation, planning, or other "doctrine"? For example, is it in your strategic plan, annual reporting, website, other departmental communications – internal or external?
   - Do you measure or have a plan to measure the effectiveness of these efforts?

8. What constraints or barriers, if any, impede your department's community risk reduction efforts?

   Possible follow-up – Have you had ... (if there are none now)

9. What do you perceive are your department members' attitudes, mindset, philosophy toward community risk reduction?

   Possible follow-ups
   - What do you think about when you hear 'proactive mindset' relative to the fire service?
   - How do you impact your department members' attitudes toward CRR?

10. What constraints or barriers, if any, hinder your department members' mindset toward community risk reduction?

    Possible follow-up – Have you had ... (if there are none now)

11. [If constraints/barriers identified in Q8 or 10, ask 11] You identified some constraints or barriers in previous questions. What would help you address any of those?

    Possible follow-ups
    - Are there any past strategies or solutions that you have employed successfully?
    - What defines "successfully" for you?

12. What is different between 'traditional fire prevention' and community risk reduction?

13. If cost constraints were not an issue, would you invest further in community risk reduction and if so, how?

Final Question:

14. Is there anything else that you think is important for me to know or ask about that we did not already discuss?

Interview Conclusion: *Thank you for your time. I want to remind you that the contents of this interview are confidential. The recordings will be destroyed at the conclusion of the study. I would be happy to share the abstract of my paper or the full report with you if you are interested in the results now or at any time in the future. Do you have any other questions for me? [Ensure participant has a copy of their consent form.]*

Appendix C

Interview Consent Form

Interview Consent Form

Identification of Investigators & Purpose of Study

You are being asked to participate in a research study conducted by Kelly Hanink from the National Fire Academy (NFA) and Columbia Southern University. The purpose of this study is to develop a better understanding of a critical issue in the fire and emergency services. This study will contribute to the researcher's completion of their final project for the Executive Fire Officer program.

Research Procedures

Should you decide to participate in this research study, you will be asked to sign this consent form once all of your questions about the study have been answered to your satisfaction. The study consists of an interview that will be administered to individual participants. You will be asked to provide answers to a series of questions related to your experience within a particular community. **An audio and a video recording of the interview will be taken for transcription purposes. The audio and video files will be deleted at the conclusion of the study and will not be shared with anyone other than the researcher.** You may turn off your camera if you do not wish to be filmed.

Time Required

Participation in this study will require approximately 60 minutes of your time.

Risks

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

The NFA, Columbia Southern University, and its contractors take no responsibility for the actions or outcomes of the research study.

Benefits

There are no direct benefits to the participant; however, information from this study may benefit your, and other communities, in the future.

Incentives

There are no incentives (financial or otherwise) associated with participation in this study.

Confidentiality

The results of this research will be presented to NFA and Columbia Southern University program faculty and students. The results of this project will be coded in such a way that the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. While individual responses are confidential, aggregate data will be presented representing averages or generalizations about the responses as a whole. All data will be stored in a secure location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers (including audio and video recordings) will be destroyed. Final aggregate results will be made available to participants upon request.

Participation & Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind.

Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion, or you would like to receive a copy of the final aggregate results of this study, please contact:

Kelly Hanink
Student
National Fire Academy
kelly.hanink@grandchutewi.gov

Dr. Justin Heim
Course Manager
Columbia Southern University
Justin.Heim@columbiasouthern.edu

Giving of Consent

I have read this consent form, and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have received satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18-years of age.

☐ I give consent to be filmed and audio recorded during my interview. _____ (interviewee initials)
☐ I give consent to be audio recorded during my interview. _____ (interviewee initials)

Interviewer Signature		**Date**:	

Interviewee Signature		**Date:**	
Interviewee Signature		**Date:**	

Appendix D

Demographic Information Collection Form

Demographic Information Collection Form

Please complete the following form to provide as much demographic information as you are willing to share.

Community

2023 (est) Total Population _____

2023 Total Incidents _____

Department Type

Career	☐	EMR	☐
Combination – Mostly Career	☐	EMT-B	☐
Combination – Most Volunteer/Part-time	☐	Paramedic	☐
Volunteer	☐	Transport?	☐

Department Size (at the end of 2023)

Sworn Full-time Personnel _____

Part-time Line Personnel _____

Full-time / Part-time Civilian _____

Department Budget

2023 Total _____

2023 Community Risk Reduction/ Fire Prevention Line Items _____

2023 Community Risk Reduction/ Fire Prevention Personnel Costs (Salary + Benefits) _____

Department CRR Positions

List full and part-time CRR staff position(s). If possible, please provide the percentage of a Full-Time Equivalent that any part-time staff position represents.

_____

_____

_____

_____

Participant Experience (in years)

Chief of Department _____

Total Fire Service _____

Total Professional _____

Participant Age

60+ ☐

55-59 ☐

50-54 ☐

45-49 ☐

40-44 ☐

35-39 ☐

30-34 ☐

Under 30 ☐

Participant Gender

Male ☐

Female ☐

Non-binary / Other ☐

Participant Race

Hispanic or Latinx ☐

Not Hispanic or Latinx ☐

American Indian or Alaska Native ☐

Asian ☐

Black or African American ☐

Native Hawaiian and Other Pacific Islander ☐

White ☐